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Simon McGrath · Martin Mulder  
Joy Papier · Rebecca Stuart  
*Editors*

# Handbook of Vocational Education and Training

Developments in the Changing  
World of Work

 Springer

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Joy Papier • Rebecca Suart  
Editors

# Handbook of Vocational Education and Training

Developments in the Changing World of  
Work

With 112 Figures and 107 Tables

 Springer

*Editors*

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*In commemoration of Curtis Rensselaer Finch (1939–2018), Virginia Tech Professor Emeritus, senior author of Curriculum Development in Vocational and Technical Education through five editions, for his worldwide inspirational leadership in the development of vocational education and training research.*

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## Preface

The field of vocational education and training (VET) studies is maturing rapidly, as is evident from the mushrooming of new journals, the expansion of the volume of research, and the widening of international cooperation by international VET institutions. Increasing policy emphasis on VET, especially in developing contexts, indicates that there is a realization of the potential of VET for the socioeconomic and cultural development of nations and regions, and the impact it could have on the personal and professional lives of people across the globe.

While millions of learners participate in formal vocational learning at any moment in time, billions daily experience on-the-job training, learn craft skills in their families and communities, and are learning new skills, techniques, and knowledge online. VET stakeholders are questioning the content of the curriculum, realizing that students need to be prepared for a future that is largely unknown, but is likely to be radically different. The design of vocational education and training programs now focuses not only on work-related tasks and activities, but also on generic competencies like learning to learn, problem solving, critical thinking, innovation, and transformation. Students have to be prepared, *inter alia*, to cope with change; to grow their knowledge, skill, and creativity; and to contribute to developing new products and processes. In spite of the critical responsibilities attached to it though, vocational education remains marginalized in educational debates that privilege schooling, and more perversely higher education, which gets attention because of its status rather than scale.

With almost 100 chapters from an international group of authors, this VET handbook is a step toward redressing this imbalance. It considers the changing worlds of work to which VET must respond, as well as insisting that VET should not be narrowly seen to cater only for the formal economy. Issues of economies of care, the challenge of sustainability, planning, and finance are considered, as are the rise of private provision and the role of training in enterprises of varying sizes. The handbook also considers the evolving nature of vocational learning and how this intersects with curriculum and instruction, with a particular emphasis on the major debates about competence that have characterized the field for a quarter century. Since learning cannot be considered in isolation from teaching or the education of teachers and instructors, this is another strand of the handbook that flows into discussions on the measurement of both instruction and learning. While the

learning-teaching dyad is of vital importance, recent years have seen a heightened interest in questions of wider learner support; hence, a section is directed to this growing debate.

Understanding that both scale and context matter, the handbook brings together chapters that examine these issues from the perspective of small-scale and detailed empirical work through to national and comparative surveys. As well as reviewing what exists and the gaps therein, the handbook is future-focused in identifying promising new directions in research and development.

While this handbook is entirely new in its content, it builds on the groundwork done in the foregoing Springer handbook edited by Rupert McLean and David Wilson titled *International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning*. It was precisely because that previous work covered so much ground so effectively that here we could take directions which reflect major shifts in VET research in the past decade.

We hope this handbook will inspire readers to reflect on the continuous improvement of VET policy development, international cooperation, teaching and learning, initial teacher education, continuing professional development, education innovation and administration, and research – all of which will ultimately lead to real improvement of vocational education and training practices.

Nottingham, UK  
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Cape Town, South Africa  
Nottingham, UK  
July 2019

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## About the Editors



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**Martin Mulder** is professor emeritus of education and past chair of the Department of Education and Competence Studies of Wageningen University, the Netherlands. Most of his recent research is in the field of competence-based vocational, professional and higher education, and training and development. He recently edited *Competence-Based Vocational and Professional Education: Bridging the Worlds of Work and Education* (Springer, 2017). He (co)authored and edited numerous books and articles in peer-reviewed scientific research journals in the field of vocational education, higher education, teacher education, science and engineering education, technology-enhanced learning, management, entrepreneurship, and mainstream educational research. The work of Mulder has been widely acknowledged. He received an Outstanding Reviewer Award of the *Journal of Workplace Learning* twice (2017 and 2018), the European Researcher of Vocational Education and Training Award by the European Commission (2016),

and is an honorary member of the Vocational Education and Training Research Network of the European Educational Research Association (since 2011). Furthermore, he has several more awards from Dutch, American, Asian, and other European organizations. Martin Mulder has served, and still serves, on a number of editorial committees of international journals and held various leadership positions in national, European, American, and world educational research associations. He has presented his work widely in Europe, the Americas, Africa, and Asia. Currently, he is a member of the Academic Board of NCOI and an independent consultant in the field of education and training. He maintains his own website [www.mmulder.nl](http://www.mmulder.nl)



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**Rebecca Suart** is a Postdoctoral Researcher in TVET at the Centre for Education Research Innovation. She completed her Ph.D. at the University of Nottingham, and her research focuses on VET systems within the English Further Education sector for adult learners. More specifically, her focus is on gender and social inequalities, learner aspirations, learning careers, capabilities, and human development approaches. Additionally, her research interests include post-compulsory vocational education, pre-teaching degrees, management and leadership, and supporting learners. Rebecca has worked within vocational skills training at various Further Education colleges in England for more than 15 years. She has held several positions, including vocational lecturer and curriculum management of a broad range of vocational specialisms from fashion to catering. Rebecca is particularly proud of her work on skills competitions. She set up two Further Education Skills Competition Council committees to plan and host competitions across the UK. These competitions proved to be so successful that they provided entrants and medal winners at World Skills competitions.

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**Part I**

**The Changing World of Work**

***Margarita Pavlova and Salim Akoojee***



# Skills Forecasts in a Rapidly Changing World: Through a Glass Darkly

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Rob Wilson

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## Abstract

*Through a glass darkly* is a phrase that has inspired the titles of many works. It implies an obscure or imperfect vision of reality. This is very apposite in the context of individuals making career choices and educational investment decisions. Frequently criticized as unnecessary, misleading, and even impossible, skills forecasts are an attempt to add some light. Now a key element in economic and labor market policy in many parts of the developed world, they also provide a benchmark for debating whether the education and training system produces skills appropriate for the labor market.

Globalization, technological change, and demographic developments are changing the world of work, as well as the provision of education and training,

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in dramatic ways. The ever-growing importance of services (in terms of shares of total employment), continuing impacts of ICT including robotics, and a myriad of other factors are changing the nature of work and employment.

Nevertheless, many clear trends emerge that can help those having to make career choices or decide on priorities for investment in human capital make better informed decisions. Policy makers worldwide are keen to try to match skills supply with rapidly changing demand, but perfect matching is probably a chimera in all but the most tightly controlled and planned economies.

This chapter argues that regular skills forecasts are essential in a modern labor market information and intelligence system to ensure economies and labor markets function efficiently. While both precise and detailed forecasting and matching of supply to demand are impossible tasks, it is important that all participants in the labor market are well informed about the world around them and about future prospects. Systematic, consistent analysis and projections, based on sound historical data, can provide such information.

Skills forecasts can inform education and training providers, as well as individuals making career choices, about their best options. Of course, nobody has a crystal ball. The chapter also sets out the problems and pitfalls associated with such work, alongside the case for its continuation on a regular and well-founded basis.

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**Keywords**

Skills forecasts · Occupational projections · Career choices · Technological change · Globalization · Skills anticipation

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**Introduction**

Globalization, technology, and demography are leading to major changes in economies and labor markets across the world. Concerns about job losses, problems caused by aging populations, and migration, as well as maintaining productivity and economic growth, are all tied up with skills. Does the economy have the skills needed to meet these challenges? Can the problems caused by skill shortages and surpluses be avoided?

This chapter outlines why skills are important, how they are defined and measured, and how the demand for skills is assessed. The key drivers influencing the demand for skills are summarized. The chapter then sets out the case for regular and systematic assessment of skill needs, now and in the future, as part of the broader labor market information and intelligence system (LMIIS) needed to ensure that labor markets work efficiently. It argues that such work is a public good that should be centrally funded by the state. Different approaches to skills forecasting are reviewed and methods critically assessed. While the notion of maintaining a perfect match between skills supply and demand remains a chimera, a good LMIIS is increasingly recognized as a key part of economic, labor market, and education policy by governments across the world (Dickerson and Wilson 2017).

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## Why Skills Are Important

Work remains the key mechanism by which most people earn a living and why they get out of bed each day. For some it is a chore, but for many others it defines who they are and why life is worth living (Wilson 2013).

From an individual's perspective, skills are the key to obtaining and keeping a job. The skill set that an individual possesses is in part determined by mother nature and in part honed by nurture, education, training, and experience (learning by doing).

From a broader societal/government perspective, skills are seen as the key to productivity and economic growth. The importance of skills in modern economies, at both micro- and macro levels, is therefore widely acknowledged. Skills are key determinants of both earnings and employment (and hence the distribution of income). The demand for and supply of skills, and the matching of the two, are therefore issues of key concern to government.

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## Defining and Measuring Skills

The definition and measurement of skills is not straightforward and the subject of much debate. Skills are *defined* in many ways (Green 2013). They are traditionally *measured* by proxies such as occupation or formal qualifications.

The classification of jobs by occupation is the most common measure of skill in most countries (as pioneered by the US BLS and used in other countries) (e.g., the UK's *Working Futures* series, Wilson et al. (2016a)). Occupation has the virtue of being easy to measure in employer or household surveys. Jobs are regarded as bundles of skills. The changing occupational composition of employment when disaggregated can therefore provide a useful indication of changing skill requirements.

More recently the emphasis has been on direct measures based on job requirements or task-based assessments focused on employers and individuals. Surveys of employers suggest they are interested in "generic" or "core" skills rather than formal educational qualifications. Core or generic skills include literacy, communication skills, "interpersonal skills," and "adaptability" although the latter are as much personal characteristics as competences that can be taught and acquired (see Green 2008 for details). These so-called "soft" skills are much more difficult to quantify, although a number of serious attempts to do so have been made. The US O\*NET, the German BIBB/IAB systems, and (on a more modest scale) the UK Skills and Employment Surveys (Felstead et al. 2015) all involve recording the generic tasks and skills used in jobs in surveys or other assessments.

The most commonly used indicators of skills within jobs are educational attainment (such as numbers of years of full-time study completed or formal qualifications acquired). These also have the virtue of being easy to measure in household and other surveys. But they are poor proxies for skills utilized in employment. They focus on the situation before labor market entry. Formal qualifications, especially



those of a more academic nature, may have only a loose link with skills needed on the job. Many of the latter will be acquired while working on the job (often over many years) and are not accredited in a formal fashion. An increased flow of better qualified people does not imply that these skills will be fully utilized. Occupational qualification upgrading may result (credentialism) rather than real changes in skill requirements.

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## **Assessing the Demand for (and Supply of) Skills**

The term “demand for skills” is often used very loosely. It is important to distinguish who the demand is from. Demand from employers arises from their need to employ labor in order to produce the goods and services that they sell. This is well represented by the changing patterns of employment by occupation. Demand from employers can be gauged from information on numbers employed as well as indicators such as unfilled vacancies or other measures of employer perceptions of the situation (e.g., as in the UK Employer Skills Surveys (UK CES 2016)).

This is often confused with demand from individuals when discussing the kinds of courses of education and training they may take in order to acquire skills and formal qualifications. This makes sense from the point of view of education and training providers – it is “demand” for their services. However, from the broader perspective of the demand for and supply of skills in the economy and labor market as a whole, it makes more sense to regard this as an indicator of supply (i.e., investment by individuals in acquiring the skills that they can offer (supply) to employers).

Information on the supply of skill generally is available from trends in labor market flows (e.g., the number of people achieving different qualifications from schools, colleges, and universities) as well as stocks (the number of people who have various qualifications or skills, including whether or not they are economically active).

Vacancies and unemployment can also be used as indicators of the current balance between demand and supply, alongside other measures such as the wage returns to qualifications. Recent evidence in the UK suggests a decline in the average returns for a degree, but increasing heterogeneity in returns by subject area (Britton et al. 2016). However, such estimates do not indicate future rates of return. It is a picture based on looking through the rearview mirror.

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## **Drivers of Change in the Labor Market**

Reviews such as that by Wilson (2013) and others (see, e.g., Karoly and Panis 2004) suggest that there are three main drivers of change in the labor market: technological change, globalization, and demographics. Together they determine the demand for different goods and services (from consumer and other sources, as incomes have risen), as well as where these goods and services are produced (and by whom).

Individually, and in combination, these three drivers are affecting the structure of employment by sector and within that the pattern of demand for skills (as measured by occupation and qualification). These factors are moderated by economic considerations, including international competition and trade.

For the past few decades, information and communication technologies (ICTs) have been a dominant factor in *technological change*. Some argue that this is coming to an end and other technologies are taking over (e.g., Cliff et al. 2008). However, it seems likely that the interaction of ICT with other technologies will remain a key factor determining labor market change for the foreseeable future. Concerns about the impact of robotics and artificial intelligence on those parts of the economy that manufacture things, as well as in services, continue to headline much political and economic debate.

ICT has changed the way the economy and labor market work, as well as the way people live and control their working lives and social activities. Robots are coming to dominate production in much of the manufacturing industry. Increases in computing power mean that what once required a machine filling an entire room can now be accomplished on a handheld device (or one strapped to a wrist).

The massive increase in data and information available, and the ease with which it can be processed and analyzed, has created new markets and offers up ever more ingenious ways of exploiting this situation. The pace of change seems likely to continue if not accelerate. Although there are some signs of physical limits to the exponential increase in computing power, the scope for combining technologies and of unexpected interactions between them will probably continue to maintain the pace of change for some time yet. “Moore’s law” is based on the empirical observation that physical computing power has doubled every 2 years or so. The end of this exponential pattern has often been predicted, but developments in nanotechnology, etc. seem likely to see it continuing for some time (Kurzweil 2005).

And just because something is technically feasible does not mean it will necessarily happen (Baldry 2008). Outcomes are shaped by social and economic considerations and constraints. Particular technologies have frequently made many people redundant or jobs obsolete, but that does not mean that employment as a whole is reduced. New technologies generally result in new job opportunities. Whether these generate sufficient jobs to offset the job losses depends upon the market. Many of the initial predictions of the impact of ICT were for mass unemployment (Jenkins and Sherman 1979). More considered analysis, recognizing the importance of market adjustments, came to less pessimistic conclusions (Whitley and Wilson 1987). The same will probably be true of the latest round of change, although that may not be much comfort for those negatively affected.

ICT has also had a huge impact on the geographical location of work and jobs both locally (Green 2009) and on a much broader geographical scale (globalization). The end of conventional work patterns, with remote working and telecommuting becoming increasingly prevalent, is one aspect of this. Shifting patterns of global investment, with multinational companies moving capital around with increasing ease, is another.

Authors such as Friedman (2005) argue that *globalization* (in part facilitated by ICT and moderated by economic and political factors) means that there is no longer any certainty about where work will be done and by whom. He emphasizes that the world is now “flat,” a level playing field that everyone can compete upon. Reduced transport and communication costs open up the possibility of outsourcing to take advantage of significantly lower costs for labor and other factors of production, affecting the distribution of work on a global scale.

*Demographics* is the other main driver of change in labor markets. In most developed economies, the key features are a significant increase in the average age of the population, falling birth rates, and rising flows of inward migration (Bosworth 2008). For many developing economies, the issues are somewhat different with outward migration being of greater concern. These trends have significant implications for the structure of demand for goods and services (e.g., rising demand for health care from an aging population, as well as the ability of the labor market to meet the derived demand for skills to supply that care).

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## Key Trends in the Demand for Skills

Analysis of key trends in the demand for skills across most developed economies shows many similar patterns (see BLS 2016; Wilson et al. 2016a, c). In the USA, the UK, and in Europe, the long-term shift in employment from the primary sector (especially agriculture) and traditional manufacturing industries toward services and the knowledge-intensive economy is a key feature. It is services that have provided the main source of new jobs in recent years (although there are some exceptions such as those Eastern European countries which have benefitted from inward investment in manufacturing as a result of lower labor costs). Soon, three quarters of all jobs in the European Union (EU) are expected to be in services. It is private services which have seen the most rapid employment growth. Education and health (which fall under the heading of non-marketed services in many countries) have also grown very rapidly. These patterns are generally expected to continue, despite the impact of technological change in areas such as banking and distribution.

These changes in the sectoral structure of employment have had a direct impact on the demand for particular occupations and qualifications, as well as other aspects of skills. This has been reinforced by changes in the patterns of employment (skills demands) *within* sectors (driven by skill-biased technological change and changes in how work is organized and jobs performed, all linked to ICT). This has increased productivity in many sectors. Machines, such as robots, now do the routine and predictable work (both manual and non-manual). New technologies have had less impact in areas of work which involve discretion and response to human interventions, even in jobs occupied by low-skilled workers.

Over the past few decades, there has been an increased demand for higher-level occupations. In Europe, almost 40% of employment is now in higher-level jobs (e.g., management, professional work, or technical jobs that typically require a university degree as an entry requirement). But at the same time, there has been

significant growth in some lower-level jobs, especially in services (e.g., elementary occupations in areas such as hotels and restaurants).

It is a moot point whether these trends reflect demand rather than supply. Brown et al. (2008, 2011) fear that for many developed economies high-level jobs may be transferred to lower-cost locations in Friedman's new "flatter world."

Nevertheless, possession of high-level qualifications is still likely to be advantageous in terms of obtaining and retaining employment and the rates of pay received (Wilson et al. 2007). Higher-level qualifications provide flexibility and adaptability helping individuals prepare for probable changes in an uncertain world.

New technology will also have significant implications for the educational process itself and its delivery (ways of learning, plagiarism, etc.). It is also affecting the boundaries between works in the formal as opposed to informal economies, as well as driving other sociological and related changes such as individualization and household restructuring (for a review see Wilson 2013).

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## Rationale for Skills Forecasts and Skills Anticipation

All the indicators outlined above are backward looking. They are based on what has happened in the past or, at best, the situation which prevails today. They do not provide any help in thinking about what might happen next. Whatever measures of existing skills demand are adopted, they only record the current position. But if individuals and other interested parties are to make informed decisions regarding investment in skills, it is the *future* demand for skills that is important.

The main arguments for why skills forecasts are necessary are that the world is changing rapidly and in uncertain ways and that there is considerable evidence of market failure. Long lead times on investment decisions such as education and training choices mean that skills forecasting is especially desirable. Development of skills takes time (in exceptional cases many years). To ensure the right number of doctors in the future, building and establishing a new medical school can take decades. Most skills can be acquired in a shorter time frame, but many require a substantial investment of time.

The past may not provide a very helpful guide to what is likely to happen in the future, so some attempt to anticipate how the demand for and supply of skill might change in the future is needed. This provides the key rationale for undertaking regular skills forecasts or what is increasingly now referred to as "skills anticipation." Skills forecasters argue therefore that regular and systematic assessments of future prospects are needed to:

- Guide and inform policy formation.
- Guide and inform individual decision making.
- Avoid future imbalances and mismatches.
- Offer up a counterfactual to assess alternative policies or different choices.

But it is important to recognize that skills forecasting is in many respect as much of a “process” as an “end” in itself. Lassnigg (2012) emphasizes the links between the generation of views about the future and perceptions of mismatch and imbalance. This is a two-way process. For example, good-quality LMII can help to improve the provision of advice to labor market entrants. Forecasts of future skills demand can help to inform new entrants and returning workers, as well as learning providers and governments, about how to focus and target their investments in education and training provision. A regular and systematic set of labor market projections, based on transparent assumptions, provides a benchmark for informed debate and decision making, including evaluation of the potential impact of unanticipated structural shocks or more speculative, horizon-scanning exercises.

European experience more generally also emphasizes the importance of building networks of stakeholders that allow discussion of the outcomes and analysis of policy implications (Wilson et al. 2017). Researchers and analysts learn about stakeholders’ views, and stakeholders learn to use the information better. It also highlights that there is not just one single inevitable future – how it evolves depends on decisions made by everyone involved.

Systematic assessment and anticipation of future changes in skill needs is important for many different groups in the labor market. This includes not just individuals making career choices but many other stakeholders, including those responsible for providing education and training, careers advice, and guidance, employers and their representatives, as well as local, regional, and national governments.

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## Different Approaches to Skills Forecasting

There are two extreme approaches taken to skills anticipation and matching:

- Reliance on market forces – in the theoretical world of the classical economist, rational decisions taken by “homo economicus” result in the best of all possible worlds; intervention is only justified if there is clear evidence of “market failure.”
- Central planning – with the educational system manipulated by “top-down” indicative planning, to ensure that it delivers people with the skills required by the economy (the implication being that the state decides provision based on some “true” forecast of future demand).

The latter was the rationale for the so-called “manpower planning” approaches of the 1960s that characterized some of the earliest skills projections. This kind of approach is now the exception rather than the rule. Even in centrally planned economies, such as China, a much greater role is now allocated to market forces.

The US Bureau of Labor Statistics (BLS) has carried out regular skills projections since the 1950s. Initially, these were intended to help war veterans to understand the job opportunities when returning to the labor market. Systematic scientific methods were applied to attempt to predict the prospects for the economy and labor market with a view to planning education and training systems to match.

The OECD attempted similar work in Mediterranean countries in the 1960s with mixed success (Lyons 1965). Undoubtedly some of the earliest attempts to undertake skills forecasting were naïve. These pioneering efforts were based on the notion that education and training systems could be planned to meet the needs of the economy in a “mechanistic” fashion. It should be recalled that, at this time, significant parts of the world economy were being managed in this fashion (e.g., the USSR and communist China), for whom individual freedoms were of minor consideration. Matching skills supply to meet the demands of the economy was a key aim in many countries.

These mechanistic approaches soon ran into problems because of failure to take into account social and economic aspects of the way labor markets work. In more open economies, more obviously subject to the vagaries of market forces, it soon became apparent that this kind of mechanistic manpower planning did not work. In part, this was because the data available and the models were simply inadequate to represent the complexities and subtleties of the economic and social factors that govern outcomes in labor markets. Even today, with much better data and more sophisticated modeling and estimation techniques, few if any forecasters would claim to be able to predict the outcomes of such a complex system with precision.

More recently, it has been recognized that while it is impossible to predict the future of the labor market in detail, it is possible to identify robust trends and patterns that can be used to inform labor market participants about the world they are likely to face. This is now the key rationale for governments such as the USA continuing to invest heavily in this kind of work.

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## Making Skills Projections

Various methods have been used to predict the future, some more systematic than others. As well as peering into crystal balls, fortune tellers have read the future in “tea leaves” left at the bottom of a cup or in the palms of the hands (as well as less savory indicators)! More recently the emphasis has been on more systematic and scientific methods.

These include formal, quantitative models, as well as other approaches both quantitative and qualitative (including surveys of employers and scenario development techniques).

At its most basic, any skills forecast requires just two things:

- An accurate assessment of the current position – what is the situation now?
- An assessment of what will happen next (how things might change) – the latter can be achieved in many ways, both quantitative and qualitative.

The many alternative methods each have strengths and weaknesses as well as problems and pitfalls. Some of the main ones are summarized in Table 1.

**Table 1** Pros and cons of different approaches to skills anticipation

Approach	Advantages	Disadvantages
Formal, national level, quantitative model-based projections	Comprehensive (typically covers all sectors) Consistent Transparent and explicit Quantitative	Data hungry Costly Not everything is quantifiable May give a false impression of precision/certainty
Surveys of employers, etc., asking about skill deficiencies and skill gaps	Direct “user/customer” involvement Easy to set up and carry out	May be very subjective and inconsistent Too much focus on the marginal and ephemeral
Focus groups/round tables, Delphi-style methods; scenario development	Holistic (considers a broader range of factors that are just economic) Direct “user/customer” involvement	Can be non-systematic Can be inconsistent Can be subjective
Sectoral/occupational/regional studies and/or observatories (using both quantitative and qualitative evidence)	Holistic (for the sector) Partial (ignores other sectors) Strong on sectoral and other specifics	May introduce inconsistency across sectors

Most require:

- Robust data
- Reliable modeling or other analysis
- Clear assumptions
- An element of judgment

Qualitative methods such as *Delphi techniques* are used, particularly in scientific areas, where experts consult with each other and attempt to **converge** on an agreed view of the future. Reviews of such exercises suggest that a narrowly constituted group does worse than a wider group (e.g., chemists are less successful at foreseeing the future of chemistry than a group including physicists, biochemists, biologists, and chemical engineers).

Another important qualitative approach is *scenario development*. In contrast to many methods which attempt to home in on the most likely outcome, such methods explicitly tackle the uncertainties of the future by imagining different and divergent future worlds.

Nevertheless, a review of best practice worldwide suggests that some form of *quantitative, model-based, projection* lies at the heart of most countries’ efforts in this field of work (Kriechel et al. 2016). Quantitative modeling methods can encompass various techniques:

- Simple extrapolation of past trends
- More sophisticated time series/statistical methods, involving the search for patterns in the data
- Attempts to build in behavioral content based on economic or other theory

Modern-day economic and labor market forecasters rely on two main approaches. The oldest tradition is based on the systematic analysis of data using econometric and statistical methods. Although in many cases these draw on economic theory, the main emphasis is identifying patterns in the data and extrapolating these into the future. Essentially, the view of the future is based on how economies and labor markets have behaved in the past. The other approach is based much more on economic theory, on how economists believe behavior of individual households and firms governs the observed outcomes in economies and labor markets. This approach uses so-called computable models (such as computable general equilibrium (CGE) models or the even more complex “dynamic stochastic general equilibrium” (DSGE) models). However, these are more often used for the development of scenarios than producing point forecasts.

Any attempt to assess the future pattern of skills demand requires a close examination of trends and forecasts in employment by sector and by occupation. The preferred method in most countries is to use a multi-sectoral macroeconomic model. Forecasts of the aggregate macro-economy, and of economic output of goods and services by detailed sector, are combined with information on current developments in employment within sectors by occupation and qualification (Wilson et al. 2016b). The macro forecast usually incorporates a view of labor supply and population. Demographics used to be regarded as relatively straightforward to project, but the growing importance of migration and “aging populations” makes this more uncertain than used to be the case.

Crucial to the generation of the skills projections is detailed occupational analyses and categorization of skills, as well as a good understanding of the current employment structure by occupation.

The advantages of quantitative modeling include:

- The natural desire to quantify, measure, and evaluate
- The benefits of a formal model in enforcing logical consistency and helping to make assumptions more explicit

The USA provides a good example of the benefits of substantial and systematic investment in data, standard systems of occupational classification, as well as models, methods, and systems. Enormous sums have been invested since the 1960s, including their O\*NET system of labor market information and intelligence (see Box 1 and Wilson (2010) for details). The US approach highlights the central role of occupations in a quantitative assessment of the changing demand for skills, providing insight into the key drivers of changing skills demand, including technological change. Detailed data on occupational employment by sector, based on the numbers actually employed rather than on perceptions, is a crucial part of the US statistical infrastructure. This information is an essential element in understanding the current state of play.

Occupations lie at the heart of the systems developed in other countries (see Wilson et al. 2017). The German BERUFENET, the Czech NOS and Occupation Profiles (OPs), and the Dutch AiS all rely on databases defined by occupations or



qualifications (as in the US O\*NET system). These are key to skills and labor market analysis as well as the provision of useful LMII.

Another important lesson from the US approach is the emphasis on combining quantitative and qualitative methods when making projections of future occupational employment trends. Qualitative judgments about changing skills demands within sectors are made by specialist analysts. These judgments are then combined with sectoral employment projections from a macroeconomic model which reflect the way the various drivers of change are altering the employment structure of the USA by sector. The other three case studies covered in Wilson et al. (2017) also suggest that while regular, systematic, and sustained quantitative analysis – including forecasting – is essential, additional qualitative assessments are also important.

#### **Box 1 The US Labor Market Information and Intelligence System (LMIIS)**

Wilson (2010) provides an overview of the US LMIIS. The US Bureau of Labor Statistics (BLS) has produced detailed occupational employment projections, over a 10-year horizon, every 2 years since the 1950s. The most recent results cover 2014–2024 (<https://www.bls.gov/emp/>).

The main focus of the LMIIS is on the skills required within different occupations and sectors. It is based on three elements:

1. The Occupational Employment Statistics (OES) Survey
2. BLS models and systems for projecting the labor market
3. The Occupational Information Network (O\*NET) system for identifying skill requirements within occupations

The OES survey provides a robust and detailed view of current occupational employment within sectors. BLS sectoral experts then assess how this might change in the future. These views are combined with a set of projections from a multi-sectoral macroeconomic model to generate detailed occupational employment projections. O\*NET then enables users to assess the implications of this for changing skill requirements and how this affects their own choices and decisions. For more detailed discussion of O\*NET, see Tippins and Hilton (2010).

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## **Skills Anticipation as a Public Good**

The future is uncertain and unpredictable. Nevertheless, it is now widely accepted by governments that high-quality labor market information and intelligence (LMII) can help labor market participants, including education and training providers, to make more informed decisions about education and training (see Wilson 2013, for a more general review).

Labor market participants can be better prepared for the world of work they are likely to face in the future by providing them with regular and comprehensive quantitative projections of future skills demand. Skills forecasts have therefore become a common feature of labor market policy and most modern LMII systems (LMIS) in developed economies.

Accepting the case for skills anticipation, the key question is then how should this be accomplished and by whom. Advocates of free markets might argue that it is up to everyone to make up their own minds, but most economists would argue that a key problem in most labor markets is inadequate information, and the state therefore has a public duty to fill that gap.

The approach of the US Bureau of Labor Statistics has been characterized as “Hope and Pray.” They hope that their young people will graduate (with appropriate initial qualifications), and they pray that they will get a job once they do. It is not about centralized planning. The USA probably spends more on its LMIS than any other country (for a brief overview, see Box 1). But this is not done in an attempt to plan the US education and training system from the top down to meet the demands of the economy. Rather, the aim is to inform all participants in the labor market about the world they face, how it is changing, and what might happen next. The main rationale is to make labor markets function efficiently. The aim is to provide detailed labor market information, including a forward-looking element, regularly and centrally. This is then made easily and freely available, with copious guidelines on interpretation. Comprehensive, systematic, consistent, and transparent skills projections are regarded as a “public good” to be supplied by the federal government. This needs to serve many audiences (stakeholders, social partners, practitioners, and individuals) – not just policy makers.

The French also attempted detailed educational and skills planning in the 1950s and 1960s before rejecting it as impractical. However, like many other countries, they have now returned to skills forecasting, focusing on provision of useful labor market information (helping markets to work better) rather than top-down indicative planning (France *Stratégie* 2017). The UK and many other developed countries have followed similar paths. At a broader pan-European level, systematic skills forecasts are now a key part of the European Commission’s policy agenda. Cedefop (the European Agency responsible for vocational education and training in the EU) now leads the way in producing regular and detailed skills projections for the whole of Europe (for details see Wilson et al. 2016c).

Other countries share several of the characteristics of the US BLS system, including the emphasis on providing LMII as a public good. Wilson et al. (2017) compare and contrast the systems in Germany, the Netherlands, the Czech Republic, and the USA. The LMII developed in these four countries is not intended for:

- Use in mechanistic educational planning
- Micromanagement of education and training provision
- The perfect matching of skills demand and supply (in either the short or the long term)

In all four countries (the Czech Republic, Germany, the Netherlands, and the USA), the emphasis is on informing choices at the micro/individual level. There tends to be a mix of both government and independent research organizations conducting the research and analysis, with different degrees of concentration among a few or many organizations or agencies, but centralized government funding is a key element.

While the early history of such projections was focused on mechanistic workforce planning by the state, such a view has long since been abandoned. The focus is now firmly on informing (micro) individual labor market participants, rather than directing (macro) planners and policy makers. However, this kind of LMII is also a crucial input for top-level policy makers, who are tasked with designing an efficient and effective skills system that can be both responsive and agile to changing skills demand.

Regular, comprehensive, systematic, and consistent projections, based on explicit and transparent assumptions, can provide useful information for all labor market participants, helping to inform all those making choices and decisions. They constitute a “public good.”

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## Matching Skills Supply and Demand: A Chimera?

One of the arguments put forward to support investment in high-quality LMIIS, including forward-looking elements, is to try to ensure a better matching of skills demand and supply. On the surface, this appears like something that no one could argue with. Better matching must be a good thing. However, this relies on a rather naïve and superficial idea of what constitutes good matching. In reality, the matching of skills demand and supply is extremely complex and probably an impossible ideal.

Lassnigg (2012) develops a conceptual framework for the analysis of matching that includes the following basic elements:

- The practice of anticipation and matching at the *individual* as well as the *meso and macro* level, including policies and interventions by the state and the complex involvement of *educational and training institutions*.
- The important role of *symbolic structures* (systems of classification and measurement) at the institutional level – these are simultaneously produced by the practices of the various actors and in turn also guide them, making matching visible and thereby *structuring reality* and going beyond mere information.

There is much more involved than the simple process of trying to fit each and every individual (possibly round pegs) into particular jobs (maybe square holes). Matching has various elements and dimensions, as well as involving many different actors. At the individual level, it is about trying to find the best job now and in the future. All individuals possess a broad portfolio of skills, abilities, and other characteristics that can be deployed in many different jobs. Most jobs can be undertaken by people with a wide variety of skills and experiences. Probably for the

vast majority of jobs and individuals, the matching of the two is therefore not a very precise recipe. Jobs themselves are also dynamically changing over time, as are individuals and their skill sets.

This kind of detailed job matching is not just of interest to individuals but is also of concern to government. In the short term, departments of the state responsible for unemployment and social security will be focused on trying to match the skills of those unemployed searching for work with the requirements of the jobs that employers are advertising.

In the longer term, the government has an interest in trying to ensure that the investments being made in education and training are reaping the highest possible return. Just investing is no guarantee of the best or even any positive return. The investment needs to be in areas that will be needed in the future not those that were required in the past. In many countries there are concerns about overqualification in general (are too many graduates being produced?), as well as whether students are following the right courses of study. Governments are also concerned with aggregate unemployment and unfilled vacancies and other indicators of skills shortages and surpluses at the level of the whole economy, including the ways these imbalances and mismatches may impinge on productivity and growth.

A key issue is the appropriate level of aggregation. In much discussion about matching the emphasis is on the microlevel (e.g., matching models in labor economics and career guidance and individual support in schools and educational institutions as well as through public employment services). However, practices at more aggregate meso or macro levels are also important both for the state and others involved in institution building and policy intervention (at regional as well as national level). Matching also has an important geographical dimension. As sectors grow and decline, this often results in a mismatch between skills supply and demand in particular locations.

At the broadest level matching is about ensuring that the investment in education and training is at the right level. Of course, education is not just about work; there is a vast spectrum of skills used in all aspects of life.

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## **Skills Forecasts: Who Needs Them?**

There are a large variety of audiences, all with different needs. They include:

- The state planners/policy makers (especially those responsible for education and training, employment and unemployment, as well as economic development)
- Education and training providers (those responsible for setting priorities in terms of course of study offered as well as the curricula covered)
- Companies/employers (concerned about the external labor market they face)
- Individuals making career choices (both in terms of initial education and training and also ongoing continuing education and job mobility)
- Careers advisors (and similar professionals and analysts charged with advising clients)

Their requirements include:

- *Occupational demand* – future employment levels by skill category
- *Replacement demands* – job openings by skill category (replacement demand refers to the demand from employers arising from the need to replace those leaving the workforce because of retirement at old age or other reasons; such demand often greatly exceeds the so-called expansion or structural demand that arises from changes in the levels of employment)
- *Education and training requirements* – qualifications needed in different jobs
- *Supply/demand balances* (vacancies and unemployment rates)
- *Terms and conditions of employment* (including pay)

In an ideal world, different projections would be developed for each group of users, customized for their own particular needs. In practice, constraints on resources mean that in most countries just one set of projections is produced. These must serve different purposes/different audiences.

The general aims and objectives of skills forecasting are to provide a *quantified*, comprehensive, and consistent overview of anticipated skills demand and supplies. This overview attempts to take account of key drivers such as globalization, technological change, and demographic developments. It is intended to inform strategic thinking and policy design at a macro level, as well as helping to guide individual decision making at a more microlevel.

Such skills forecasts can:

- Help to explain past developments in a coherent and logical fashion.
- Make certain assumptions about how this behavior will develop into the future.
- Help to make such assumptions about the future, **explicit** and **transparent**.
- Help to enforce **systematic** and **logical** thinking.
- Provide a useful **counterfactual** to assess policy impacts.
- Act as a **focus** for intelligent **debate**.

The last point is especially important. Skills forecasting should be regarded as a “process” rather than an “end” in itself. Developing a dialogue between the various users and stakeholders, as well as the producers of the projections, is a key part of the value added by undertaking this activity. This should include an educational element. Some care is needed in how to interpret and use forecasts. Users need to be educated in how to make best use of them.

But it is also important to recognize that they are not a panacea. They cannot resolve all the problems of the economy and labor market. In particular they cannot deliver:

- Mechanistic “manpower” plans that enable the government or education and training providers to produce a supply of skills that will match the demand for employers in precise detail

- Precise indications of education and training requirements or job opportunities that will be available in the future

Such projections do not represent a crystal ball in which the future can be discerned. It is impossible to foresee the unforeseen.

They sketch out a broad-brush picture of what the future may look like, highlighting the key trends that can be confidently projected, as well as some of the areas of uncertainty.

In the context of developing economies, it is also important to stress that such projections tend to focus on the formal, well-measured parts of the economy and labor market. If the informal economy is significant, that also needs to be taken into account.

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## Conclusions

Skills are crucial for both individual and national prosperity. Measuring them is not straightforward, but assessing future trends on a regular basis is a key element in ensuring a good match between skills supply and demand in the future. While not a panacea, such formal and explicit projections can help to inform all the participants in the labor market about the world they are likely to face in the future.

Such work requires:

- Investment in high-quality data and analytical capacity, including a commitment to long-term funding to develop research capability and provide continuity of expertise in this area
- Generation of high-quality qualitative information to help inform and enhance understanding of future skills demand, in combination with the more quantitative analyses that characterize such formal projections

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# TVET Teaching in the Time of Digitization

# 2

Mike Douse and Philip Uys

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## Abstract

Digitization is fundamentally altering our world and, with it, the roles, requirements, and potential of TVET. While its definition and scope will undoubtedly change – one very possible scenario is for there to be no discrete TVET sector in a few decades' time – the demand for work-related skills provision will be massive, multifarious, and lifelong, and this will need to be met, imaginatively, efficiently, and equitably. The necessity is to reinvent TVET for our times, and the central challenge is to conceptualize and create TVET structures, methodologies, and arrangements appropriate to these dramatically new digital age circumstances. This calls for a redefined and high-status TVET, delivered from various (often

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virtual) kinds of centers, each dynamically responsive to trainees' aspirations and to forthcoming market requirements. All should be staffed by competent, confident, cheerful, and well-respected instructors, working effectively in tandem with the best-suited technology, to guide the learning rather than to dictate it. Life skills should be redefined for the digital age; well-informed creativity should be emphasized; the moral dimension – worldwide imperfections, rampant inequalities, and the shame of migrant labor – should be addressed. The selection, preservice, and lifelong professional development of TVET instructors should similarly take advantage of contemporary technology. TVET instructor education should model digital age teaching and learning and, in addition, play a key role in recreating and repositioning the sector.

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### Keywords

Digitization · TVET · Skills · Instructors · Instruction · E-learning

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## Introduction

This chapter focuses upon the emerging roles of TVET instructors, as the sector (sub-sector) enters, experiences, affects, and is affected by the digital age. It assesses how best these key concierges of skills development may be prepared to deliver and facilitate the building of capacities in effective and imaginative response to the rapid and accelerating changes in technologies, economies, labor markets, personal aspirations, and the nature of work.

The world, the countries that comprise it, institutions within and across those countries, and thus everyone's conditions and aspirations are being – and will, exponentially and largely unpredictably, continue to be – **dramatically transformed by digitization**. This involves a thoroughgoing surge forward into a fresh dimension – a pivotal leap in human potential as profound as the wheel in relation to development and as significant as the book in the context of education.

It is as if all living creatures were about to need to survive under water. Fish, akin to digital natives (Prensky 2001), are unable to offer advice as they are in that moist element already and know of no other. But land animals (digital immigrants) cannot conceive what will submarinally be involved, and so they too are unable to contribute to the debate. The young have grown up in a digital world; the un-young, even the most digitally intrepid, necessarily perceive it as something rather alien and somewhat scary and, save for a few digital intrepids, venture no further than the fringes, often enjoying those brief excursions, but never seeking to inhabit the obscure interior. There is a need to prepare for this *proximo antediluvium* situation, but the metaphorical fish cannot be communicated with, and the *terra animalia* hesitate to speak.

And yet that fundamental reappraisal cannot be avoided. The digital age necessitates a reevaluation of what TVET is for, optimizes the means by which its evolving objectives may be met, and enables digitally comfortable instructors to facilitate that constant skills development process. Inevitably, the role of TVET in

producing people with the skills (and the competency and confidence to upgrade and refocus those skills on lifelong bases) that will enable them to survive and thrive in this vibrantly evolving world will, while magnifying in size and differentiating in nature, also alter profoundly.

The paramount challenge is not to improve skills development in and for this digital age by building gradually, cautiously, and incrementally upon that which has gone before. **The necessity is to reinvent TVET for our times**, on a universal basis with due attention to variations globally, and to make it future-proof. A full recognition of the profundity of ongoing and future technological transformation, economic change, and occupational upheaval is vital if TVET is to be credible – and to achieve, at last, the high status that it deserves. It is on that basis – that things will never be the same again – that this chapter proceeds.

Much time and energy have been devoted to defining and delineating “TVET” (“training” or “skills development”), and this speculation shall not be overindulged here. For present purposes, let it be said, simply, that we are considering work-related skills development, broadly interpreted. There are many designations for the sector under consideration, and a veritable mulligatawny soup of acronyms has been cooked up (AppT, VocEd, TVE, TVET, Tfd, TechVoc, OE, VET, CTE, WE, etc.). In this chapter, and without prejudice, the decision of the TVET world congress held in Seoul in 1999 that “the best, most comprehensive term to use is **Technical and Vocational Education and Training**” (UNESCO-UNIVOC 2012) is accepted as our working designation.

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## The Evolving World and the Embryonic World of Work

The changes being wrought by digitization will be (a) generally, highly significant and (b) specifically, unpredictable. Occupational futurology is a vast and vain pursuit. A third of a century ago, it was being predicted that, for example, “forthcoming technological developments, including automation and robotics, will have minimal consequences for professions where person-to-person relationships are paramount such as... *banking... entertainment... (and) customer service*” (Manpower Services Commission 1983). Ah well!

The evidence of this technological transformation is readily apparent as one communicates with friends online or via mobile devices, checks out at a supermarket, deals with one’s bank (if one can reach it), undergoes medical assessment or treatment, makes travel bookings, or accesses entertainment in one’s home. Similar realizations may be deduced from simply witnessing a 5-year-old entirely at home with a device containing a zillion times the computational power (let alone the creative potential) of the mightiest desktop at the turn of the millennium. Presently, an era of self-driving cars seems to be arriving. Will there soon be self-repairing cars? Or cars that converse with one another regarding those repairs – and loftier matters – in languages that mere humans cannot comprehend?

The Digital Revolution has been on its way for decades now, and it is explained elsewhere (Bonk 2016; Contact North 2016; Douse and Uys 2018) that, with

digitization, the world is so profoundly and deeply transformed that entirely fresh educational approaches are both necessary and possible. Just as existing jobs now increasingly necessitate the possession of digital skills, entirely new jobs based upon digital possibilities (for instance, online web assistants and myriads of software and mobile development specialists) are progressively being created. Technology will assuredly alter roles: robots will take over many operations (in factories as in hospitals), and drones are likely to replace so many others as they allow speedier visual access of everything from giant warehouses to power lines. But the displaced operatives and reassigned theatre nurses will apply different skills and hundreds of thousands will soon be working in the drone economy across, for instance, infrastructure, agriculture, construction, defense, energy, and logistics. By such means, organizations will be more productive, and, hopefully, the **work becomes less strenuous physically and more fulfilling personally**.

Let it be noted also that technology is starting to behave in intelligent and unpredictable ways that even its creators do not understand. Artificial intelligence (AI) is creating technologies that adapt to us rather than us to them and, in education and TVET, even coming to recognize when learners are more effective on their own – when to get out of the way and when not to help, interrupt, or distract. Let us recognize also that our technologies are extensions of ourselves, codified in machines and infrastructures, in frameworks of knowledge and action. AI can help solve some of our world's most vexing problems – day-to-day communication, health care, transportation, loneliness – but its real magic will be **technology that adapts to people**. Computers are not here to give us all the answers but to allow us to put new questions, in new ways, to the universe. If we are intelligent enough to pose good questions, it will be profoundly and positively transformative for humans and humanity.

And this transformation flows far beyond the world of work. Through contemporary technology, we are all connected to one another, wonderfully, perpetually, terrifyingly, and inescapably. But this connectedness is often accompanied by uncertainties and a sense of *anomie*, sometime verging upon the psychotic. During this time of digital transition, some feel that a balance needs to be struck between the call of the crowd and the opposite need for time and space apart – to be “off the grid” (see Powers 2011, on *Hamlet's Blackberry*, which wrestles with a similar existential confrontation). In encountering digitization, TVET needs to take such psychosocial challenges on board.

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## TVET's Status in This Digital Age

Much of the discussion on skills development in the digital age has focussed on general education, and some, but not all, of those ideas are relevant to this present discussion. Over the centuries, much consideration has been afforded to its objectives, for instance, “No child should leave school without basic skills – a love of learning, a respect for knowledge, a desire for wisdom, a critical fluency with contemporary technology, a facility for spoken communication, a fascination with

that which is difficult, a unique set of enthusiasms stimulated and underwritten by education. . .” (Douse 2014), along with contributions by Socrates, Aquinas, Rousseau, Locke, Dewey, Freire, and others.

The British House of Lords, no less, has declared that digital skills should be taught as a third core subject and treated with the same importance as numeracy and literacy (UK Parliament 2015). Elsewhere it has been suggested that “all children across the globe should become fluent in three languages: their mother tongue, an international language and a programming language” (Douse 2014). And yet education worldwide is increasingly characterized by fragmentation, selection, and segregation rather than by coherence, intelligibility, and equity. All too frequently, TVET initiatives are mounted to repair the damage done to learners by chaotic and illogical general education arrangements.

It is necessary to acknowledge the historical role of academic credentials in reinforcing social class hierarchy. The “vocational” is far too frequently perceived, and made operational, as “technician or craft vocational,” excluding preparation for such professional vocations such as engineering, nursing, medicine, architecture, or law. It may usefully be recalled that “vocation” is from the Latin *vocātiō*, meaning “a call, a summons” to an occupation toward which a person is especially drawn, such as that of a member of the healing professions, or an aid worker or, indeed, a religious minister or, perhaps stretching it a bit, a politician.

The prestige of workers is defined not only by the occupations in which they are engaged but also by the routes and pathways by which they arrived in those positions. If TVET is for artisans and signwriters but not for surgeons and lawyers, it defines itself definitively as, at very best, second rate. If it is aimed at those who fall from the academic path or by the wayside, it cannot help but be seen as a safety net for failures, however nicely dressed up it is. In many developing countries, vocational centers cater for dropouts, pushouts, and other refugees from “academic” education. Institutions within the TVET sector are seen as inferior to “ordinary” schools, and, even in developed countries, this image of being “below standard” prevails.

We are devising tools that diminish both our need for tools and our ability to use them to good effect. Clearly, TVET is changing and will need to change much more, in order to respond to and support that dramatic evolution in the nature of work. If it continues to be perceived, operated, and funded solely as direct preparation for “non-professional” work, as remains the case in much of the world, it will retain its poor status, lose its essential purpose, and avoid its opportunities. The world of work is undergoing fundamental transformation, but people continue to lament the lack of technicians while wanting their own offspring to become lawyers: TVET is for “other people’s children” (Douse 2015).

According to the US government (Department of Labor 2013), an engineer is a problem-solver, while a technician is a doer. Similar oversimplifications have abounded through history, from the Platonic philosopher-kings, through Coriolanus’ plebs, to the threefold “academic-technical-practical” segregation of 11-year-olds in the mid-1940s UK, emulated across much of the world, and based upon flawed tests and erroneous educational philosophies. Similarly, there has long been a distinction

made by both social scientists and aspirational parents, between largely intellectual, predominantly office-based (or “white collar”), and largely practical or manual (or “blue collar”) work. The former is linked with the “professions” and “semi-professions,” the latter with skills of the kinds delivered in TVET centers.

In this emerging digital age, the nature of work has undergone and will continue to undergo seminal changes, so that **distinctions based upon collar color are becoming historical**, just as all employment tends to involve both problem-solving and actual doing, and universities increasingly become “upmarket TVET centers.” If these distinctions ever represented anything more than the fortunate using “professional” language to preserve their privileges, any vestige of authenticity is swept away by the classless tide of digitization. The manager (male) no longer dictates (in any sense) to his secretary (female) – people have their own word processors (which do many things besides processing words and will ever do more) and personal online and mobile communication devices and systems, and all tasks are shared (or so they should be soon).

The radical restructuring and redefining of work for the digital age are already reflected in the upward differentiation of TVET from “dropped out primary” and “failed secondary” to “graduate apprenticeship” and “university of technology,” although parity of esteem has yet to be achieved. The evidence-supported opposition to selection at 11 or at 14 has seldom been extended to the rejection of academic selection at 18. Perhaps that battle is about to arrive: the notion of **comprehensive universities**, mixing higher- and lower-achieving students to the benefit of all, and to society, is now being advocated (Blackburn 2017). In any case, TVET, wherever delivered, has a crucial role to play in society emerging from Industrial Age practices and enabling knowledge workers to survive and thrive in the digital age, through flexible entry pathways – and it is digitization that makes their achievement feasible.

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## What Are Those “Digital Skills”?

Digital skills are already highly valued across the world of work. Tomorrow they will be regarded as vital. The day after that they will be unexceptional and, indeed, somewhat humdrum. Much as the ability of human resources to read is (in much of the world, if not yet quite all) simply taken for granted. Applying those skills may be categorized as:

- **Digital literacy**, which is being able to think in and creatively utilize the ever-evolving language of the digital world, in other words, those capabilities which equip an individual for twenty-first century living, learning, and working
- **Digital understanding** [or fluency], which builds upon a confident familiarity with that language in order to reflect upon its practical implications, avoid potential pitfalls, predict forthcoming opportunities, and plan ahead adeptly and adventurously

While jobs in the explicit and so-called ICT and mobile sector are booming, these are by no means the only opportunities that require digital skills, and, indeed, it is

sensible to assume that almost all jobs require them to some level. And acquiring digital literacy, and even digital understanding, has never been easier (although digital wisdom takes longer – which is another story). The usage of mobile, social, and analytical tools is permeating the length and breadth of every function across every organization – also in tertiary and higher education – creating a huge demand for digital literacy and fluency and certainly not just in the IT department. Indeed, digitization is not “IT” (or even “ICT”). In fact, “ICT” is so very twentieth century, and TVET needs to get beyond it. No more “TVET and ICT” reports or policies. **TVET now means TVET based upon digitization.** No more “ICT instructors” – every TVET instructor is a digitally grounded instructor. No longer mere digital literacy for some, but digital understanding/fluency for all. Blended learning, in which the face-to-face and the virtual are intermingled, is becoming the norm.

For example, there is a widespread realization that advanced technical skills in mobile, analytics, and social media need to be complemented with business acumen, highlighted by articles along the lines of “Business Professionals Must Understand the Digital Age Language.” One response has been for those in IT to move into management – or vice versa, although that is less likely. But neither remedy really meets the challenges of these times. The real answer is to recognize that management now *means* “management in the context of digitization” and to train accordingly. In the same way, “auto electricians” now *means* “auto electricians in the context of digitization” and should be designed and delivered accordingly. The same is true for medicine, dentistry, fine art, HRD, and so forth.

And, of course, this twofold expertise across all disciplines should be provided by TVET centers on a lifelong rather than just a preservice basis. Thus, on a very practical level, such centers should soon, reflecting this trend toward “digital ubiquity,” consider the future of their digitization (formerly ICT) units in favor of every subject area (child care, design, secretarial, catering, civil engineering, law, etc.) being effectively digitally based. Whether this results in the entire dispersal of those (sometime ICT) units’ faculty to other branches, or in smaller (digitization) units concentrating on producing high-level digital specialists, may be left as an interesting open question for now.

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## Soft Skills for the Digital Age

Whereas “hard skills” are those needed to do the actual work, “soft skills” are those interpersonal qualities (also known as people skills) and the personal attributes that are desirable in order to thrive in the workplace. They include, for example, effective communication, courtesy, flexibility, integrity, a good sense of humor, and a strong work ethic (see Robles 2012 for the “top ten” listing). Many TVET centers certainly cover some of those widely desired attributes but are seldom geared specifically to soft skills for the digital age. It is similarly increasingly acknowledged that change management does not just need to integrate top-down and bottom-up strategies but also inside-out (i.e., people) strategies to be successful (Uys 2007, 2009, 2010, 2015).

Drawing upon existing lists of “skills required in a knowledge society” (see, e.g., Conference Board of Canada 2014, to whom due acknowledgement is made), it is suggested that, in addition to digital understanding, the following capabilities might be appropriate for technical and vocational learners and practitioners in the time of digitization:

- A confident familiarity with **contemporary communications skills**
- A lifelong commitment to **self-directed learning**
- A facility in **thinking critically**
- A proficiency in **managing knowledge**
- Being a **responsible team member**

Similar characteristics are required also (indeed more so) in TVET instructors.

**Creativity** in technical and vocational education is an area where limited research findings are available (two interesting studies are those of Middleton 2011 and Ogbonna 2015). A recurring theme, there and elsewhere, is that the culture of TVET, as presently perceived and practiced, is – to make an unsubstantiated generalization – antipathetic toward originality and vision. Creative research is no longer in the exclusive custody of higher education!

WorldSkills (formerly the Skills Olympics) has achieved a great deal internationally, not only in enhancing (among a regrettably limited audience) the status of skills, fairly broadly defined, but also the promotion of creativity within that area (see WorldSkills 2017). Similarly, from its inception in 2000, and with an average of 250 multilateral projects a year, the European Union’s “Leonardo da Vinci–Vocational Education and Training” program (2017) has successfully developed a stock of innovative practices and procedures in areas such as training, transparency instruments, guidance and counselling, e-learning, and instructor methodologies.

The worthy WorldSkills, da Vinci, and a few similar initiatives notwithstanding, it is the case that **creativity requires much greater and more creative attention in the digital age TVET sector**. Indeed, the increasingly narrow general education curriculum, frequently turning the focus away from arts and creative subjects in favor not just of STEM but on those convergent elements of STEM that may most readily be assessed, not only ignores a vast chunk of young people’s varied aspirations and learning needs but also fails to prepare them for the twenty-first century’s social, recreational, as well as occupational demands. Here, it is another instance of TVET being called upon to repair the damage inflicted upon learners by dysfunctional general educational approaches.

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## The Ethical Dimension

The transmission of skills does not occur in a moral vacuum. Those soft skills should extend to fostering responsibility and being worthy of trust, (a) because they are good business and (b) because they are good in themselves. Beyond that, as well as



local imperfections, there are vast inequalities and injustices within and between countries. While TVET's central objective is other than the production of ethical activists, it is reasonable to suppose that – without engaging in propaganda or compulsion – the lifelong “TVET experience” should result in very many people much more determined and significantly more competent to help create a **better world** (or fragment thereof) in terms of, for example, the environment, health, communication, hospitality, caring, construction, animal welfare, arts, and the quality of life and human happiness generally.

**Rampant inequality**, between and within countries and across groups (for instance, women, ethnic minorities, workers with disabilities, migrants, etc.), is ubiquitous. Trainees (and, indeed, instructors) should be familiar with the range of issues related to worker's rights and employer's responsibilities. TVET “should embrace a constructive critique of the world of work including its assumptions and the power relationships within it. This is where universal access to the internet via desktop and mobile devices can create a level global playing ground. The importance of professional associations and trades unions as guardians of standards and campaigners for equity should be emphasised, as should skills in workers' rights advocacy and practical capacities in various forms of industrial action. . .” (Douse 2013). This too should be regarded as a necessary soft skill for the digital age.

**Migrant labor** is, apart from the planned and usually lucrative career excursions of a few privileged expatriate experts and international entrepreneurs, one of history's greatest inhumanities, on a par with slavery, with which it overlaps (and which manifestly still exists). Headlines such as “Nepalese migrants building the infrastructure to host the 2022 World Cup have died at a rate of one every two days in 2014” (Guardian 2015) typify the exploitative situation. Some countries, including several in South Asia, deliberately train their nationals for that heinous trade, counting upon the remittances for national budgets and wishfully hoping that workers with accredited qualifications as, say, master masons will be paid marginally more than unskilled laborers.

More positively, digitization offers many opportunities for significantly overcoming disadvantage and ameliorating segregation. For instance, assistive and adaptive technologies, which are objects or systems designed to increase or maintain the capabilities of **people with disabilities**, can be used to achieve inclusion. Such disabilities can include visual, cognitive, learning, and mobility incapacities; “responsive assistive technologies include screen readers, robotics, voice recognition, magnification, text-to-speech functionality, short message service, instant messaging, telephone relay, video captions, and hands-free navigation and gesture-controlled interfaces” (Uys and Douse 2017).

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## Digital Age TVET Provision

To a large extent, enabling trainees to master digital skills involves the same principles as teaching them twentieth-century skills: using a variety of appropriate pedagogies, breaking down the material into small steps, encouraging much practice

under sensitive supervision, blending face-to-face and digital learning experiences, and providing early feedback. One major difference in degree consists of the ability and desirability of trainees benefitting from self-instruction: to that extent, an objective is, wherever appropriate, to **establish an environment wherein the trainees may take control of their learning**. Digitization creates similar opportunities for deeper independent learning but also more expansive collaboration opportunities, nationally and globally.

As the Director of a University-Community Transformation Centre points out, “. . .the digital age has transformed the way TVET is operating. Technological integrated learning is ubiquitous in the TVET context and the learning occurs not totally as a response to teaching, but rather as a result of a social framework that fosters acquisition of knowledge” (Mustapha 2017). His call to “move far beyond the traditional view of teaching as delivery of information” is echoed, and his schema of web-based education as an evolving level of continuity:

- Web 1.0 as a web of information connection
- Web 2.0 as a web of people connection
- Web 3.0 as a web of knowledge connection
- Web 4.0 as a web of intelligence connection

is appreciated (Mustapha 2017). Which poses the question as to what the digital age TVET institution should be – if the realistic and necessary objective is to support, reflect, and apply the techniques made possible by the digital age, when we come across a “TVET center,” what exactly is it that we shall see?

While specific situations, contexts, and aspirations vary widely, digitization has consequences and offers opportunities for transformation to all TVET centers worldwide. The first of two major challenges to the global TVET system is the very **massiveness of the training and re-skilling required** but which may also be provisioned and realized through digital connectivity and integration. Workers in all areas and of every level must now very frequently refresh their skills, if not alter their career paths, or even move into entirely new careers, if they wish to stay relevant and marketable (let alone professionally fulfilled) in this rapidly changing digital environment: that too is made possible by digitization.

The second has already been touched upon under both boundaries and status: where does TVET end and something else begin? If just about every job is both practical and theoretical, in a world where collar color is no longer distinctive, is the role of TVET simply that of delivering those elements of capacity building that no one else (universities, professional associations, company training schemes, etc.) is providing? Or is the sector in competition with those other providers? Or are **entirely new digital age definitions, visions, goals, and missions** necessitated? It is conceivable that tertiary, lifelong and higher education will merge and even include elements of secondary education, all engineered and supported by blended interactions and flexible pathways between the various levels.

Clearly, TVET needs to deliver much more much better. The TVET instructor may involve a wide range of media and devices to communicate content, but the

trainees' development in understanding is much more specifically tied to particular instructional approaches and technologies. As the Motivis Learning CEO put it: "Google, YouTube, and/or Wikipedia can answer almost any question, but no search engine or social media platform can be relied upon to put information into developmentally appropriate contexts" (Peddle 2017). But this presumes that the instructor is skilled enough to assist the trainees in gaining optimum advantages from the learning technologies or that the "instructor" still needs to "instruct" in a world in which information is universally accessible through online and mobile devices. As with teachers in general education, TVET instructors carry huge responsibilities to create the framework and scaffold the learning, and, if they lack digital understanding, they cannot contribute that much to their trainees' all-around development in the digital age.

While the digital future will transform TVET – in terms both of what needs to be learned and how best it should be "delivered" – as with general education, it involves no either/or choice between technology and teacher. Just as "digital education needs excellent teachers and the teaching profession needs digital education" (Hassel et al. 2012), so also does digital age TVET require **excellent instructors working in tandem with the optimum technology**. The human instructor will very much be needed to create blended learning experiences, motivate trainees, support them with time and task management, mentor and model life skills, help them dig deeper into material and develop higher-order thinking skills (analytical, conceptual, and creative), and take responsibility for ensuring learning outcomes. They will retain responsibility for diagnosis, assessment, and accreditation: and in each of these, they will be supported by digital technology: no longer the "sage on the stage" but the "guide by the side," not to mention the "critical friend to the virtual end," somewhat more Satnav than satrap!

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## Open TVET Learning

Distance TVET has an increasingly significant part to play in the blended skills development setting. Such remote instruction may be:

- Synchronous, with instructor and trainee **interacting in real time** (e.g., video-conference, shared online whiteboards, Skype, or telephone)
- Asynchronous, with **interaction other than in real time** (written online feedback on assignments, answer students' questions via email, or post a response to an online discussion board)

And both forms overcome some of the problems of location and distance. Instructor and learner need not even be in the same continent or time zone provided they remain on the same wavelength: each may choose their preferred work setting. Moreover, specialist or "Mediagenic super instructors" (to borrow a phrase from Bryan Hassel) may reach a "potentially boundless number of trainees..." As this technology advances, none should ever have to learn how

to lay bricks or make soufflés or deal with angry customers “. . .from anyone other than the very best explainers of those topics worldwide” (see Hassel et al. 2012).

The more divorced TVET redeploys from a specific and physical location, the easier it becomes to imagine different kinds of employment arrangements for instructors, located in virtual centers, providing instruction online, designing instructional resources or curricula, or giving quality assurance. Similarly, online TVET instructor professional development may take place anytime and anywhere, in a dynamic setting, bespoke, and available upon demand. These changes will not come about automatically, and TVET is certainly not there yet. A basic and obvious necessity is the provision of universal low-cost access to broadband Internet for all centers, instructors, and trainees worldwide (making The Global TVET Centre feasible and inevitable, see Uys and Douse 2017 on “The Global School”). **Excellent digital tools and excellent live instructors, working in tandem, seamlessly blended**, for all trainees, should be the TVET policy goal.

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## Sufficient and Suitable TVET Instructors

This digital age necessitates – and makes possible – the provision of sufficient competent, confident, and cheerful TVET instructors, deserving and receiving widespread respect and playing key facilitative and professionally fulfilling roles in “skills development founded upon digitization.” Just as next year’s TVET instructor may be working from a physical or a virtual center, or as an online provider or designer, so too may that professional’s career-long capacity development be facilitated by a **revitalized TVET instructor profession**. Irrespective of their vocational specialities (ideally reflecting the market’s forthcoming priorities), all TVET instructors will be teachers of digital skills and effective agents in the propagation of digital literacy and fluency (much as it has often been said in general education, especially in English-speaking countries, that “every teacher is a teacher of English”). Not only will they continue to be well versed in content, they will increasingly need to become experts in skills development and learning experience creation, at least matching the needs of knowledge-based workers.

Clearly, the unparalleled changes, challenges, and opportunities involved in digitization necessitate entirely fresh thinking regarding TVET instructors’ roles and capacities, through pre- and in-service initial training and throughout career-long professional development. These digitally comfortable professionals, in addition to having a suite of basic technology-related skills, will take on new and often more sophisticated duties and responsibilities in ways that will challenge the existing capacity of many TVET educator centers and systems to prepare and assist them over time.

Instructors will become “guides” and “facilitators,” intelligently utilizing the vast and readily available source of information and ideas, the experience and expertise of the trainees, applying techniques such as business games, hospitality management simulations, and the “flipped workshop and class” (see Uys and Douse 2017, for

a detailed discussion of these possibilities). Moreover, trainees will become “co-instructors” in learner-centered environments: competent and confident digital age TVET instructors will have no problem with that.

Inevitably, some will respond negatively to this challenge – change is frequently resisted for a wide range of reasons (often unrelated to the nature of that change). “Digital dividends” (World Bank 2016) makes clear that, while technology will not replace teachers, teachers who use technology will replace those who do not. This applies equally to TVET instructors: while technology will not replace them, it will profoundly alter what they do and how they do it, and those who make the best use of contemporary (and evolving) technology will replace those who do not. Or, to look at it another way, with digitization and the necessary support, **effective TVET instructors will come into their own**, deserving and receiving widespread respect. [Indeed, having called those who impart TVET skills “instructors” throughout this chapter, the possibility of their osmotically becoming “educators,” within a seminal postsecondary alignment, offers no menace.]

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## TVET Instructor Preparation

Digitization is changing dramatically that which TVET instructors need to learn, not only reflecting the transformation of the world of work but also responding to the revolution in instructional techniques, equipment, and technologies. In a similar manner, digitization is offering fresh possibilities regarding how TVET instructors receive basic training and continuous professional development. In such dramatically altered circumstances, the necessity is to **redefine TVET instructor education for the digital age**. If TVET instructor training institutions continue to prepare instructors for obsolete jobs in factory-era TVET centers, the future is already over. Places (some virtual) where instructors are enabled to become and remain effective and self-assured as facilitators of TVET transmission in the context of digitization must themselves be transformed into new kinds of learning spaces, and instructors must be trained and guided therein, so they are ready to work well in the centers of the future.

Across the world, many existing systems of TVET instructor preparation are unfit for purpose: failing to equip the instructors with the skills needed to enable their trainees to be successful in the twenty-first century, being still blinkered by the twentieth. Not all furnish potential instructors with the digital skills or technological confidence required to serve present let alone coming generations of digital native and socially networked trainees. And certainly not all prepare them for careers in a globally integrated knowledge economy that rewards teamwork, continuous learning, and constant innovation. Current and future generations of trainees will be technically savvy; their instructors must be ahead of the game (or at the very least know how the game is played); those who educate those instructors must be in advance of the tournament.

Drawing upon the American Association of Colleges of Teacher Education’s consideration of educator preparation and twenty-first century skills (AACTE 2010)

and recognizing the unsurprising overlap with the set of soft skills required in a knowledge society (see above), it is suggested that TVET Instructor Educators should produce instructors who will, for example, place knowledge acquisition and skills development in a global context, facilitate learning in multiple modalities, use the full range of digital age learning tools, encourage divergent inquiry, and be lifelong learners themselves. A critical element of a twenty-first century TVET instructor education institution must be that its own faculty model digital age teaching and learning. Instructors should be educated to be responsive to accelerating changes in global society and ready quickly to shed outdated policies, curricula, and practices in order to embrace **fresh and more effective approaches that address the needs of twenty-first century trainees and communities.**

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## Conclusion

In a decade or so, there will probably be no “TVET sector” as we know it; within a couple of decades, there may well be no discrete “TVET sector” at all. Focussing upon the skills needs of the nonacademic undoubtedly served valuable public and private purposes over the now-concluding period between industrialization and digitization. But comprehensive tertiary institutions and systems may now, and at last, embody the true *universitas* spirit. Whatever the mechanism, and however the occupational kaleidoscope settles at any point in the flow of time, **the massive, multifarious, and dynamic requirement for lifelong skills development will need to be met, creatively, efficiently, and, hopefully, equitably.** What that provision is called is among the most minuscule of the problems.

The central challenge is that of conceptualizing and creating TVET structures and arrangements appropriate to the dramatically new circumstances of these present and the forthcoming times. Which involves proceeding far beyond the examples and the particular innovations, interesting though they well may be. Which necessitates utterly reworked definitions of, for example, skill, work, qualification, curriculum, assessment, trainee, instructor, apprentice, TVET center, and, of course, “TVET” itself. It is also necessary to distinguish between the likely, the possible, and the fantastic.

Digitization enables and requires the transformation of not just the scope, delivery, and effectiveness of TVET, but, even more fundamentally, enables the creation of comprehensive, open, and nondiscriminatory arrangements that bestow both work-related and life-related learning possibilities upon the entirety of humanity, and at last fulfills skills development’s reach and purpose. And all of that to be envisaged and achieved by those with heads in the clouds and both feet firmly placed upon *terra firma*. And, let it also be emphasized, not by remote coteries of sequestered decision-makers with noble intentions unmatched by close acquaintance with reality but by means of the kind of **well-informed universal participation** that, at its best, contemporary technology makes possible, enjoyable, and unavoidable.

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# Skill India: New Skills Development Initiatives in India

# 3

Anita Sharma and Kenneth King

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## Abstract

In the past four years of the new Indian government (2014–2018), there has been a plethora of changes in the skills system in India. There is a new Ministry of Skill Development and Entrepreneurship (MSDE); a new campaign to “Skill India”

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has re-established the goal to train over 400 million people by 2022; a new National Skill Development Mission with its brand “Skill India” has been set up; and a host of new acronyms covering apprenticeship, qualifications, quality assurance, labor market data, and national and overseas skills has been launched. Most of these are explained in the new document, *National Policy for Skill Development and Entrepreneurship*, of 2015.

This chapter analyzes the new skills environment in India and asks whether it has been able to begin to address many of the very long-standing characteristics of skills in India.

Despite the renewed ambition of India to skill a mass of its own people and to provide the surplus of these young skilled people to the aging developed nations of the world, there is little evidence in the new mission that the crucial lessons and experiences from the last government’s skills mission and skills development initiative have been taken on board. The question remains whether the modification of skill development in India consists of renaming many of the approaches to the endemic features of skill in India or whether it constitutes a determination to break with the past.

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#### Keywords

Skills development · National skills development policy · Skills targets · Skills training schemes

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## The New Government’s “Skill India” Campaign

The new government came to power in May 2014. The reform and modification of skill training in India began soon after. What substantially has changed since May 2014?

In his very first address in the Lok Sabha (Parliament) on 11 June 2014, the new prime minister pledged to redeem the image of the country from the allegations about “Scam India” to “Skill India” and to enhance its stature nationally, through “cooperative federalism” among the central, state, and local governments (Narendra Modi 2014). While laying out the mandate of the newly formed government, he said “Only a graduation certificate is not enough (sic). We need skills. We need to concentrate on skill development (Narendra Modi 2015).

Acknowledging the formidable scale of this challenge, the government notified the creation of the first dedicated Department of Skill Development and Entrepreneurship on 31 July 2014. The prime minister commented “Today the world focuses on trade in goods but in future the core issue will be how to get skilled people. We need to work in this direction” (Financial Express 2015).

On 9 November 2014, this department became a full-fledged Ministry, the Ministry of Skill Development and Entrepreneurship (MSDE), with the following already existing organizations under its purview:

- The National Skill Development Corporation (NSDC) – This was a public-private partnership company setup in 2010 under the aegis of the Ministry of Finance,

and its aim was to make a significant contribution to the overall target of skilling and upskilling 500 million people in India by 2022. This would be mainly done by fostering private sector initiatives in skill development programs.

- The National Skills Development Agency (NSDA) (As of October 2018, the NSDA has been merged with the National Council for Vocational Training to form the National Council for Vocational Education and Training.) – This was an autonomous body which had come into existence on 6th June 2013. It subsumed the then Prime Minister’s National Council on Skill Development (PMNCSD), the National Skill Development Coordination Board (NSDCB), and the Office of the Adviser to PM on Skill Development. The NSDA’s role included anchoring the National Skills Qualifications Framework (NSQF) and facilitating the setting up of professional certifying bodies in addition to the existing ones.
- National Skills Development Fund (NSDF) (2015, MSDE, National Skill Development Funds) – This was set up in 2009 by the Government of India for raising funds both from government and non-government sectors for skill development in the country. The fund is contributed by various government sources and other donors/contributors to enhance, stimulate, and develop the skills of Indian youth by various sector-specific programs. A public trust set up by the Government of India is the custodian of the fund.
- National Institute for Entrepreneurship and Small Business Development (NIESBUD) – This was an autonomous institute which was part of the Ministry of Micro, Small and Medium Enterprises (MSME). This move under MSDE provided a strong link of skill development with entrepreneurship and prompting start-ups.

On 16 April 2015, the Training Directorate, part of the Directorate General of Employment and Training (DGET) under the Ministry of Labour and Employment (MoLE), was also moved to MSDE. With this Directorate, the entire network of industrial training institutes (ITIs) and apprenticeship training schemes became part of the MSDE.

The MSDE structure thus became complete by moving all the most important players in skill training from different departments and ministries to be under one roof. The DGT, as it is now called, and NSDC together had the target of training 250 million youth in different skills as per the then existing National Skill Development Policy of March 2009, which was 50% of the total skill development target (500 million) of the then Singh government (2015 MSDE 2009)

The desire to project the identity of the country as “skilled India” could be considered as one of the most significant developments driven by the prime minister in the field of skill training in India. With a ministry of its own, skill training has become a “National Agenda.” The biggest challenge of fragmented approaches and lack of adequate focus and coordination faced by skill training in India since 2007–2008, when multiple structures under different roofs (DGET under Ministry of Labour and Employment, NSDC under Ministry of Finance, NSDA under the former Planning Commission, etc.) were set up, was now being resolved. Coordination and consolidation of skill training could now be driven and included in the

policy decisions to be taken by the MSDE. A new skill ecosystem was being created in the country.

The first Minister of State for Skill Development and Entrepreneurship assumed charge of the newly formed Ministry of Skill Development and Entrepreneurship (MSDE) on 11 November 2014. Following the vision of the prime minister, he affirmed that Skill Development would play a critical role in fulfilling the objectives of the prime minister's Skill India campaign and that the ministry would coordinate with other ministries/departments to achieve the mission of skilling India (Business Standard 2014).

The minister stressed the importance of the rationalization of the existing skill development schemes and outlined specific deliverables for the short-, medium-, and long term for the ministry. He restated that the ministry was expected to play a key role in reaping the "demographic dividend" in the country. This is India's claim to have a unique 25-year window of opportunity, when it will have the world's youngest workforce, much younger than China or the OECD countries.

The minister affirmed that there would be a positive contribution from "Skill India" to the prime minister's "Make in India" campaign. The latter aimed to make India a global manufacturing hub. Clearly, "Make in India" cannot succeed if India is not able to provide its own well-trained workforce; and "Skill India" would succeed only if the skilled youth are appropriately employed after training. Accordingly, the "Make in India" and "Skill India" campaigns are expected to be well-linked, and they should closely support each other; one would enhance the economy by inviting global organizations to set up their manufacturing units in India, while the other would provide well-trained manpower to be employed in these manufacturing units, supporting integration of more and more skilled labor into the system. After all, skill development cannot be pursued in isolation from production and employment.

On 15 July 2015, when MSDE celebrated the first World Youth Skills Day, the prime minister launched the Skill India campaign (Press Information Bureau 2015). In his address, he gave the country a vision. He said that in the twenty-first century, India's industrial training institutes (ITIs) would acquire global recognition for producing quality skilled manpower. He called for constant updating of training programs and syllabi to ensure that the youth is exposed to the latest technology and industry environment. He said the government would work to promote both apprenticeship and entrepreneurs. He declared that it is important to predict the possibilities of the future and prepare for them today.

The Skill India campaign of the new government includes four major initiatives:

- (a) The National Policy for Skill Development and Entrepreneurship, 2015
- (b) The National Skill Development Mission
- (c) The Pradhan Mantri Kaushal Vikas Yojana (PMKVY); and
- (d) The Skill Loan scheme

One concern in reviewing these would be whether they would take account of the fact that 93% of the Indian economy is in what India terms the unregistered or unorganized sector of the economy, or that, in this vast informal economy, skills are

basically acquired on the job, often moving from casual labor to different levels of skill, again unregistered and unrecognized.

## **The National Policy for Skill Development and Entrepreneurship 2015**

The National Policy for Skill Development and Entrepreneurship 2015 (hereafter Policy 2015) supersedes the National Policy for Skill Development, 2009 (Policy 2009) (2015, MSDE, GOI [Government of India] 2009). The Policy 2009 was the first ever policy document for skills development in India. The document was developed, under the previous government, for the then DGET with support of the ILO. The document also mentioned that it should be reviewed and updated in 5 years' time. Accordingly, the National Policy on Skill Development and Entrepreneurship, 2015 has done justice to this pledge.

On substantive issues, the Policy 2015 does not miss any points from Policy 2009 including the vertical mobility, interministerial coordination, incentivizing the private sector for increasing their participation in skill training, financial support to candidates seeking skill training, addressing the unorganized sector, and use of digital platforms. Most other developments like the recognition of prior learning (ILO Report 2014), National Skill Qualification Framework, pathways for vertical mobility of ITI trained youth, Institutes for the Training of Trainers (IToT), etc., which were already in place by 2014, have also been covered in the Policy 2015. The Policy 2015 captured the state of skill development in the country at that time but rationalized it by bringing realistic targets.

What is new in Policy 2015 is its emphasis on the term “aspirational” for skills training. Aspirational applies to both youth and employers whereby youth sees it as a matter of choice and employers acknowledge both the productivity linked to skilled workforce by paying the requisite premium, and they recognize the link to Make in India (2015, MSDE, National Policy for Skill Development and Entrepreneurship 2015a). The same message is further reflected in the new focus of the policy. Policy 2015 is about “meeting the challenge of skilling at scale with speed, standard (quality) and sustainability”; Policy 2009 focused more on “rapid and inclusive growth”(2015, MSDE, GOI [Government of India] 2009, para 4.0.1, p. 23).

The most notable shift in Policy 2015 was the change in the quantitative skilling targets. When launching the “Skill India” campaign, in July 2015, the prime minister announced the new target for Skill India was 400 million persons to be trained in different skills by 2022. This was certainly a substantial reduction from the previous government’s 500 million.

This was not just a reduction in the target by 20%, but also the Policy 2015 made it clear that of these 400 million, those who are new entrants to labor market and require skill training are only around 26%. The remaining approximately 74% of the 400 million (298.25 million) are those who may require different approaches like recognition of prior learning (RPL), reskilling, upskilling, and skilling of the existing

unskilled workforce, especially those below 45 years of age. This reformulation was a new and substantial change.

In fact, until April 2015, when the Ministry for Skill Development and Entrepreneurship (MSDE) had come into existence, the target for skilling continued to be referred to as 500 million. An example of this is seen in the report of the subgroup of the Chief Minister on Skill Development (Report of the Sub-Group of Chief Ministers on Skill Development 2015), a group appointed by the NITI AAYOG (The National Institution for Transforming India – a new form of the previous Planning Commission of India), which met in April 2015 to discuss and put their thoughts together on various aspects of Skill Development in the states. The report of this subgroup, published in September 2015, still mentioned the skilling target as 500 million (Ibid, p. 24, para 2.38)

The specific skill training targets under Policy 2009 were always a point of discussion under the previous government. The authenticity and source of the numbers were queried. The current government's specific skilling targets are also already being reconsidered by the MSDE. In a press conference held on 8 June 2017, the senior officials of MSDE said "We don't want to chase any number. Whether it is 150 million by the National Skill Development Corporation (NSDC) and 350 million by ministries – we are delinking it, not attaching any number" (Livemint 2017). MSDE also refused to spell out a new number that the Union government and its 22 departments and ministries will each be set to attain.

As the new ministry, MSDE, also focuses on entrepreneurship, the Policy 2015 reflects this focus and has a full set of separate objectives for entrepreneurship. These include the organizing of a "world class entrepreneurship education curriculum" through thousands of Entrepreneurship Hubs in colleges, as well as national and state level (2015, MSDE, National Policy for Skill Development and Entrepreneurship 2015b).

It is noteworthy that the Policy 2015 does acknowledge the fact that 93% of India's workforce is in the unorganized sector and also that there is an unrecognized apprenticeship system or on-the-job training system operating in this informal sector. It is assumed in the Policy that the recognition of prior learning (RPL) system will take care of their formal certification.

## **National Skill Development Mission 2015**

Although there had been a National Skill Development Mission from 2009 (2012: [Government launched a National Skill Development Mission in the Eleventh Five Year Plan](#)) under the previous government, the new government's National Skill Development Mission 2015 is the first to focus policy on creating convergence across sectors and states in terms of skill training activities. As per the MSDE, "... To achieve the vision of 'Skilled India', the National Skill Development Mission would not only consolidate and coordinate skilling efforts, but also expedite decision-making across sectors to achieve skilling at scale with speed and standards. It provides the institutional mechanism for achieving the objectives of the Mission" (2015, MSDE [National Skill Development Mission](#)).

By contrast, the mission 2009 focused on issues including remodelling India's formal apprenticeship scheme, improvement in accreditation and certification systems, reorienting curriculum on a continuous basis, and establishing an institutional mechanism for providing access to information about a skill inventory and skill map on a real-time basis ([2012 Skill Development Mission](#)). The Skill Mission 2015 has a similar focus, presented differently: "To rapidly scale up skill development efforts in India, by creating an end-to-end, outcome-focused implementation framework, which aligns demands of the employers for a well-trained skilled workforce with aspirations of Indian citizens for sustainable livelihoods" ([MSDE: National Skill Development Mission](#)). There is a greater urgency in achieving outcomes and securing convergence across institutions in the mission statement 2015.

The implementation framework stipulated in Mission 2015 is new and is built on the new structures – MSDE is the driver of the Mission, a Governing Council for policy guidance at the apex level, a Steering Committee, and a Mission Directorate (along with an Executive Committee) as the executive arm of the Mission. The Mission Directorate is further supported by the National Skill Development Agency (NSDA), the National Skill Development Corporation (NSDC), and the Directorate General of Training (DGT) – all of which will have horizontal linkages with the Mission Directorate to facilitate smooth functioning of the national institutional mechanism.

With MSDE in place, the structures for implementation of the Skill Mission 2015 were already set. The Secretary of MSDE was to provide the requisite leadership and the linkages among the three pillars – NSDA, NSDC, and DGT.

### **The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) (The Prime Minister's Skill Development Scheme)**

As part of the Skill India Campaign, PMKVY has been included as the flagship scheme of the MSDE. Popularly referred to as "Skill Certification Scheme," the scheme aims at enabling a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood. The scheme implementation lies with National Skill Development Cooperation (see below).

PMKVY is actually a re-worked version of the existing National Skill Certification and Monetary Reward Scheme, popularly branded as STAR (Standards Training Assessment and Reward) which was an incentive-based skill development model. STAR was introduced on 16 August 2013 by the previous government with a budget outlay of INR 10 billion (USD 156.1 million) and a target to motivate 1 million youth to acquire vocational skill during the first year of its implementation.

PMKVY was introduced in a much bigger way – a corpus of INR 15 billion (\$ 225 million), which was a 50% increase, and target of covering 2.4 million persons, which included 1.4 million youth to be skilled and 1 million workers who would be certified under RPL (recognition of prior learning). Under the scheme, a monetary reward of INR 8000 (USD 124.9) is provided to trainees on successful completion and certification of their skill training courses.



The scheme is hosted by NSDC (see below), and the training is imparted against national occupation standards (NOSs) for specific job roles, formulated by industry-driven bodies, namely, the Sector Skill Councils. Trainees with prior experience or skills and competencies are also assessed against NOSs, and candidates get monetary rewards against successful assessments. It facilitates the process of skill upgradation and reskilling of the existing workforce. A live PMKVY dashboard has been set up which gives the number of persons enrolled and trained at any point of time.

The STAR scheme of the previous government had evolved from the then flagship scheme, the Modular Employable Scheme (MES), associated with the ILO, under the Skill Development Initiatives (SDI). MES-SDI scheme was an immensely popular initiative among both the youth and industry. It overshot the target set in the 11th Plan by close to 40%. In July 2013, 1433 course modules had been developed covering a variety of trades and 7000 Vocational Training Providers along with 46 Assessing Bodies registered.

In early 2013, ILO was requested by the DGET to strengthen the implementation of the SDI-MES scheme. After a series of meetings, a review workshop in Bhopal, and follow-up interviews, ILO submitted a report which included key issues and recommendations (ILO Report by Astha Ummat: SDI-MES feedback from the ground 2013). Most of these recommendations have since been adopted in the PMKVY.

MSDE further modified the implementation modalities of the scheme, to make MES into the PMKVY. These included the following:

- Implementation of the scheme was shifted from the states to NSDC. NSDC used its established network of Sector Skills Councils (SSCs) to implement the same.
- SSCs, autonomous bodies, tasked with developing a robust training delivery mechanism, were invited to partner PMKVY and take responsibility for:
  - Affiliation of the vocational training partner (VTP) – a task which was earlier with DGT ([MSDE – NSN – Sector Skill Councils in India](#))
  - Training the trainers of these VTP
  - Supporting assessment of the trainees (fee based)
- In PMKVY, the VTPs submit proposals to SSCs for conducting training programs. Registered VTPs are mandated to submit the biometric attendance of the trainees and trainers, as well as a detailed monitoring report to SSCs on the designated portal on regular basis.

The Sector Skill Councils are allotted training targets by NSDC, which are then distributed among their affiliated VTPs.

This change is seen as a large contribution toward promoting a sustainable business model for Sector Skill Councils, which were set up under the previous government. Selected states which wanted to continue the MES have been allowed to do so under the State Skill Development Mission ([MORD DDU-GKY- State Skill Development Missions](#)).

Under the PMKVY, skill training is being provided in 221 courses over 34 different industrial verticals (groups of industry having similar processes and may have



similar skill needs) through authorized training centers. As per the Government of India report of 6th June 2018, since its launch, close to 5 million candidates have been trained under the PMKVY so far (1.9 million under PMKVY 1 and 2.75 million under PMKVY 2, 2016–2020). PMKVY targets to train 10 million youth by 2020 ([2.5 Crore trained under Skill India in 3 years under Ministry of Skill Development and Entrepreneurship programs](#)).

In addition, 933,000 youth have been oriented under the Recognition of Prior Learning (RPL) program of PMKVY which recognizes and certifies skills acquired through informal means, bringing about a major shift from the unorganized to the organized economy. Under the fee-based skill training, the number of training centers has increased to 11,035, and close to 10 million youth have been trained so far (*ibid*).

This is a marked increase from the 703,535 persons which were reported to have been trained/tested under the Modular Employable Scheme of the former government from April to December 2013 ([Outcome Budget 2013–2014 of the MoL&E](#)).

### **The Skill Loan Scheme**

This scheme which aims to provide financial support to the eligible candidates for undertaking skill training programs has been in place since 2012. The then existing model loan scheme for vocational education and training had the approval of the Indian Banking Association (LiveMint, IBA approves vocational education loan scheme [2012](#)). As per the scheme, no collateral security from students was required and there was no age bar for availing of the loan. The focus was on enabling interested youth to undertake skill training. The skill loan amount was in the range of INR 20,000 (312.2 USD) to INR 150,000 (2341 USD) with a variable interest rate. The list of expenses which could be included under the loan covered all elements considered necessary for completion of the course.

This very same Skill Loan Scheme was relaunched by the present government as part of the Skill India campaign on 15 July 2015 with just a minor change in the range of the loan amount (Skill Loan Scheme, PIB Ministry of Skill Development and Entrepreneurship [2015](#)). The minimum amount of loan has, in the new scheme, come down to INR Rs. 5000 (78 USD), and the rate of interest has been specified as a simple rate of interest at 11% and 12% per annum charged during the period of study.

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### **The Modification of Skill Training: A Journey Over the Last 4 Years**

What has really changed over the last 4 years? Is the current government's Skill India just a modification of the previous one's? Is the Skill India Mission only renaming many of the approaches to the endemic challenges of skill in India, or does it constitute a determination to break with the past?

In this part of the chapter, we review this key question. The information source is primarily the press releases and feedback received from the practitioners.

Skill development under the present government has taken a priority with a hope that the Skill India Mission will supply huge human resources not only in India but also internationally. Undoubtedly, a massive restructuring of the Skill Development ecosystem has been undertaken at the national level. However, the policy decisions undertaken so far seem to be more on upscaling what was already in action.

One aspect evident across all the current approaches of skill development is a sense of urgency and of achieving the target numbers. However, the targets laid down in many cases are far higher than can be possibly achieved. And to make these closer to the real situation, conditions are sometimes altered, thereby reducing the intended impact.

Some approaches seem to open doors for the early school leavers, while others don't. But the overarching fact remains that all the decisions are in favor of those who are digitally empowered – whether they be the training providers or the youth. It can be argued that there is thus a bias against skills for poorer sections and for rural areas.

The service sector has also been given a space of its own in the skill agenda of the government by allowing them to participate in the National Apprenticeship Promotion Schemes (see further below).

However, Skill India has so far not focused sufficiently on the quality aspects of skill system; and the government seems to be quite aware of this. In May 2012, the subcommittee of the National Council of Vocational Training (NCVT) ([DGET-39th NCVT Order](#)) for norms and courses was reconstituted and orders for revision/revamping of the craftsmen training courses issued. Almost all the craftsmen training courses ([MSDE-DGT: List of courses under Craftsmen Training Scheme](#)) under NCVT, being implemented in industrial training institutes, were last revised in 2014. Then, the Mentor Councils (MCs), having representatives from thought leaders among various stakeholders considered relevant for the particular trade, were set up to support the revamp/modification of the courses. No major revision of curricula has been undertaken since then. The only change in some of the courses undertaken, since 2014, has been giving a NSQF reference to these courses.

In November 2016, the approval for establishing Mentor Committees (Government approves creation of sector mentor committees – [The Economic Times 2015](#)) (new name for the Mentor Councils) has been given by MSDE. However, if the pace of curricular revision remains the same as earlier, the revised version would most likely not be available for implementation any time before April–May 2019 when the general election is taking place.

While celebrating the first two years of Skill India, the MSDE minister announced that “This year we will focus extensively on quality; our schemes and programmes have to orient themselves to seek regional balance so that maximum number of people can reap the benefit and add to their personal and the country's economic growth. . . . Our endeavour will be to give wings to the dreams of our people and empower them to be successful in their life [sic]” ([Press Information Bureau – MSDE celebrates Second Anniversary of Skill India Mission](#)).

Let us look at the major schemes under “Skill India” and find what really changed over the last four years and also what does this mean for India’s Skills Mission. As will become clear, several of the initiatives of Skill India are apparently reworking of earlier initiatives, while a few are continuing as they were. A snapshot of these is presented below.

## National Skill Qualification Framework

The National Skills Qualifications Framework (NSQF) in India was notified on 27 December 2013, superseding the then existing frameworks, which also included the National Vocational Educational Qualification Framework developed by the Ministry of Human Resource Development (NSQF ([MHRD \[GOI\]](#), [NSQF Notification](#))). It was further agreed that NSDA, which is mandated to coordinate and harmonize all skill development efforts of the Government of India and the private sector, would anchor and operationalize the NSQF.

The NSQF, it was stated, would lead to an outcome-based approach in learning – both in the general and vocational space – provide transparent progression pathways, establish equivalence of certificates/diplomas/degrees, support in development of quality qualification with formal certification that also permits acquisition of higher qualifications, facilitate recognition of prior learning and promote international mobility, as well as credit accumulation and transfer system.

The NSQF, having been formally notified in December 2013 under the former government, was still a new topic when the new government came to office. There were already many commentators who wrote in favor of the idea of adopting NSQF; but there were equally a good number of critical views which argued against having the single framework for the country which is full of diversities and contains a huge unorganized sector.

In an interview in the *Economics Times* in April 2015, the then MSDE minister stated that “By 2020 an educational qualification will not be enough. You would need an NSQF to apply for any vacancy in the government” ([The Economic Times 2015](#)). The recruitment rules that the Government of India and Public Sector Units (PSUs) of the central government use will be altered so that the eligibility criteria can be defined in NSQF levels. State governments and PSUs will be asked to amend the rules for the same. All the skill training programs are being aligned to the NSQF. Courses that are not compliant to NSQF will not receive any government funding. Training and educational institutions that are funded by the government will also define their eligibility criteria in NSQF levels.

Regardless of the critics’ views, the implementation of NSQF was intensified over the last four years. However, no major quality change in the qualification packs (QPs) and the National Occupational Standards (NOSs) which form the NSQF has been notified in last four years.

In 2015, after the formation of the MSDE and the launch of Skill India, the MSDE set up a committee under the then retired Director General of Employment and Training, to rationalize and optimize the functioning of the Sector Skill Councils.

The seven member committee included authorities on vocational education and training in India. In its report, the committee noted that the level descriptors given in the NSQF lack clarity and objectivity. The report further mentions that “NSQF is quite technical and even the so called professionals do not understand it properly and therefore, there should be a sensitization and communication campaign with the help of seminars, workshops, etc. to educate all concerned about the nuances of each aspect” (2017 MSDE – Report of the Committee for Rationalization & Optimization of the Functioning of the Sector Skill Councils 2016).

An important element in a framework is its acceptance in the employment market and its link to remuneration benchmarking. As of now, the NSDA, the NSDC, and also the Sector Skill Councils (SSCs) which are responsible for implementation of NSQF do not have an answer to the monetary or other advantage a candidate would have on moving from one level to another. This raises the question – If the workforce with higher levels of achievement on the NSQF is not paid a higher wage, will skills development initiatives not be diluted? How will skills become aspirational in the language of Policy 2015?

## **Incentivizing Skill Training for the Private Sector**

Skill training became a sensitive issue for India already in 2010. It was realized that skill training would become attractive for the poor and excluded communities only when the youth from these communities are compensated for the time they spend in the training institutes and also that the private sector would participate in skill training only when they see larger benefits in doing so.

Hence, during the period of the previous government, a number of benefits were extended to the private sector for engaging in skill training. These included:

- Subsidized soft loans and financial assistance for skill development initiatives
- Service tax exemption for units engaged in skill development
- Private sector income tax benefits by donating money to NSDC for skill development activity
- Benefit from the Income Tax Act through participating in skill development activity

Besides, under the Companies Act 2013, it was already made mandatory for larger companies to spend at least 2% of their average net profits made during the three immediately preceding financial years on corporate social responsibility (CSR) activities and/or report the reason for non-expenditure. The term “Large Companies” here refers to companies with an annual turnover of INR 1000 crore (USD 156.21 million) and more, or a net worth of INR 500 crore (USD 78.1 million) and more, or a net profit of INR 500 crore (USD 78.1 million) or more during any financial year.

The CSR activities include “employment enhancing vocational skills.” The phrase “employment enhancing vocational skills” under CSR is further clarified as

the following – “Spending in Technical and Vocational Training for skill building based on training cum apprenticeship results in enhancing the employability of such trainees” ([Frequently Asked Questions On the provisions of Corporate Social Responsibility under Section 135 of the Companies Act 2013 and Rules thereon](#)). The cost of expenses such as stipend, faculty, infrastructure costs, etc. will be included as CSR activities. It will not deprive the company which is providing such training from hiring a trainee from that pool of talent. However, if such training is provided to existing employees, then it will not qualify as CSR.

Besides the above possibilities, financial incentives in the form of reimbursement of training costs for participating in MES (now PKMVY) programs or short-term courses in partnership with NSDC were available to the private sector.

The present government continued to offer all these incentives extended to the private sector by the previous government. The MSDE minister in a press release on 11 December 2014 shared these initiatives again as an offer to incentivize the participation of the private sector in skill development ([Press Information Bureau, GOI](#)).

At the level of advocacy and agenda setting, both the prime minister and the MSDE minister have held meetings with the big industries, coaxing and persuading them actively to engage in skill training. This has intensified the participation of larger companies in skill training activities. Currently, a good number of big industries are active in such skill development – TATA, L & T, GE, Bajaj, Ashok Leyland, Reliance, and many more.

The monetary benefit of participating in skill training programs was initiated by the previous government in August 2013 with the introduction of an incentive-based skill development model under the National Skill Certification and Monetary Reward Scheme. An average monetary reward which the trainee received on successful completion of the training program was around INR 10,000 (USD 156) per candidate.

The present government has taken this scheme seriously, and, as of today, almost all the courses other than the ITI programs are linked with financial incentives. On successful completion of training under Pradhan Mantri Kaushal Vikas Yojana (PMKVY), the candidate receives a certificate as well as a monetary reward, which depends on the job role she/he undertook and the job role levels. On an average, the candidate gets INR 8,000 (USD 125) on successful completion of the course. Even in the other component of PMKVY, which is the RPL (recognition of prior learning), the candidates, on successful completion, get certificates as well as monetary rewards. The same is the case with another large scheme – DDU-GKY, to which we now turn.

### **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) (GOI) (Deen Dayal Upadhyaya Rural Skill Development Scheme)**

DDU-GKY, implemented by the Ministry of Rural Development (MoRD) and another flagship scheme of the present government, has been a clear case of the

renaming of an earlier scheme. This scheme was being successfully implemented under the former government as a placement-linked skill scheme known as “Aajeevika” (“livelihood”). The Aajeevika was launched under the National Rural Livelihood Mission (NRLM) in June 2011 by the then government mainly to address the skill training needs of the rural youth and extend to them placement-linked training. The scheme was found very successful especially by industry. Possibly, this is because it was the only scheme that mandated inclusion of generic life skills including basic English, IT, and soft skills in the training program, which are considered essential skills by the industry.

On 25 September 2014, under the new government, Aajeevika was relaunched as a promotional scheme, named DDU-GKY, and focusing on training rural youth for jobs. The scheme in its current version recommends use of technology in implementation and monitoring of projects; it also adds incentives for the trainees. DDU-GKY, through its training partners, has also employed use of biometrics, a modernized way of checking attendance of both the trainer and the trainees. In addition, DDU-GKY as part of its management process and requirements ensures that all training partners invest in IT infrastructure for sharing real-time performance data as well as for connecting with potential employers.

Given DDU-GKY’s special status, it entails financial support of INR 1000.00 (USD 15) to the candidate placed during the initial 2–3 months. To incentivize the youth for enrolling in the DDU-GKY program, candidates are provided free training, free uniform, free course material, free lodging and board in case of residential programs, reimbursements of transport expenses in nonresidential programs, placement for at least 70% of all those trained with a minimum salary of INR 6000.00 (USD 93) per month (as cost to company), and post placement salary top-ups every month of INR 1000.00 (USD 15) for 2–6 months depending on location of placement.

As per the DDU-GKY web page, the scheme is presently being implemented in 21 states and Union Territories, across 568 districts, impacting youth from over 6215 blocks. It currently has over 690 projects being implemented by over 300 partners, in more than 330 trades from 82 industry sectors ([National Skills Network](#)).

In the financial year 2015–2016, around 236,000 candidates were trained, and of these, around 110,000 were placed in jobs. However, in the financial year 2016–2017, the number of trained youth went down to 163,000 candidates, of which 148,000 were placed. In 2017–2018, the number was further reduced to about 131,000 trained of which only 76,000 were placed ([Deen Dayal Upadhyaya Grameen Kaushalya Yojana](#)).

The then MSDE minister, in answer to a parliamentary question in December 2014 ([GOI, Press Information Bureau](#)), stated that it is estimated that there are nearly 80–100 million (which is more than the 55 million included in the scheme document) youth in the age group of 15–35 years who can be skilled to join the workforce. The DDU-GKY has identified this group for skill development.

One key feature which has been part of the revised schemes is the extensive use of the Internet. Both the schemes, PMKVY and DDU-GKY, require transfer of live

biometric data and monitoring details on a daily basis. This development of using Internet for scheme governance and monitoring has also been extended from these two short-term schemes to the long-term training schemes. In the case of both the Craftsmen Training Scheme (which is being offered through the Industrial Training Institutes) and the National Apprenticeship Promotion Scheme, the enrolment and the registration are on their portals.

Though this is seen as a positive development, it does not match with the realities of India. India's Internet penetration is not even close to 50%. Hence, many youth, and mostly the needy ones, are being excluded from these social schemes. According to a report of March 2017 (Media Nama 2017), urban India has close to 60% Internet penetration, while rural India is still at 17%. With these conditions, these schemes which rely highly on the real-time data are a big challenge to implement.

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## What Has Been Really New in the Government's Last 4 Years?

### Paving the Way for Vertical and Lateral Movement for the ITI Trainees

- Opening opportunities for higher qualifications to the ITI trainees: As a vertical pathway for the ITI trainees, MSDE has proposed to set up a separate education board which could offer the ITI graduates, class X and XII certificates. This proposal has been recently approved (Times of India 2017). The academic certificates issued to the ITI graduates would be acknowledged by all the central authorities including the All India Council for Technical Education, Central Board for Secondary Education, and state education boards. Through this, matriculate ITI pass students, having spent 2 years on their ITI course, would not have to pursue secondary school completion (commonly referred as 10 + 2 in India) but will be able directly to get admission in colleges in the first year of undergraduate program.
- MSDE is still under the process of moving under its responsibility, 23,000 polytechnic colleges with 1.6 million engineering students and another 4 significant central skill development programs run by various ministries (The Indian Express 2017).
- Opening of lateral pathways in training and upward mobility of students – Components of the National Apprenticeship Training Scheme (NATS) for graduates from the department of higher education, Ministry of Human Resource Development (MHRD) are under consideration for transfer to MSDE. These include the Community Development training polytechnics and the “spinning & weaving” trades (All 23,000 polytechnic colleges likely to come under skill development ministry 2017).

The Directorate General of Training (DGT), MSDE in May 2017 announced the launch of high-end diploma courses in welding technology, industrial electronics and automation, manufacturing technology, automotive technology and IT,



networking, and cloud computing. As stated by the then minister MSDE, the need for advanced level courses/specialized courses has been long felt in the vocational training landscape in the country. The courses are of 2-year duration and were introduced from August to September 2017 at National Skill Training Institutes (NSTIs), DGT training institutes for advanced skill training. These courses would enable trainees to acquire cutting-edge training by providing an opportunity to sharpen their hands-on skills in specialized areas. One fourth of the training period is dedicated to on-the-job training in the form of an industrial attachment. Such decisions, according to the DGT, will extend the skill pyramid beyond the current vocational training provision.

In April 2018, in a daylong State Ministers Conference, new courses to promote emerging skill areas, like artificial intelligence, robotics, 3D printing, etc., were launched for ITI youth in collaboration with NASSCOM (National Association of Software Services Companies) ([Our aim is to ensure one ITI in every block](#)).

Taken as a whole, the preceding initiatives promise substantially to alter the positioning and reputation of skills training in India.

### **Acknowledging the Need of Experts to Envision, Plan, and Implement Skill Training**

With the formation of the MSDE, an initiative was taken to create a separate cadre of experts who could envision, plan, and implement skill training. Setting up of this separate cadre is an attempt to attract young and talented administrators for skill development.

In January 2017, the MSDE issued the formal notification for setting up of a new cadre in India – the Indian Skill Development Service (ISDS) (PIB, GOI – Government issues notification of Indian Skill Development Services [2017](#)). This service, created for the Training Directorate of the Ministry, would be able to attract qualified experts who will give new impetus to the initiatives of the government for skill development and also provide efficient and effective implementation of the many schemes just described. Through this service the skill landscape is expected to get strengthened and modernized in line with the current scientific and industrial development in the country. In years to come, the ministry will be able to create a workforce of trained skill administrators who will enable us to achieve the goal of increased skilled youths.

As a further marker of its increased status, the MSDE recently got three senior positions – it has in place additional secretaries responsible for DGT, NSDA, and MSDE.

### **Visibility and Promotion of Skill India Campaign**

To make skill training aspirational, it seems that branding and visibility of Skill India should be a major driver. A lot has happened in this regard:



- A new “Skill India” Logo was launched on 15 July 2015, giving it an identity of its own. Orders for wide use of this logo have been issued.
- “Skill India” advertisements are commonly seen on the baggage tags at the airport, showing a colorful picture of youth in skill training.
- Hoardings on “Skill India” with sector-specific skilled manpower needs until 2022 can be seen in many conspicuous locations – e.g., the Delhi Metro stations and inside the metros, in the bus stops, etc.

Even the press releases by the Public Information Bureau (PIB) have seen manifold increases. The largest number of press releases by the MSDE were seen in March 2015, when 26 press releases were issued. A number of web-news portals covering the day-to-day developments and news on skills training in the country have been launched as start-ups. The more popular ones are the *Skills Reporter* – India’s first skill start-up with the latest information on skill development, vocational education, and training (<http://www.skillreporter.com>) and the *Skill Times* from the National Skills Network (NSN) – a bi-weekly newsletter on skill development, training, employability, and entrepreneurship ([www.nationalskillsnetwork.in](http://www.nationalskillsnetwork.in)).

## Expanding the Skill Training Institutional Network

In December 2015, the Prime Minister’s Office directed skills ministry officials to open within one year 7000 new industrial training institutes (ITIs) or nearly half the number of all existing ITIs opened in India across six decades (Live Mint 2016). The government thus aimed at increasing by 50% the capacity of India’s then existing 13,105 ITIs (which included both government and private ITIs), having a training capacity of 1.86 million students in skills related to fabrication, electronics, and automobile industries, among much else.

As the government could not have opened 7000 ITIs on its own, the MSDE is undertaking multiple approaches – offering soft loans to private players to open ITIs and persuading companies operating in their respective areas to adopt old ITIs or open new ones. A full evaluation of the implementation of this ambition is still pending.

However, according to the DGT (data collected on 29 September 2017), the number of ITIs is 13,910, and the total training seats/capacity of these institutes (as given on NCVT MIS portal) is 2,978,478. As per the GOI press note dated 6th July 2018 (refer end note 34) since the inception of MSDE, there has been a 32% increase in the ITI count and a 54% increase in seating capacity since 2014.

## Rationalization/Consolidation and the Quality Review

In 2015, the MSDE appointed a Committee on “Rationalization & Optimization of the functioning of the Sector Skill Councils” and to suggest reforms in the vocational education and training system. The committee (mentioned above) headed by the

ex-Director General for Employment and Training (DGET) submitted their report which was placed on the MSDE's website for comment and feedback. The committee gave 52 recommendations. It raised issues about the short-term courses, which are primarily offered through SSCs under PMKVY and DDUGKY, and it mentioned that the short-term courses should be discontinued; only long-term competency-based courses should be offered; the SSCs should be restructured, and much else. The question is – to what extent would MSDE act on the recommendations made in the report? So far very little or no action in this direction seems to have been initiated.

### **Some of the Recent Decisions Made by MSDE Raise Big Questions on the “Quality” Expectation in VET**

One such example is the **National Apprenticeship Promotion Scheme (NAPS)** launched by MSDE in October 2016 to increase the engagement of apprentices from the then 230,000 to 5 million by 2020 ([Guidelines for implementing NAPS](#)). To enable it to reach this target, NAPS incorporated a few major changes:

- (i) It opened the door for enrolment of early school leavers as apprentices, provided these youth successfully undertook a minimum of three months of a basic training course in the classroom setup.
- (ii) It incentivized employers who engaged apprentices by reimbursing 25% of prescribed stipend subject to a maximum of INR 1500.00 (USD 23) per month per apprentice to all employers who engage apprentices. In addition to these incentives, the organization which also offers basic training would be reimbursing the cost of basic training (up to a limit of INR 7500.00 (USD 117) for a maximum of 500 hours/3 months) by the Government of India.
- (iii) The number of apprentices which could be engaged by employers increased to a maximum of 10% of the organization's total employees as against the earlier existing 2.5%.
- (iv) The monitoring of apprenticeship training by the government officers got relaxed – the tasks which apprentices would undertake in the industry would not be any longer monitored by the government. Though the apprenticeship training in its new form has opened doors to the medium and small industry and also the service sector enterprises, the dilution in monitoring may impact the quality of training in the longer run.

Here again, the entire process of registration for both the youth and the establishment under NAPS is through a dedicated portal. As per the National Apprenticeship Promotion Scheme progress report in July 2017, there was an increase in the number of establishments registered for apprenticeship by 282% – from 13,790 units already registered in August 2016, the NAPS portal has 33,272 units in July 2017. The number of apprentices registered also increased – from 113,000 apprentices in August 2016, the portal has 653, 000 youth registered in July 2017. The real impact on the ground – in the number of registered establishments which would actually engage apprentices; as well as the number of registered youths who get actually be

engaged as apprentices, is far from clear. This might be due to complex issues faced by the NAPS portal which is being redesigned. The new portal is now under the administrative powers of NSDC.

Here again, the digitalization requirement raises questions on the Internet coverage in the rural areas and the fear of excluding the rural youth in NAPS; and above all, there is the risk of delays due to non-performance of the portal.

The MSDE continues to evolve in its design and structure. The work allocation between DGT and NSDC, especially as both these verticals are engaged in training, has been continuously changing. When MSDE was formed, it was agreed that all training less than six months would be the mandate of NSDC, while those longer than six months would remain with DGT. In April 2018, a part of the apprenticeship training got moved to NSDC's desk. Though on paper the distinction was clear, the reality was very different. As of today, NSDC is steering the apprenticeship portal and the apprenticeship training for private sector with new training areas and courses designed by the industry members, while the traditional apprenticeship training with designated trades is with DGT.

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## Is the Government's Skill India Moving in the Right Direction?

A number of positive initiatives have been made under the present regime.

The emphasis on skill training, by forming a separate ministry for Skills Development and bringing under it the nodal institutes for Small Business and Enterprise Development, elucidates the importance given by the government to youth, employability, and entrepreneurship. As compared to being just a directorate, the ministry now has a strong agenda and deals with other ministries at par. A number of MOUs on Skill Development between MSDE and other ministries have been signed, clarifying the sectoral skill development agenda. Where possible, coordinated action for skill training is being promoted. An example of this convergence of central skill development schemes became visible when the responsibilities in skill development in polytechnics were transferred to MSDE in July 2017.

With a Skills minister at the leadership level, each initiative has become more compelling and has attracted larger visibility. Though the issues, more or less, are the same – strengthening coordination with state governments, launch of new training courses, restating the need of ITI in each district, accreditation, and self-grading exercise, the level at which these are addressed has made a big difference in its attainment. In addition, the Skill Development ministers from the states are regularly called for conference to deliberate on the skill issues ([Our aim is to ensure one ITI in every block of the country by end 2018 and up-grade our skill institutions with market relevant skills – Dharmendra Pradhan](#)).

The targets and budgets for skill development are now more focused and easier to measure. The MSDE expenditure of INR 21.73 billion or USD 339.97 million (revised estimates) in 2016–2017 got increased in the budget to INR 30.160 billion (USD 471.14 million) in 2017–2018.

Counting the two years in ITIs as equivalent to two years in general secondary has been an important step toward reducing the traditional divisions between vocational and academic pathways. It has also suggested that the ITI is not the end of the road but can connect with regular college.

Another prominent shift supported by the present government is the broadening of scope of the industries' involvement, especially through apprenticeship training. The industries are now permitted to recruit apprentices up to 10% of their total employees' strength. Some states like Maharashtra have extended this limit to 25%. But to encourage more companies to participate, the monitoring of the scheme has been diluted to a large extent. In fact, it could be argued that the apprenticeship scheme is being promoted as "getting cheap labor."

However, the expected qualitative reforms in the skill training did not take place as expected. The report on restructuring of the VET by Sharda Committee recommended a long list of action points, which when implemented, would lead to quality skilled manpower. The industry continues to raise the issue of poorly trained youth and is feeling this gap to such an extent that some of the industries have set up their own training centers. This raises questions on the then established connection between the "Skill India" and "Make in India" missions, which were in 2015 announced on big platforms by all the political leaders.

Another aspect to be highlighted includes the financing of participation in skill training. As compared to only one skill training scheme being linked with financial rewards with the previous government, the current government has almost all the skill training initiatives (other than ITI courses) linked with financial rewards – be it to the private sector or to the trainee. The motivation and drivers to skill training seem to have changed. Is this the direction that would drive India to reach the dreams projected under "Skill India"? Is this the approach which would make skill training "aspirational" for the youth of the country? The innovative ideas which can provide the required and sustained impetus to Skill India – are these yet to be launched?

Some more questions confront us: whether the present government is a modifier or an innovator or a reformer in the area of skills development. Has it substantially restructured and reinvigorated the whole area of skills development or has it merely taken over and renamed skills initiatives from the previous regime?

As noted earlier, the new government was formed in June 2014; and the Skill India Mission was launched in July 2015. But over this period, has the skill training offered for the youth, the ultimate beneficiaries, remained the same as they were in early 2014 under the previous government? The setting up of the new ministry – MSDE – had raised high expectations for big reforms and a new direction to the India's skill training system. However, many aspects of the skill training system remain unchanged. The launch of the Skill India mission in 2015 announced the training target as 400 million people in different skills by 2022. However, barely 40 million people have been trained by various stakeholders since then, including 25 million by the ministry of skill development ([Government weighs legislation on right to skill training](#)).

Also strongly linked with skill training is the job growth. Unfortunately, the job growth in the country in the last 4 years has not been very promising. Before

sweeping to power in 2014, the new government appealed to young job seekers with a promise to create 10 million jobs. Four years later it remains unclear how many positions have been created. Yet more than 12 million Indians enter the workforce every year, as government data show (World's fastest growth yet to make a mark on India's job market 2018).

The new government saw back in the construction of Policy 2015 that the crucial issue was to make “quality vocational training aspirational both for youth and employers” (2015, MSDE, National Policy for Skill Development and Entrepreneurship 2015a). This was always going to be a massive challenge in a country where caste has reinforced attitudes toward manual work for hundreds, even thousands, of years. The recognition that 93% of the workforce was in the informal sector and that there was an informal unrecognized apprenticeship system was an important starting point in Policy 2015. The creation of a stand-alone ministry for skills was a crucial step in the long road toward skills recognition. It will be vital also to follow the attempt to create a specialist cadre of officers – the Indian Skill Development Service – and a high-level National Institute of Skill Development to encourage the many different initiatives to build a new nationwide recognition of skill.

Ultimately, it will be these changes in the recognition of skill that will be vital rather than the crude numbers of skilled people, apprenticeships, and new ITIs. Securing world-class skills in just a few years is clearly a dream and especially so in a country where even the pursuit of world-class universities has been a challenge.

It is clearly too short a time for the government's many plans and initiatives in skill development to take their desired shape. But it will certainly make sense to revisit the Indian skill training system in five years' time and look back to see where the government had succeeded in this crucial first period with its ambitious and aspirational Skill India.

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# Information and Communication Technologies (ICT) in VET in Russia: New Developments

# 4

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## Abstract

This chapter focuses on the status of vocational education and training (VET) in the Russian Federation, which has dramatically changed. The problem of training highly qualified mid-level manpower in VET institutions is due to the emergence of modern technologies, the widespread use of computer technology. Modern economy requires such middle management specialists who are able to solve new tasks in complex and constantly changing conditions. This chapter highlights how modern information and communication technologies, being both a goal and a means of training in VET, open up new learning opportunities and contribute to the formation of key competencies of future specialists to satisfy the

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demands of present-day labor market. A lot of new professions have emerged in the modern labor market, and this has led to the necessity of new competences' development. Nowadays new professional standards are being introduced in Russia, and along with the other purposes, they aim at changing the content of vocational education and training.

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**Keywords**

Modern information and communication technologies · Labor market · Professional standards · Key competencies · Informatization of education

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## **Vocational Education and Training in Russia: Problems and Development Prospects**

Vocational education and training (VET) is an important part of education in the Russian Federation, and as an institution for the training of workers and employees, VET plays a major role in the modern life of the society. In accordance with the Law on Education (2012), the following levels of vocational education are established in the country: (1) secondary vocational education; (2) higher education, Bachelor's degree; (3) higher education, specialty and Master's degree; and (4) higher education, training of highly qualified personnel (The Education Act of the Russian Federation 2012).

Until 2012, there was one more level of vocational education in the country: primary vocational education with a wide net of vocational training schools (The Education Act of the Russian Federation 1992). As this level "drops out," two programs are introduced into secondary vocational education to replace it. These programs are considered to be a successful combination of skills in the field of primary vocational education with the knowledge and skills necessary to carry out the work requiring a level of secondary vocational education. As a result, the basic programs of secondary vocational education are divided into training programs for skilled workers and mid-level training programs (The Education Act of the Russian Federation 2012).

Since the beginning of the second millennium, the system of secondary vocational education of the Russian Federation has undergone significant changes, both positive and negative. The specialists (Anfimova 2009; Chernyshova 2015; Tkachenko 2014) note that at present the system of VET is experiencing certain difficulties. Among the reasons for this are the following:

- Demographic decline
- An increasing availability of higher professional education
- The general unstable situation in the economy and, as a consequence, the lack of interest of employers in improving working conditions and saving on wages

Today in Russia, only 20% of the employed population work on the basic specialty received in the educational institution, and 42% of young people change their professions in the first 2 years after graduating from vocational schools (Altunina 2012).

The current trend is growing due to the high technological level of the processes in the industrial sphere; first of all, people with low qualifications, narrow specialization, and low general educational level are without work (Jugfeld 2014).

At the XIX St. Petersburg International Economic Forum, within the framework of which the leadership of the country formulated the tasks related to the further development of the Russian economy, it was noted that “it is those regions that have made significant progress in the development of VET, as a rule, and on the whole demonstrate high socioeconomic dynamics.” In this regard, improving the system of VET and strengthening its relationship with real production operation are important tasks; and the training of specialists must take into account not only the requirements of the present day but also the prospects for the development of new markets and technologies (Putin 2015).

Today, the quality of education is undoubtedly a strategically important factor in the country’s further social and economic development, a condition for ensuring its national security, on the one hand, and a means of social protection, a guarantee of stability, and professional self-realization of the person at different stages of life, on the other.

The problems of lack of highly qualified personnel led to the fact that the modernization of VET is one of the priority tasks set for the Ministry of Education of the Russian Federation. According to “The Strategy for the development of the system of training personnel and the development of applied qualifications in the Russian Federation for the period until 2020,” approved by the board of the Ministry of Education and Science of Russia, the protocol of July 18, 2013 N PK-5vn, Russian secondary vocational education should move to a new level by 2020.

The current stage of the development of the secondary vocational school is characterized by a steady tendency to expand the scale of training specialists. The requirements for the content of vocational education and training are changing. VET currently faces new challenges on formation of students’ system thinking; communicative, legal information culture; creative activity; and ability to analyze the results of their activities (Belousova 2015).

To perform the tasks to improve VET, the Russian Government has developed a set of measures that should be implemented in three main areas:

- Work to ensure that graduates are qualified for current economic needs
- Cooperation of business structures and the state within the framework of the development of the VET system
- Monitoring the quality of training under the VET program (Medvedev 2015; Strategy 2013; The Order of the Government 2015)

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## **Informatization of the Society and Modern Labor Market Demands**

In the modern world, there is a rapid development of the capabilities of information technology tools, telecommunications systems, and new information technologies; and a postindustrial information society is being actively formed. In such conditions,

not only fundamentally new opportunities but also new, previously unknown challenges appear for man.

Rapid scientific and technological progress has led to the emergence in the labor market of completely new professions that irrevocably enter the life of the society, cutting off the old ones. Some of them are already in demand, the others are used by very few. A number of new professions emerged with the development of information technology. They include work on the Internet: a project manager, a web designer, a web programmer, and a development specialist. However, over time, they have developed into such professions as banner makers, content editors, and web developers. Among new professions connected with ICT, there are also software testers, engineers of automated testing, Internet coach, and technical writers.

In addition to the above, the list of new professions in other spheres includes credit brokers, administrators of non-state pension funds, personal insurance consultants, underwriters, copywriters, event managers, brand managers, communication managers, communication officers, etc. And this ongoing process is sure to enhance. For example, recently, the Ministry of Labour of Russia has published the project of the professional standard “Marketer” (The Project 2017).

The changes have also touched on such a traditional field as pedagogy. Pedagogical professions in modern society traditionally include teachers, lecturers, and educators, and anything new is difficult to come up with. But new professions of the modern society have appeared – tutors, coaches, and facilitators. Tutors train on an individual program; coaches are engaged in the personal development of the student and motivate, inspire, and seek to realize the potential of the student; facilitators are responsible for the student’s social adaptation.

With the Internet technology development, improving information transfer systems – Skype conferences, cloud storage systems, and others, the form of participation in labor activities also changes. A skillful user of a personal computer, who has a good command of printing skills and basic computer programs, can make money on the Internet without wasting money on office rental. Complete freedom of movement is also a huge advantage of this online work: no matter where you are now, in Russia or abroad, and what time it is now, day or night, if you have a laptop or even a mobile phone you have constant access to your job.

On July 1, 2016 in Russia, the amendments introduced by the Federal Law into the Russian Federation Labour Code (2016) came into effect. According to them, the Labour Code was amended by Art. 195.1, in which there were concepts of the qualification of the worker and the professional standard. In accordance with this article, the professional standard is a characteristic of the qualifications necessary for the employee to carry out a certain type of professional activity.

The main goal of the adoption of professional standards, which are widely used in world practice, is a more detailed description of regulating labor relations and updating of the outdated regulatory framework. The need to introduce professional standards was caused also by the fact that the characteristics of the jobs contained in the Unified Qualification Handbook did not correspond to the current situation on the labor market: many of the professions listed in them were not used, and many popular professions in them were not fixed at all. Among the professions, which are

very rarely met nowadays and are going to disappear quite soon, there are photographers, seamstresses, weavers, secretaries, drillers, librarians, telephone and telegraph operators, and estimating draftsmen.

Scientific and technological development of the professional skills and competences of the worker leads to the change in the content of education. Before the introduction of professional standards, the representatives of the same profession, but of different generations, “were not standardized” and had different skills and knowledge.

The description of the requirements for a specialist in professional standards is a complex combination of modern requirements for knowledge, cultural and professional skills, and work experience. These features of professional standards make them the main elements of the national system of qualifications, linking labor market and vocational education and training. And the standards do not rely on educational programs, but on the real work experience of the relevant specialists. In the opinion of one of the professional standard developers (Zaytseva 2015), the standards are to be as they are seen by the concerning professional communities. Standards for the description of professions are developed with the aim of obtaining qualitative characteristics of qualification levels at the national level and at the industry level. Moreover, industry standards for job descriptions provide comparability of qualifications both within the country and recognition of qualifications by different countries.

The professional standards highlight specific labor functions ranked by skill level, depending on the complexity and responsibility of the work performed by the specialist. In this case, the standard first indicates the type of professional activity and then describes the generalized labor functions, each of which includes a set of interrelated certain labor functions. A certain labor function is realized by performing specific labor actions, applying the necessary skills and knowledge (all this is also included in the standard). Thus, the professional standard is a detailed description of the competence necessary for a specialist to perform work (Neprokina and Pchelintseva 2016).

In accordance with the Federal State Educational Standards of Secondary Vocational Education, the majority of which were introduced on January 1, 2017, the ability to use information and communication technologies to improve professional activity is a universal competence for graduates of VET regardless of the nature of their professional activities.

For example, the professional standard “Teacher of vocational training, vocational education and additional vocational education” determines the following necessary knowledge and skills of using ICT for this profession:

- Necessary knowledge: the main sources and methods of searching for information necessary for the development of software and methodological support; modern educational technologies of professional education (vocational training); psychological and pedagogical foundations and methods of using technical means of education, information and communication technologies, electronic educational and information resources, distance educational technologies; and

e-learning, if their use is possible to master the subject, course, and discipline (module);

- Necessary skills for performing labor activities: conduct educational, planning documentation, school room documentation (if available) on paper and electronic media; create reporting (analytical and analytical) and information materials; fill and use electronic databases about the participants of the educational process and its implementation for the formation of reports in accordance with established regulations and rules; and provide this information at the request of authorized officials (The Order of the Ministry for Labour and Social Protection of the Russian Federation of October 18, 2013)

Necessary skills for performing various labor actions by social workers include the use of Internet resources to provide citizens with state and municipal services, including filling out application forms (The Order of the Ministry for Labour and Social Protection of the Russian Federation of November 18, 2013).

And even for such a profession, which seems not to be related to the new information technologies, as a waiter (barman), the necessary skills for performing various labor activities include the ability to use computer programs to conduct office work and comply with the rules for organizing the work of the waiters/ bartenders team and use information technologies used by food organizations to conduct office work and to comply with regulations for the organization of the service (Federal State Educational Standard 2015).

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## ICT in VET

Complex, high-tech, and rapidly changing manufacturing, developed infrastructure, and using advanced achievements in the field of information technology put new demands on training labor resources – specialists in various fields. Under the conditions of the information society, the competitiveness of graduates is largely determined by the level of their information culture, that is, the ability to act independently in a highly automated information society, effectively use its capabilities, and protect from its negative impacts.

Among the core or key competencies determining the degree of development of the information society, the Council of Europe allocated such competence as the mastery of new technologies (Council of Europe 1995). It is generally accepted that any specialist, any educated member of the information society, should:

- Have access to databases and information services
- Understand the various forms and ways of presenting information in verbal, graphical, and numerical forms
- Be aware of the existence of publicly available sources of information and be able to use them
- Be able to evaluate and process the data available to it from various points of view
- Be able to use the available data to solve specific problems (Filatov 1997)

The need for training professionals with the required skills and competences and the professionals for emerging jobs demanded that the whole system of education and vocational training should be refocused (Shumakova 2014). Strategic direction of content development of vocational training in Russia is connected, first, with the transition to professional educational standards and, on their basis, to a new generation of educational standards and, second, to training on modular programs, created on a competent basis. The interaction between employers (business structures) and institutions of vocational education is particularly important in the development of a new generation standards and, then, in the creation of VET working plans and work program. This is based on new technologies of education (Tkachenko 2014).

Informatization of the society has directly affected and even more intensively continues to influence the education system, which is already designed to prepare students with the anticipation of the demands of the society. The condition for the implementation of these requirements is universally recognized as informatization of education. “Informatization of education, introduction of new information technologies and means of telecommunications is a key condition for the preparation of future specialists who are able to orientate and adequately act in the world around them, a condition for forming a new perception of life and finding rational ways of orientation in problem situations” (Higher School in 2000, p. 30).

The analysis of scientific sources on the topic under study shows that scientists are searching for the most effective pedagogical conditions for informatization of education. The ideas of informatization of education are considered in works by Bepalko (2012), Vagramenko (2000), Gershunsky (2002), Andreev (1995), Vagramenko (2000), Davydov (1996), Lapchik (2007), Polat and Buharkina (2010), Torina (2001), and Christochevsky (2014).

The problem of facilitating the integration of ICT in VET is being debated by many European researchers. There are different ideas about the use of ICT in teaching and learning environment in VET supported by a large range of literature: Salmon (2002); Price and Kirkwood (2008); Stothart (2006); Beetham et al. (2009); Wolf (2011); Dudeney and Hockley (2008); Green and Tanner (2005); Chapelle (2001); and Merrill (2002). While some of these studies found this integration to be productive and conducive to language learning, others found it not as abundant as in face-to-face interaction.

The effectiveness of using ICT in education is often compared with the use of traditional teaching methods, evaluating the result of training and reducing the time spent by students, without taking into account the new information technologies that contribute to the goals and objectives of training. “The introduction of new information technologies qualitatively changes the education itself, transforming it in accordance with the general principles of informatization of society on the way to its development in the information society. And this is one of the most important aspects of introducing ICT into education” (Andreev 1995). In the opinion of Liferov (1997) and Tikhonova (1998), informatization of education revolutionizes it, as new information technologies change the very nature of thinking and therefore the very nature of education. When using ICT in teaching, the role of the learner changes, which, from the passive consumer of information, becomes an active participant in the process of acquiring knowledge.

The task of e-learning is not to displace traditional face-to-face training, but to integrate effectively into it. Obviously, with proper organization, mixed instruction can provide the highest quality of education. In this case, the task of delivering the materials of the taught course can be largely accomplished by the electronic means of the system, while during face-to-face meetings the instructor can focus on the students' questions, on clarifying difficult moments, and on organizing discussions, i.e., to activate the learning process. ICT in education provides new opportunities for more active involvement of students in the educational process. For example, many students, because of their modesty, are reluctant to answer on campus. Online forums eliminate these limitations, involving the student more deeply in training (Gilmudtinov 2008).

The Russian scientists Andreev (2010), Gershunsky (2002), Gromov (1993), Kolin (2002), Koren (2013), Polat and Buharkina (2010), and Rymanova (2013) note the following main points of influence of ICT tools on the effectiveness of teaching:

- Expanding the possibility of educational information presentation
- Strengthening the motivation for learning and stimulating interest in the subject through the use of computer capabilities
- Changing the way of management of educational activity and maintaining a dialogue of the training and trainee
- Increasing the set of applied training tasks
- Changing control over the activity of trainees, increasing objectivity of evaluation of learning outcomes, and providing flexibility in managing the learning process
- Implementing differentiated, personality-oriented training and its individualization
- Increasing the independence of each student in the cognitive process
- Forming students' reflection on their activities
- Educating the culture of using information technologies
- Forming a single information picture of the world

The American scientists (Roblyer and Doering 2013) summed up the reasons which practitioners had cited over the years for why ICT should be integrated into teaching:

1. ICT motivate and engage students by gaining their attention, supporting manual operations during high-level learning, illustrating real-world relevance through highly visual presentations, engaging students through production work, and connecting students with audiences for their writing.
2. ICT support students' learning needs by supporting effective skill practice, helping them to visualize underlying concepts in unfamiliar or abstract topics, letting student study systems in unique way, giving access to unique information sources and populations, supplying self-paced learning for accelerated students, turning disabilities into capabilities, saving time on production tasks, grading and tracking students' work, providing fast access to information sources, and saving money on consumable materials.



3. ICT help to prepare students for future learning, focusing more on “learning to learn” skills such as thinking creatively and reasoning effectively, than on memorizing facts, definitions, and rules.

The organization of professional training of specialists involves the use of new information technologies as:

- (a) The subject of the study (to get acquainted with modern methods of collecting and processing information)
- (b) Teaching aids (to optimize the learning process and form an individual style of professional activity)
- (c) A tool for solving professional problems (to optimize the process of solving professional problems)

Gershunsky (2002) points out the four most significant areas of computer use in education: the object of study, a means to improve the effectiveness of pedagogical activity, a means of increasing effective activity in education, a component of the system of educational and pedagogical management. Each of these directions, according to the scientist, “corresponds to a certain sphere of society: socio-economic; philosophical and methodological; scientific and technical; psychological and pedagogical” (Gershunsky 2002, p. 301).

The results of different sociological research show that the level of the formation of skills and abilities in the use of new information technologies today does not meet the requirements that are imposed on the specialist. The reasons for this are the contradictions between what and how students study in the educational institution and what and how they should do in future professional activities. Therefore, the task of training future specialists is not only to transfer certain knowledge and skills to perform the necessary operations while working with ICT tools but also to learn how to develop and use their new opportunities that will be required for students in their future professional work.

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### **The Possibilities of the Moodle Virtual Educational Platform (on the Example of Teaching English)**

To date, there are a significant number of platforms in the world for organizing e-learning. Initially, they appeared in the USA and in the last decade are actively developed and implemented in Russia. Existing curriculum management programs fall into two broad categories: closed source (commercial) and open source (distributed free of charge) (Gilmutdinov 2008).

Among open educational resources, the Moodle environment has become increasingly popular. “Moodle” is an abbreviation of the phrase “Modular Object-Oriented Dynamic Learning Environment” and represents an automated computer-based and Internet-based learning management system. The first version of Moodle was developed by Martin, a teacher at the University of Pert from Australia, and put into



operation in August 2002 (Volzhenina and Kravchenko 2012). Despite the fact that the Moodle system was initially oriented toward university education, it was subsequently successfully used to organize both pre-universities (school), secondary vocational education and postgraduate (corporate) education. Moodle has a very large and active community of people using the system and developing new features and enhancements. You can access this community at [//moodle.org/](http://moodle.org/) and take a course on using Moodle. There you will find many people who are ready to help new users start working with Moodle, fix problems, and use Moodle effectively. At the time of this writing, there were more than 325,000 people registered with [Moodle.org](http://moodle.org/) and over 30,000 sites built on the Moodle platform in 200 countries. The world community has also translated Moodle into more than 75 languages ([http://moodle.org](http://moodle.org/)).

Moodle is used to organize:

- Distance learning – in which the teacher and student most of the time do not meet in person.
- Distance support for full-time education – using e-learning tools, the student can receive assignments and send them for verification using the Moodle system.
- Support for full-time education – the implementation of individual practical assignments; tests take place during training sessions in the e-learning system Moodle.

The advantages of distance learning before face-to-face training are mainly in the ability of teachers to develop and present on the market of educational services courses that are in demand in the regions. “Using the electronic educational environment Moodle allows conducting training at an individual pace (the speed of studying the material provided is set by the student himself, depending on personal circumstances and needs); provides freedom and flexibility (the student can independently plan the time, place and duration of classes); provides accessibility (the educational resource is available regardless of the geographical and temporal position of the student and the educational institution), mobility (effective feedback between the teacher and the student is one of the main requirements and grounds for the success of the learning process), technological learning (use of the latest achievements of information and telecommunication technologies in the educational process), and creativity (creation of comfortable conditions for creative self-expression of the trainee)” (Dobrydina et al. 2014, pp. 285–286).

As noted above, the main training units of Moodle are training courses. Within the framework of this course, one can organize:

- Interaction of students with each other and with the teacher. To do this, such elements as forums and chats can be used.
- Transfer of knowledge in electronic form with the help of files, archives, web pages, and lectures.
- Testing knowledge and learning with tests and tasks. Students can send the results of work in text or as files.
- Joint educational and research work of students on a specific topic, using built-in wiki mechanisms, seminars, forums, etc.

As an example of applying the educational platform Moodle, the course “English language for tourism” can be considered, in which a significant part of the hours is allocated for independent students’ work. Taking into account the rather short period of the implementation of the language training courses within the VET program (18 study weeks, 2 hours per week), the author of the course intended to use the electronic course in the Moodle system to provide homework and additional and individual work for students. The course “English for Tourism” is planned for students of the 1st and 2nd year of secondary vocational education in the areas “Tourism,” “Hospitality,” and “Service” and is focused on the implementation of a competence model of modern educational and professional standards.

In accordance with the curriculum of the discipline, the course “English for Tourism” is studied for three terms. Each term is divided into three modules in accordance with the schedule. Each module contains practical, test tasks, a list of independent and laboratory works, educational audio and video materials, etc.

In addition to the prompt completion of tasks and consultations, a testing system was created, with the help of which students can test their knowledge at the end of each module, using questions for self-control, as well as test tasks.

The virtual course developed by the author extends the possibilities using interactive tasks, computer, and multimedia technologies. At the same time, the course is designed in such a way that students of different language levels can use it. The course can be adjusted in time to solve specific educational problems and implement various training strategies. In addition, consultations with the teacher in real time are provided in the course.

The structure of the course includes the news forum, the discipline program, the course annotation, and the course instructions; texts, tasks, video, and audio fragments for independent work are also presented. The course provides authentic texts in English, as well as assignments aimed at enhancing the lexico-grammatical material, developing oral communication skills and discussing the topics studied. Each section contains a glossary on the topic, which should be learned in detail before commencing work on the section. In each section, there are audio materials for self-listening and assignments aimed at controlling the understanding of what was heard. Before performing these tasks, the previous tasks within this section are to be done (for better understanding of the audio material).

To view video materials, the indicated hyperlinks are used, and students perform all the specified tasks related to their viewing. Before watching the video, some tasks are worked out (translate unfamiliar words, answer the questions, etc.).

Before completing practical exercises and grammar exercises, students independently repeat theoretical material on relevant grammatical topics.

The work of students is controlled by the teacher, and based on the results of the assignments, grades are posted or comments are sent.

The course under consideration includes the following sections: How to Develop a Career in Tourism, How to Meet Expectations and Requirements of Tourists, How to Deal with Money Matters in Tourism, Globalization, Travelling Abroad, Business Trips, and Business Hotels.

In the section “Travelling Abroad,” students work on lexical and grammatical material on the following topics: “Travelling by Air,” “Travelling by Sea,” and “Travelling by Train.” As a part of the section, students acquire the necessary skills to compose a travel itinerary, as well as the skills of conducting dialogical and monologic language on the elaborated topics of the section. In the “How to Develop a Career in Tourism” section, students learn about the following topics: “Careers in Travel and Tourism,” “The World Tourism Organization Studies,” “Global Tourism promotion,” and “Managing your own Business in Tourism” in volume, necessary for working with foreign language texts in the process of professional activity. Having worked out the material in this section, students describe the ways of creating their own tourism business. As a form of the students’ knowledge assessment, they are offered the task in the form of case. The students are to find on the Internet 5 positions in any tourist companies for which they can apply according to their desires and competences.

Summarizing the above, it can be stated with a high degree of confidence that the Moodle platform can be considered now a modern comfortable e-learning environment focused on students in enhancing their internal motivation. The use of Moodle’s virtual educational platform in teaching a foreign language helps to increase the effectiveness of this process and, undoubtedly, is promising in the formation of students’ competencies related to the use of a foreign language in their future professional activities.

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## Conclusions

The system of Russian vocational education and training is now being reformed and modernized by changing its structure, updating the content of education, and improving the quality of management. The general unstable situation in the economy, demographic decline, and increasing availability of higher vocational education are considered to be among the main factors, which have caused the difficulties in developing VET in Russia lately and led to the necessity of VET modernization. The state strategic policy for solving the problems of the Russian VET system is aimed at training graduates qualified for current economic needs, cooperating with business structures and monitoring the quality of training.

Being now actively adopted in the country, the professional standards are to link labor market and VET as they are created with the participation of professional communities and highlight specific labor functions to be trained in VET. The standards reflect the emergence of new labor functions and professions that appeared in the labor market as a result of scientific and technological progress. To become a good specialist, the VET graduate is able to act independently in a highly automated information society and efficiently use ICT capabilities.

Thus, the informatization of society necessitates the informatization of education. In the context of these innovations, ICT tend to have double-use nature in VET: they are treated as a purpose of training (the use of ICT is an essential element of labor functions of any professional) and as a means of training (the use of ICT makes the

study process more effective). Integrating modern information and communication technologies into VET is certain to be an important driving force promoting vocational education and, consequently, providing in future the economic and cultural growth of the society.

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# The International Quality Competition and Its Implications for Vocational Education and Training

# 5

Felix Rauner

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## Abstract

The scientific and political discussion about the transformation of the industrial society is characterized by the thesis of the tertiarization of the economic sectors and the replacement of the industrial by the knowledge society. A guiding principle derived from this scenario is to introduce modularized certification systems for the qualification of skilled workers in the intermediary sector. The European Union has thus introduced the formula: “Qualification independent of place and time.” This creed had just as negative effects on the quality of vocational education and training as the so-called “college-for-all” policy.

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At the same time, the international quality competition has triggered a modernization of industrial structures, especially in the manufacturing sector and in production-related services, which has been accompanied by the replacement of scientific management with the introduction of participatory forms of corporate structures, flat organizational forms, and a transfer of competencies and responsibilities to directly value-adding work processes. Since then, these consequences of the international quality competition had wide-ranging effects on the ways vocational education and training were structured. One of these consequences can be seen in an international upgrading of dual vocational education and training on the basis of broadband core occupation, which are open to progress and change. Such core occupations have a high potential of identification and are closely linked to the guiding idea for modern vocational education and training itself, which is: enabling people to shape the world of work and society in a socially and ecologically responsible manner. The high level of innovation and competitiveness of countries with a well-developed dual vocational education and training system can be regarded as indicators of a modern vocational training policy.

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#### Keywords

Quality competition · Participatory management · Occupational research · Multiple competence · Work process knowledge

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## Introduction

This chapter aims to show that the crisis of industrial society, triggered by an accelerating differentiation of social spheres and the associated separation, specialization and dismissal of social work, the gigantic advances in productivity and the resulting phenomenon of mass unemployment, the alienation in the labor force, is not a one-way street. The aim is to investigate whether the crisis of industrial society, as identified mainly by industrial sociology in the 1970s and 1980s, has at the same time produced the potential for its modernization and humanization. Whether this potential is recognized and used is crucially a matter of coping with the crisis by empowering professionally qualified specialists to help shape the world of work. This model of modern vocational training also has an economic root: a paradigm shift from a large-scale economy to a globalization of economic development characterized by international quality competition.

The MIT study “Made in America” presented in 1989 established for the first time in a comprehensive study the risks of the policy of tertiarization and deindustrialization (Fourastié 1954) and argued for a strengthening of the producing sector (Dertouzos et al. 1989). Michael Porter comes to a similar conclusion in his highly acclaimed work “The Competitive Advantage of Nations” (Porter 1990):

- *“The manufacturing-services link is becoming an important part of the argument that a nation cannot afford to ignore its international competitive position in manufactory.” (252)*



- *“The United States in the early postwar period represented the continuation of a potent, self-reinforcing system for creating and upgrading competitive advantage in an enormous range of industries that had been put in place many years earlier.”* (306)

Two decades later, the policy of deindustrialization in the United States had not changed, according to US Federal Reserve Exchequer Paul Volcker. He said in an interview, *“America (once) was the largest exporter in the world and not – like today – the biggest importer. [...] Our task is [...] to increase our competitiveness. To do that, America needs to rebuild its industrial sector”* (Volcker 2009, 96). He commented on the structure of the workforce: *“I wish we had fewer finance engineers and more real engineers, for example in mechanical engineering. [...] Young ambitious Germans realize that the relative advantage of the German economy lies in export and mechanical engineering. Even the best Americans do not even think about it”* (ibid., 95). His conclusion: *“We need a cultural break”* reflects the drama of deindustrialization and its consequences in the USA.

In the German-speaking countries of Europe, a different development can be observed. For example, in Germany in 2010, 90% of German industry’s investment in research and development is in the manufacturing sector. The share of employees in the manufacturing sector, including production-related services, is just under 60% (!). And the manufacturing industry produces about 80% of all production values (see Huber 2010, 72 ff. And the Federal Statistical Office 2017).

*The tertiarization thesis: the shift of the economy to services such as health/care, knowledge, art, counseling and communication, is based on a misjudgment of economic change.* The modern economy must be judged by how it lives up to its “service function” for the realization of a sufficient life for the whole of humanity. It is still and increasingly based on the environmentally and socially acceptable industrial methods and products produced by science and research. This includes:

- The production and distribution of healthy food to eliminate hunger in much of the world
- The development and introduction of environmentally friendly energy sources and systems
- The reconstruction of natural habitats and conditions
- The ecological modernization of the economy

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## **Crisis and Future of the Industrial Society**

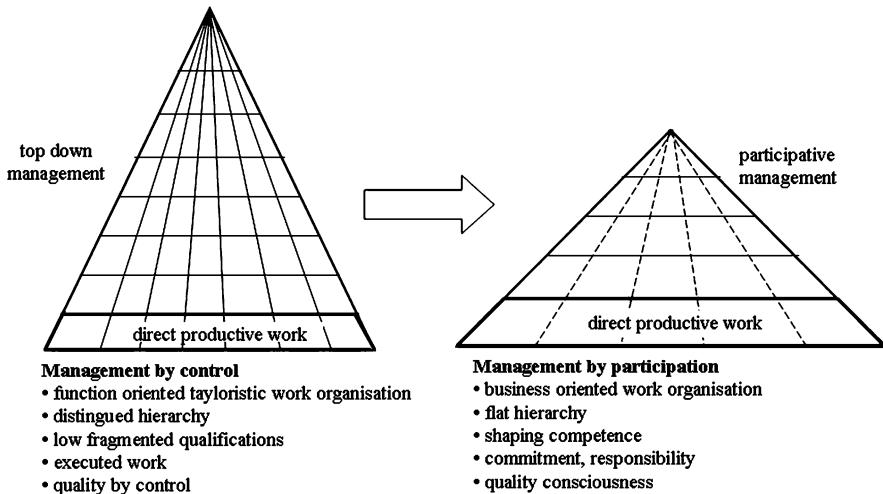
Industrial sociological research has interpreted its thesis of the progressive devaluation of skilled labor until the end of the 1970s as one of the logics of capital utilization inherent laws and has been proven by numerous studies. In the mid-1980s, Horst Kern and Michael Schumann in their book *“The End of the Division of Labor?”* reach – at least for the core workforce of the companies – a new, opposite assessment (Kern and Schumann 1984). And another 10 years later,

the SOFI (Social Science Research Institute Göttingen) presents a “*Trend Report Rationalization*,” in which the end of scientific management (Taylorism) is stated (Kern and Schumann 1984), just as it is by the industry itself with its new mission statements and strategies for the gigantic reengineering in the industrial key industries since the beginning of the 1990s propagated and operated. It cannot be overlooked that under the conditions of global quality competition and the high level of technological development, only the withdrawal of specialization and fragmentation, especially in the organization of industrial processes, can save the project of industrial society from collapse. The withdrawal of function-oriented organizational concepts in industry and their overlapping by process-oriented business concepts are characteristic for the industrial development at the end of the last century. Dieter Ganguin, a member of an IBM team of experts developing an open computer integrated manufacturing (CIM) architecture, made a noteworthy conclusion in this regard: “*If flat organizational structures, cooperative management, teamwork, and autonomous decisions are key features of future work organization, This must be both taught and trained. Here, VET has to go completely new ways. In the classical understanding of vocational education such guiding ideas are not created. The pattern of responsible, self-reliant and socially-active citizens must become the guiding principle of any education and, moreover, must be anchored in social as well as in business activities*” (Ganguin 1993, 33).

With the MIT study “*The Machine that Changed the World*,” the largest industrial study ever conducted, another model for human resource management emerged (Womack et al. 1990, 119 ff.). The drama of the study and the structural change it examined towards lean production is due to the fact that the labor productivity of the Japanese lean production model of the automotive industry was two times higher than that of the European and US automotive industry. The lean production is due to the shifting of responsibility and competences into the directly value-adding processes, the possible reduction of management levels, the establishment of quality circles to increase the quality assurance and the innovation potential (Fig. 1).

The supposition of corporate functions through a business process-oriented work organization and the realization of a flat corporate structure allowed the top-down management structure to be replaced by participatory management. This shift in the organization of business processes has been instrumental in increasing operational flexibility and flexible specialization in the production process, and thus in increasing labor productivity. The economics of mass production have been replaced by an economy based on international quality competition. This structural change challenged vocational training planning to reduce the horizontal and vertical division of labor in lean production (Table 1).

The traditional industrial context-free occupations in countries with developed dual vocational education and training were in conflict with the operational structures oriented towards new business processes. With some time delay, the development of broadband core occupations as a guiding principle of professional development has been established (see Rauner 2005, 2017, Chaps. 1.6–1.8) as well as some groundbreaking occupational projects then continued in practice (Bremer and Jagla 2000; Rauner and Spöttl 2002).



**Fig. 1** Business process-oriented organizational structure

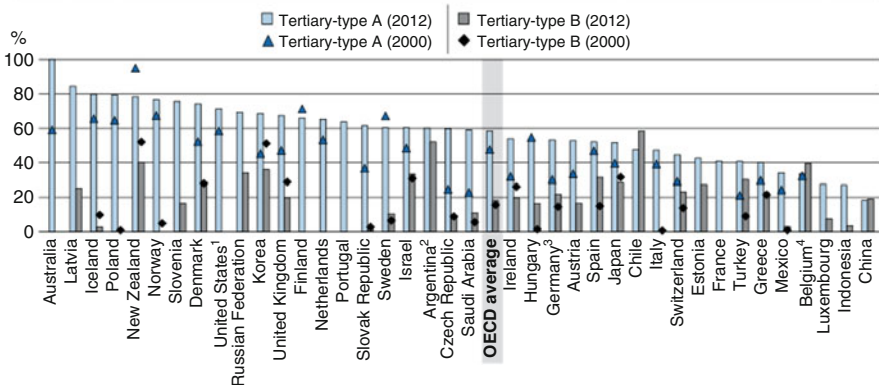
**Table 1** Lean manufacturing characteristics, including learning in the work process (Womack et al. 1990, 82)

Characteristics	Japan	The USA	Europe
Production hours per vehicle	16.8	25.1	36.1
Assembly errors per vehicle	60	82	92
Number of suggestions for improvement from employees	154	1	1
Reflection of work experience (hours)	380.3	46.4	173.3

The evolution of education systems shows that work and education: the structure of employment and education systems, has diverged in many countries. The guiding principle of the knowledge society and Daniel Bell’s explanation for the triumphant advance of theoretical scientific knowledge strengthened the “College for All” policy and thus the international trend of academizing education (academic drift) (see Gelbert 1993; Harwood 2010) (Fig. 2).

High student enrollment rates of between 70% and over 90% in many OECD countries are a clear and unmistakable indication of an educational policy geared toward a seamless transition from primary to higher education. Striking is the pronounced heterogeneity between extremely high and low entry rates for university studies. For example, the student enrollment rates of around 40% in Switzerland are opposed to those of Australia, New Zealand, Poland, and others of over 80%. The “College for All” policy is in clear contradiction to the competitiveness and innovative capacity of many countries. Switzerland and, to a lesser extent, Germany are examples of good interaction between the employment and education systems. In Switzerland, for example, 70% of all age groups opt for dual vocational training and only about 40% for higher education (Strahm 2014, 26). The attractiveness of the dual vocational training also results from the fact that only with a completed dual

Chart C3.2. Entry rates into tertiary-type A and B education (2000,2012)



1.The entry rates for tertiary-type A programmes include the entry rates for tertiary-type B programmes.  
 2.Year of reference 2011 instead of 2012.  
 3.Break in time series between 2008 and 2009 due to a partial reallocation of vocational programmes into ISCED 2 and ISCEB 5B.  
 4.Year of reference 2001 instead of 2000.  
 Countries are ranked in descending order of entry rates for tertiary type A education in 2012.  
 Source: OECD. Table C3.2a. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

Fig. 2 Study beginners rate (OECD 2014)

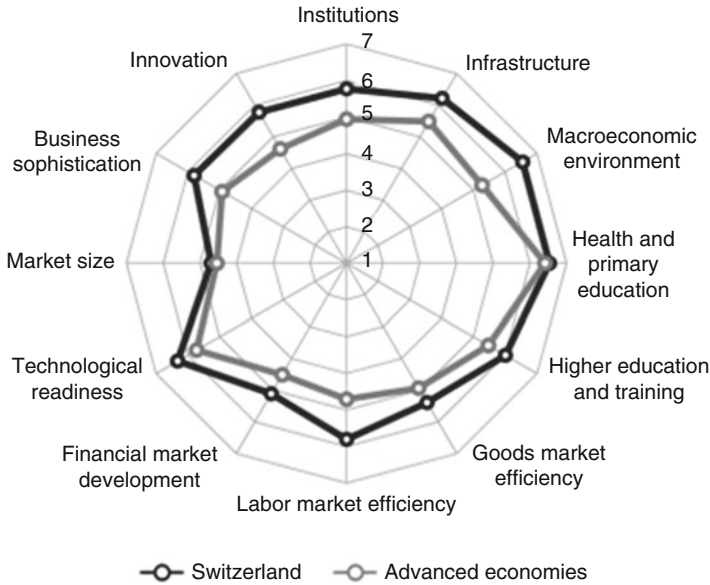
vocational training and a vocational high school diploma access to a Fachhochschule study is possible. The extremely low youth unemployment rate of approx. 3% confirms the good interaction between the job market, vocational training, and studies. In his analysis of this relationship, Rudolf Strahm concludes that the Swiss dual vocational training system and the equivalent access to higher education through vocational training is the decisive factor for the high competitiveness and innovation capacity of the Swiss economy (Strahm 2010). In international comparison, Switzerland always ranks at the top of the list (Fig. 3).

With regard to the quality of (vocational) education systems – one of the 12 dimensions of the Innovation Index – Switzerland achieves a value of 6.5 (!) for vocational training (The Global Competitiveness Report 2015–2016, 336 pp.).

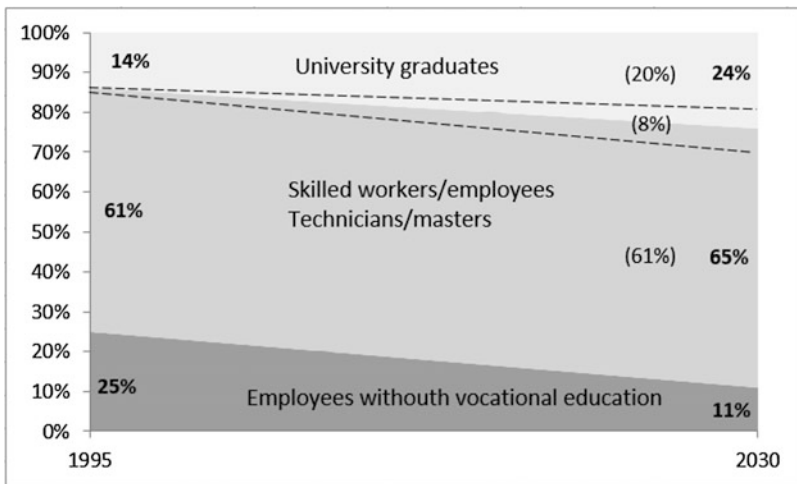
Whether and to what extent the share of highly qualified workers in the employment system will increase is controversial in labor market research. The introduction of shallow corporate hierarchies and the concomitant transfer of competencies and responsibility to the direct value-adding sector of companies argue for a reduction in management levels and thus lower demand for executives. This development is offset by stronger demand for research and development. It seems assured that the decrease of the low skilled will be accelerated. In sum, this means that the proportion of employees in the middle employment sector (skilled workers, technicians, master craftsmen) tends to remain stable or even to increase slightly (Müller 2009).

In countries where companies are highly competitive, the proportion of highly qualified workers in the employment system (with a university degree) is around 20% (Fig. 4).

Using the example of the USA, Nicholas Wyman documents the effects of the “College for All” policy on economic development. He concludes: “Today around thirteen million Americans, so-me with college degrees, are unemployed



**Fig. 3** The Global Competitiveness Index 2015–2016 ranking (left), GCI profile of Switzerland (right)



**Fig. 4** Structural development of the employment sector from 1995 to 2030 (according to Schüssler et al. 1999, 57; BMAS 2013; Vogler-Ludwig et al. 2014; Zika et al. 2012, 4)

or have given up trying to find work” (Wyman 2015, 8). At the same time, there has been a large gap at skilled worker level (middle-skills gap) for years. No wonder, as only 0.5% of high school graduates in the USA complete dual vocational training. This also contributes to the high youth unemployment rate of 14.4% (2015) (ibid. 8).

## Substitution of Vocational Occupations and Qualifications Through Automation (Working World 4.0)

With the research and development initiative Industry 4.0, the European Union promotes dialogue and development for the fusion of information and communication technology (KIT) with machines and production systems. In this way, this initiative to modernize production technology is linked to the research and development programs of “Computer Integrated Manufacturing” (CIM), which in the last two decades of the twentieth century triggered a powerful impetus in engineering and occupational science research and development. The projects carried out as part of the European Strategic Program of Research in Information Technology (ESPRIT) show that as early as the mid-1980s, the potential for the development of production technology was seen in KIT. The funding of a CIM project based on Howard Rosenbrock’s concept “Designing Human Centered Technology” (Rosenbrock 1980) was initially an outsider project. It had the function of developing a computer-integrated production technique that does not aim to objectify and eventually substitute the qualification of the production specialists (the main aim of the then CIM technology) but to strengthen it. The ESPRIT project “Human-Centered CIM Systems” (HC-CIM Systems) should demonstrate that it is possible to design CIM as a “tool” (in the broadest sense) (Corbett et al. 1991).

Awakening from the dream of the deserted CIM factory in the 1990s, the HC-CIM Systems project continued to be at the center of the guiding principles of “work and technology” research and the research interest in the analysis and design of human-machine-interaction implied by KIT. It is therefore not surprising that the research and development initiative “Industry 4.0” is from the outset focused on the synthesis of human and artificial intelligence – at least programmatically – and thus also aims at an upgrading of the technical work (Spath et al. 2013).

### The New Quality of 4.0 CIM

The original CIM approach came 30 years too early, according to the realistic assessment of Industry 4.0 experts, as the required KIT systems were not yet available. Today, nothing stands in the way of implementing a HC-CIM system, since the Industry 4.0 concept includes this guiding idea in its program and almost unlimited storage and network capacities are available.

Industry 4.0 is characterized as a higher level of horizontal and vertical integration of production systems and resources based on powerful KIT systems along the value chain, with the aim of implementing the guiding idea of lean production (Fig. 1). The current state and the development of holistic KIT-supported corporate structures show that the introduction of lean functional and control structures is still important (Schmitz et al. 2015). Characteristic Industry 4.0 features are:

1. Optimization of the Supply-Chain-Collaboration (SCC) and the Supply-Chain-Management (SCM)

The many small decentralized control units are linked to form an SCC/SCM logistics system. Often a uniform optimization along the value chain by a central

unit is dispensed with in favor of an optimization based on the voluntary cooperation. The self-interest and self-initiative of those involved in the process are regarded as the basis for maintaining entrepreneurial room for maneuver with optimal use of all logistics functions.

2. Prospective quality management based on large historical datasets

One branch of the Industry 4.0 research and development initiative assumes that the analysis of the large “historical” data volume via the respective production system (big data) makes it possible to establish a prospective quality management system. It’s about generating answers to the question, “*What will happen when and where?*” However, the patterns generated by the analysis tools represent the past, and their predictions are extrapolations from past developments. They tend to be reactive and therefore too little focused on innovation in enterprise organizational development and prospective quality management.

3. Risk prevention through self-directed production (Stolle 2015)

Risk prevention should be able “*to make good decisions*” based on sophisticated analytics. “*At the end, the employee analyzes the various alternatives and suggestions in the system and uses his expertise to select a suggestion for the ‘smart assistance system’*” (Stolle 2015, 97). The guiding principle of vocational education – ability to help shape the world of work in social and ecological responsibility – can be applied to the design of human-machine interaction in the design of analysis systems. This would then lead to another form of risk avoidance, which would also take into account the goals and projects of company organizational development.

4. Security buffer in (globally) networked industrial structures

The characteristic developments of the Industry 4.0 initiative include the establishment of security buffers and security networks in the form of (intermediate) storage capacities (buffers) and time windows. This is also a reflection of the technocentric “just in time” production regime. With the provision of the components of the suppliers at exactly the right time and at the right place of assembly, (intermediate) bearings should be dismantled. The risk potential of just-in-time networking with supplier companies was underestimated. Risk control required costly logistical emergency measures, for example, to transport items by plane to maintain production. In the Industry 4.0 concept, therefore, security buffers, security networks, and time windows are again being created as elements of computer-aided risk management.

5. “*Without analysis systems (analytics) companies are blind to risk control*” (ibid., 97).

This position is often found in the development of software tools for risk control and maintenance of the components of Industry 4.0. Opposite positions are justified from the perspective of Human Resources Management. Thereafter, the importance of professional competence of specialists and executives in Industry 4.0 increases, as the high degree of informational networking of all subsystems in the value chain entails a high degree of unpredictable events and risks. This can be a power failure, unexpected illness, or failure of components in the production system. In such cases, it depends on qualified professionals who are able to solve the problems professionally and creatively in the respective situation.



6. High flexibility and decentralized production, planning and control systems (PPS) Mastering the high flexibility of modern KIT-based production systems is a competitive advantage under the conditions of international quality competition. This also applies to the fast response to customer requirements. The high control effort caused by the deterministic PPS real-time accuracy control can be drastically reduced by the adoption of control tasks by the production specialists. In addition, this form of lean and decentralized control concepts can increase the quality of production planning and control, improve learning in the work process, and strengthen the innovation potential for organizational development (Womack et al. 1990).

### The Production Work of the Future

The production work of the future – including the production-related services – is the subject of engineering and work science research as well as a broad discussion in the organizations of the working world and the companies. Striking is, first of all, the widespread proposition that the digitization of work will contribute to a higher qualification of skilled workers at all levels of qualification. It is not surprising, however, that other theses in the relevant scientific publications are also represented, as in the heyday of industrial sociology research in the 1970s and 1980s. Three competing theses competed then and compete today. All three theses invoke empirical findings.

The thesis of the *higher qualification of skilled workers*, triggered by the computer-supported and integrated forms of production technology and their application in the manufacturing industry, was especially represented by Blauner (1964), Touraine (1975), Haug et al. (1980, 1981), and Spath et al. (2013).

The opposite thesis of the *dequalification of workers* “in the modern production process” was represented in a critique of capitalism by Harry Braverman (1977). With his “de-skilling” thesis, he influenced a whole generation of sociological researchers (e.g., Baethge 1970; Mickler 1981).

Finally, a research group of the Sociological Research Institute Göttingen (SOFI) founded the thesis of the *polarization of qualification requirements* in a study commissioned by the Federal Institute for Vocational Education Research (Baethge 1977). According to this, the technical change in production work affects a minority of employees as a higher qualification and for the majority as a dequalification. This thesis also has its followers in the Industry 4.0 debate and research (Autor and Dorn 2013; Hirsch-Kreinsen 2016).

In a critical analysis of 1980s industrial sociological research, Burkart Lutz comes to a similar conclusion: “Everything looks as if the highly developed industrialized nations are about to enter a vast field of experimentation, to discover and test new forms of using technology and human work in a gigantic trial and error, that is likely to last for decades, which may then again promise a longer period of stability” (Lutz 1988, 21). With increasingly intensive use of technology, Lutz says, three lines of development will compete with each other:



1. “*Computer-assisted neo-Taylorism*” with its deterministic-centralist tendencies, which can be observed in the relevant technology markets, and which relied on the de-qualification of employees.
2. The development lines of “*qualified group work*.” This scenario is characterized by a reduction in the horizontal and vertical division of labor and is accompanied by an appreciation of the technical work.
3. Lutz sees a third corridor in the “*dichotomy-based re-professionalization of executive work*.” This path is characterized by a tendency of the academization of vocational education (ibid., 22).

Hartmut Hirsch-Kreinsen summarizes the current discussion on the consequences of the digitization of work in a work sociologically accentuated literature study (Hirsch-Kreinsen 2016). The conclusions of this study remain behind the development of design-oriented scenarios (Lutz 1988; Rosenbrock 1980, 1983; Heidegger et al. 1991).

Erik Brynjolfsson and Andrew McAfee go beyond the traditional patterns and theories of qualification research with their analysis “The Second Machine Age.” They are based on Moravec’s paradigm. Moravec stated that “*it is comparatively easy to solve computers with the power of adults to solve mathematical tasks, master intelligence tests or play chess, but it was difficult or impossible to equip them with the skills of a one-year-old child in terms of perception and movement*” (Moravec 1988, 15). The Moravec paradigm has now been confirmed in many ways by AI experts, for example, by Steven Pinker: “*What we have learned from 35 years of research on artificial intelligence is that the difficult problems are usually easy to solve, but the simple ones are very difficult. . . . With the new generation of intelligent technology, it will be stock analysts and petrochemical engineers and members of probation committees who run the risk of being replaced by machinery. Gardeners, receptionists and chefs will be safe for decades to come*” (Pinker 2007, 190/91).

The fundamental empirical analyses of Moravec’s paradox confirm the thesis founded at the beginning of the chapter (2) of upgrading the directly value-adding specialist work in companies with lean organizational structures. Vocational education and training based on the guiding principle of design competence can rely on this.

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## **The Implementation of the Guiding Principle of Vocational Education into Vocational Education Practice: As an Engine for Quality Economics**

*The ability to shape the working world in social, ecological and economic responsibility is the engine for quality economics.* The process of transformation from vocational training aimed at adapting to vocational training aimed at participation and co-creation of the world of work holds innovation potential for a humane working world and calls for VET practice, research, and policy to realize an integrated innovation strategy. In this innovation triangle, it is not only important that these three actors have the appropriate competence but also that they are willing and able to

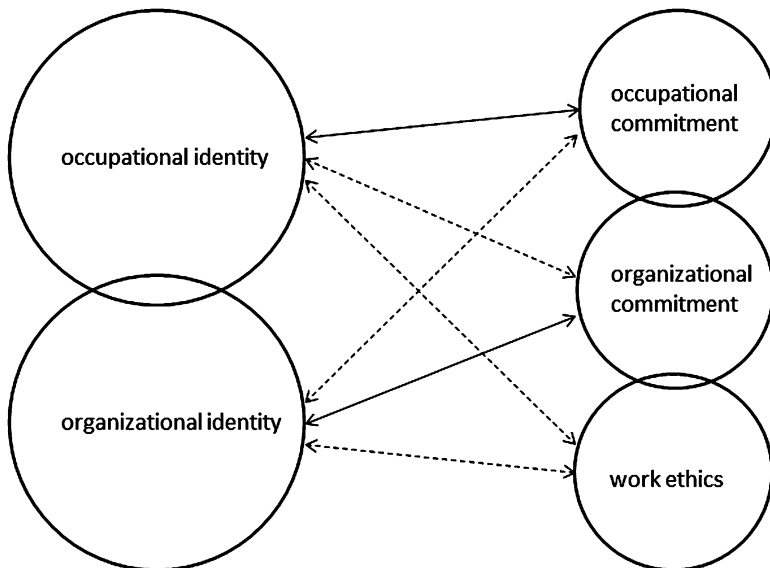
integrate their competences into a common innovation process. For the shaping and organization of vocational educational processes, this transformation process also requires the development of original vocational didactics with three main focuses:

### **Qualification and Occupational Research for the Identification of Professional Development Tasks as a Basis for Professional and Curriculum Development**

The occupational form of social work in countries with a developed vocational training finds its expression in development-open broadband core occupations (Rauner 2005), which have a high identification potential. The identification potential of the occupations is measured with an identity-engagement-model, with which also the identification potential of the training companies as well as the resulting occupational and organizational commitment can be measured (Fig. 5).

The development of occupational identity and professional competence are closely linked. A high potential for identification of a job is the prerequisite for a high degree of commitment, the perception of tasks of quality control, and a correspondingly high sense of responsibility.

Empirical research on identity engagement profiles shows that the attractiveness of apprenticeships for apprentices and companies is very different (see Figs. 6 and 7).



**Fig. 5** Extended theoretical model on the connection between commitment, identity, and work ethic

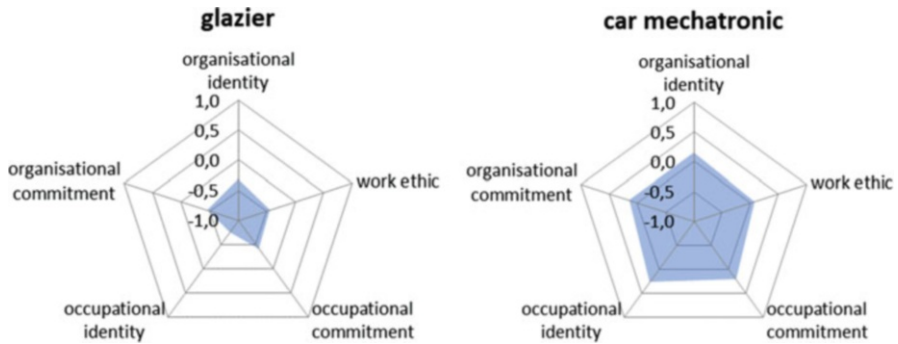


Fig. 6 Identity/commitment charts of glaziers (left) and car mechatronics (right)

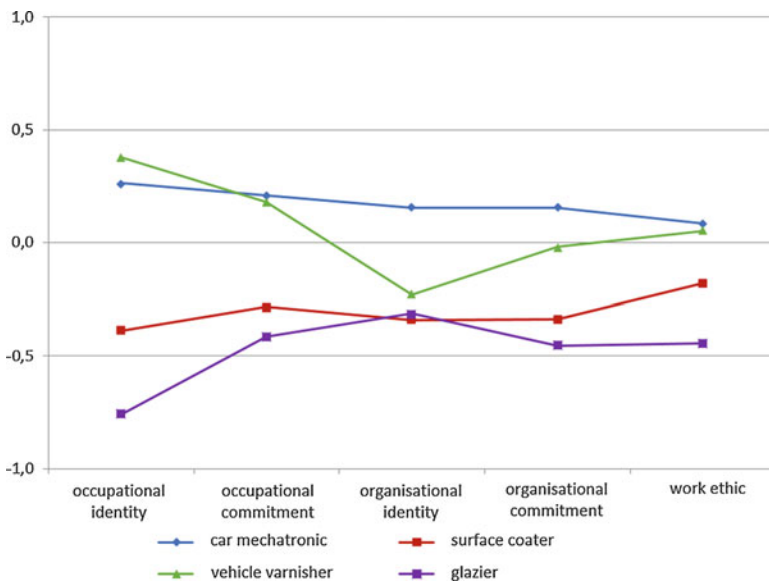


Fig. 7 Identity and commitment profiles in selected professions

**Criteria of Modern Professionalism**

1. *Shaping competence as guiding principle for vocational education*

Professional shaping competence as a leading goal for vocational education has meanwhile become widely established as an educational mandate in educational laws and ordinances of Germany. The KMK formulated in 1991 as an educational mission for the vocational school: “The trainees should be empowered to shape the working world and society in social and ecological responsibility.” With this formulation, the KMK adopted the concept of a shaping-oriented vocational training developed in the 1980s (Rauner 1988). In a series of pilot projects, this guiding principle has been extensively studied in terms of its viability for the didactical behavior of teachers and trainers and its importance for the quality of VET.

2. *Prospective planning of vocational education and training*

Shaping-oriented vocational training suggests vocational training planning that is prospective. It claims to point beyond company practice – and this includes VET practice. The operational practice is understood not only as a given but also as a critical and in need of design. Vocational and vocational education planning is not reduced to record and analyze the existing practice by task analysis and activity studies and to derive and synthesize job profiles and training plans from it. Prospectivity is thus not aimed at improving forecasting tools for predicting future work structures but at describing the alternative development pathways of future practice with the aim of acquiring competence for shaping change.

3. *Work context and work process knowledge as features of modern work*

The definition of occupations through working contexts dissolves occupational structures from the surface of technical change and abstract activities, while at the same time increasing the quality of occupational orientation of these professions and their anchoring in social consciousness. As a work context, a work-based understanding of the profession is to be understood as a clearly distinguishable and identifiable field of work for outsiders, which is composed of comprehensive and coherent work tasks and has a work object that can be clearly identified and meaningfully created in the context of social division of labor. This is the basis of the concept of open, dynamic core professionalism (Heidegger and Rauner 1997).

4. *Withdrawal of horizontal specialization through the introduction of core occupations*

Reducing the division of labor into business process-oriented organizational structures requires a corresponding reduction in the number of occupations and their clustering in core occupations. Core occupations cannot be realized as “short training occupations” below the level of skilled workers, as they usually cover more than one traditional occupation in terms of their training scope. The broadening of the vocational basis places high demands on the qualification for demanding professional work. The core occupations represent a broader starting position for career paths.

5. *Time stable professions*

The anchoring of occupational profiles in social consciousness, their suitability for orientation in the choice of occupation, as well as the identity-creating potential of a profession for apprentices and employees depend crucially on the temporal stability of the occupations. Occupational profiles with a lifespan of not more than 15 years are characteristic of hectic VET planning that insufficiently meets this criterion. As technical and economic change holds both opportunities for the development of new and the “dying off” of old occupations, the development of long-lived occupations places high demands on VET planning. The justification of occupational profiles through work contexts essentially determines the lifespan of occupations. Thereafter, a distinction can be made along the decreasing orientation of the working relationship as a structural feature:

- “Timeless” and long-lasting professions such as doctor and educator, as well as a greater number of craft trades

- Technologically induced occupations (e.g., electrical and chemical professions)
- Technology-based occupations (e.g., “process control electrician”)
- Narrow performance-oriented occupations (e.g., “telecommunications teller,” “turner,” as well as the large number of specialized business fields)

#### 6. *Open, dynamic occupational profiles*

The open, dynamic vocation still assumes a particular work context but has to

- Allow it to be experienced in adequate educational processes as an example of the professional activity of skilled workers
- Be able to expand in the course of independent co-shaping of work, work organization and technology and thus of the tasks
- Be open to new job-related tasks

Conclusion: The temporal and content-related stability of job profiles is the prerequisite for the occupational images in the public discussion in the choice of career and for the development of professional identity of the occupational owners (especially the trainees) again gaining in structural strength, which has been lost in the course of the incessant renaming by the principle of organization-oriented organization of enterprises.

VET research is challenged to establish a qualification, occupation, and curriculum research in cooperation with the institutions of VET planning – as an engine for international quality competition.

## **Replacing the “Applied Knowledge”-Tradition with Work Process Knowledge as a Basis for Vocational Learning**

The internationally established practice of didactics of vocational education is characterized by an understanding of professional knowledge, which is gained through the didactic transformation and the reduction of context-free scientific knowledge. It is mainly about the simplification of complex – often mathematically formulated – theoretical content. The principle of purposive subject theory is reflected not only in the curriculum and in the textbooks of vocational education but also in the equipment of the specialist rooms and workshops. For example, in a well-equipped vocational school, it is possible to experimentally investigate the characteristic behavior of electrical machines in the form of student experiments. In contrast, it is seldom possible to study electrical machines as aggregates for solving specific drive problems. The science-based experiment confirms the “theory of the engine.” The engine appears as an objectification of the engine principle. The laboratory motor is a purpose-free engine. He becomes the engine itself. Only when electrical machines are also examined on their use value side – according to the requirements – will the contents of the subject become an education-relevant, vocational content. It is the merit of Donald Schoen to demonstrate the practical competence and professional artistry as an autonomous competence not guided by the theoretical (declarative) knowledge. He points to it critically: “*This concept of ‘application’ reads to a view of professional knowledge as a hierarchy in which, general principals occupy the highest level and,*

*concrete problem solving ‘the lowest’*” (Schoen 1983, 24). Competence development can therefore not be justified systematically, if, according to Schoen, it should consist in something other than the application of the systematically learned.

### **Work Process Knowledge**

If the concept of the holistic task solution is formulated on the level of vocational knowledge, the category of work process knowledge is useful (Fischer and Rauner 2002). Work process knowledge arises from the reflected work experience, it is the knowledge incorporated in the practical work. As context-related professional action knowledge, it goes far beyond context-free theoretical knowledge. In the field of expertise research, Wilfried Hacker distinguishes between action-guiding, action-explaining, and action-reflecting knowledge (Hacker 1992, 94).

*Action-guiding knowledge (Know-that)* is rule-based knowledge that consciously or unconsciously regulates the execution of an action. It also includes implicit knowledge (Tacit Knowledge) depending on the work task and occupation, which finds its expression in the work process as concrete professional action and can be observed but which largely eludes the linguistic representation (Polanyi 1985; Neuweg 1999). Whenever aspects of practical knowledge are involved (Benner 1984; Haasler 2004), implicit knowledge also comes into play.

*Action-interpreting knowledge (Know-how)* is understood as the knowledge that professionals have to explain a work situation. This includes the ability to deal professionally with the work situation as well as the application – if necessary – of mathematical, diagrammatic, and medial illustrations of the activity to be explained. If one follows the interpretation that this form of knowledge is also interpreted as procedural knowledge and builds on the action-guiding knowledge (Know That), this level of work process knowledge can be assigned to the category of know-how.

The *action-reflecting knowledge (Know-why)* enables one to answer the question of “why like this and not otherwise?” and to consider alternative solutions, taking into account the criteria relevant to a specific situation. This knowledge dimension establishes shaping competence. This includes the ability to communicate and reflect on job tasks and their solutions with clients, supervisors, and work colleagues. In school, for example, in the context of projects, work reality can be transcended.

Work process knowledge can be illustrated in the form of three concentric circles, of which the inner represents the action-guiding knowledge and the outer – with the greater reach – the action-reflecting knowledge. The degree to which these three levels of knowledge are also three independent dimensions of knowledge can only be clarified empirically. The different levels of work process knowledge are closely related to the levels of professional competence.

## **The Theory of Multiple Professional Competence as a Basis for the Shaping and Evaluation of Vocational Education Processes**

Historically, the reference to “real life,” according to Klieme and Hartig (2007, 17), is considered a key feature of the concept of competence. In this context, Andreas

Gruschka considers a concept of competence to be necessary, which is not limited to individual actions: “*Competencies are not tied to a specific task content and a correspondingly narrow-minded application, but allow a variety of decisions. This they certainly have in common with education, as it is preferably updated in the acceptance and solution of such open situations and tasks as a progressive movement of the subject*” (Gruschka 2005, 16). In this sense, Connell et al. (2003), in a fundamental contribution to categorical differentiation between abilities, competencies, and expertise, succeed in establishing a theory of multiple competences.

The term “*multiple competence*,” based on the concept of *multiple intelligence* by Howard Gardner, is to take into account the state of competence and knowledge research, according to which a distinction can be made between several relatively autonomous competences in humans, which can differ between individuals – depending on occupational socialization and qualification. The proximity of the concept of *multiple competence* to Gardner’s theory of *multiple intelligence* is evident (Gardner 1991, 28, 124 pp.).

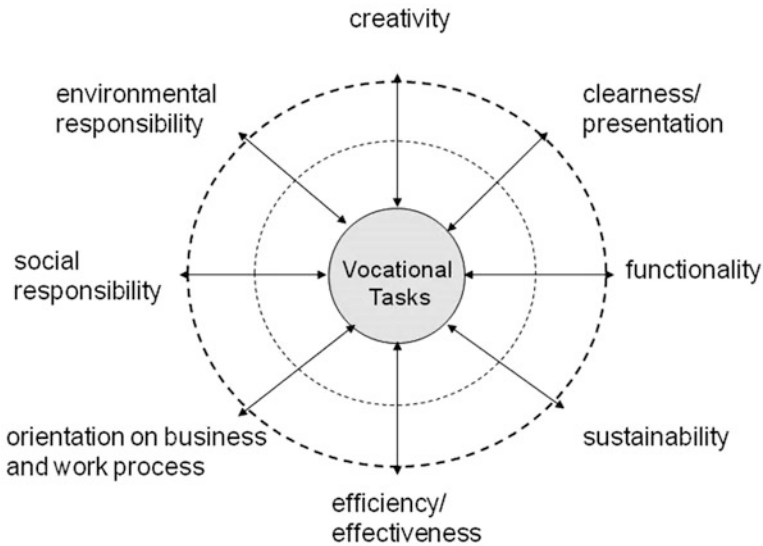
Abilities can be conceptualized as functionally integrated intelligence profiles. The development of specific skills provides a space for competence development (Connell et al. 2003, 140 f.). The concept of multiple intelligence and a model of multiple competences based on it allow to emphasize realistically the potential of competence development given by the occupational work on the one hand and the intelligences of the individual on the other hand. These differ not only from individual to individual but also from one profession to another.

The designation of the eight components of occupational competence, which in their interaction constitute the ability of holistic task solving, as a multiple competence, emphasizes the second aspect of a differentiating theory of professional competence (Rauner 2017, Chap. 2.5.4) (Fig. 8).

Professional competence (development) is then a process of the expression of professional abilities, which is given on the one hand by the individual intelligence potentials as well as on the other hand by the requirement structure of the holistic solution of professional tasks.

### **Practical Terms and Communities of Practice**

The concepts of work process knowledge correspond to the concept of practical concepts by Klaus Holzkamp (1985, 226 f.). According to this, the concepts subjectively possessed by humans are fundamentally practical insofar as their aspects of meaning, the scope, and fields of meaning (as the sum of the aspects of meaning and their connection) are characterized by the respective developmental processes. In the spirit of Schoen, training therefore does not depend on teaching and learning scientifically defined terms. These represent only a fraction of the meaning aspects of practical terms and thus justify a very limited (professional) competence to act. Using the example of the category “electrical voltage,” the relationship between theoretical-scientific and practical concepts should be examined more closely. (The term “electrical voltage” has the meaning of a general fundamental



**Fig. 8** Shaping of multiple competences represented through the levels of action-guiding, action-interpreting, and action-reflecting work process knowledge

category in electrical engineering: teachers of electrical engineering are convinced that without the understanding of this basic term no “electrical engineering understanding” is possible (Adolph 1984, 101). See also the illustrative example of Polanyi on the relationship between theory and practice of cycling (Polanyi 1958, cited according to Fischer 2002, 69 p.).)

Electrical voltage is defined as a physical phenomenon induced by the change in the magnetic field that can be experimentally reproduced. The real technical and economic state of electrical tension, on the other hand, is something completely different. The technical realization of electrical voltage follows the specifications (use value properties), which are set for the unlimited variety of different voltage sources and shapes from the mono cell to the 400-kV high-voltage system each. The obvious variety of voltage forms and sources – and with them the ever available forms of electrical voltage – have in principle an infinite number of utility value properties and object significance (in the sense meaningful knowledge). The technical subject “electrical voltage” places highly varying demands on consumers, development engineers, skilled workers, teachers, nurses, or economists. The relevant aspects of meaning and fields of meaning of the respective practical concepts of electrical voltage are diverse and at the same time highly relevant for competent action.

The members of different communities of practice have their own domain-specific practical terms in which the domain-specific object meanings each form specific fields of meaning. It is therefore necessary to investigate more precisely



whether and how the fields of meaning relate to the same concept in different professions, in which way the aspects of meaning correspond to each other and how they are linked to other conceptual fields. The practical terms not only regulate the current labor practices but they also justify the communication in the communities of practice by symbolically representing the context-specific conditions symbolically. In their learning theoretical foundations for situated learning in this context, Lave and Wenger come to an almost provocative for vocational education insight:

*This point about language use is consonant with the [...] argument that didactic instruction creates unintended practices. The conflict stems from the fact that there is a difference between talking about a practice from outside and talking within it.*

*Thus the didactic use of language, not itself the discourse of practice, creates a new linguistic practice, which has an existence of its own. Legitimate peripheral participation in such linguistic practice is a form of learning, but does not imply that newcomers learn the actual practice the language is supposed to be about. (Lave and Wenger 1991, 107 f.)*

By contrast, the mutual narration of stories, in view of the challenge of solving difficult problems, is of exceptionally great importance in the practice communities:

*Such stories constitute a vital part of diagnosing and carrying out new repairs. In the process, newcomers learn how to make (sometimes difficult) repairs, they learn the skills of war-story telling, and they become legitimate participants in the community of practice. [...] Participants engage in the work of staying sober and they do so through gradual construction of an identity. Telling the personal story is a tool of diagnosis and reinterpretation. (ibid., 109)*

Conclusion: Depending on the profession or occupation, empirical VET research must therefore examine domain-specific, through which preunderstanding and through which experiences the vocabulary and subjective theories of learners are characterized (conceptual change research, Bauer 2013). Taking this as a starting point, it must be didactically explored with which steps and stages the developmental systematic mediation of work process knowledge can take place. In this respect, the developmental logical systematization of working and learning situations, e.g., in the form of cases and projects, is an adequate form of systematic VET, which has the opportunity not only to acquire effective technical skills and reflexive knowledge but also rich, meaningful, and action-guiding concepts, as well as theories and action strategies, embedded and supported by the process of professional identity development. The concepts defined in the paradigm of scientific rationality, on the other hand, almost completely obscure reality – especially the working world to be shaped by employees. In this respect, the vocational and vocational field didactics are well advised to deal with the symbolic representations of the work experience. In this sense, meaningful terms are those that represent the domain-specific meaning aspects and fields of meaning. But these can only be determined in their interaction between the objective conditions and the formation of subjective meaning structures and related symbol meanings.

## Summary and Outlook

The thesis of the tertiarization of the economy, the end of the industrial society and its replacement by the service-information-etc.-society have proven to be wrong. The industrial production of (over) food will continue to be the linchpin of the modern global economy. Thus, the formula of the knowledge-based economy and the knowledge-based society, trying to reconcile the diversity of post-industrial social images, produces a problematic and diffused picture puzzle that leads to the neglect of the development of ecological, humane, and socially acceptable industrial methods and products. Foundation of a modern society. The social knowledge is to a large extent the knowledge incorporated in the practical work of skilled workers: the working process knowledge. It is based above all on reflected work experience and, in its significance for the solution of social tasks and problems – whether as a doctor, industrial mechanic, educator, or specialist purchaser – goes far beyond scientific knowledge. The professional or occupational knowledge and skills, as represented in the technical work and in the related vocational training, justify the ability of the holistic solution of professional tasks. In addition to the disciplinary scientific knowledge, the basis of the “knowledge explosion” of the last century, in the modern industrial society and under the conditions of international quality competition it is especially important to enable specialists and executives to work holistically. Their professional competence requires modern professionalism in the form of broadband and development-oriented core occupations. Specialist work also creates an occupational identity and occupational commitment based on it as well as a sense of responsibility and quality. On the other hand, ideas and projects for the horizontal and vertical division of work into a multitude of specialized occupations of different qualification levels and modules are based on the scientific management of industrial mass production of the last century.

The future of specialist work is not a question that can be answered by studies in industrial sociology, but a political and professional design task. Here, the guiding principles of shaping-oriented vocational education and development-oriented broadband core occupations are of central importance.

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# Informal Economies, Work-Based Learning, and Sustainable National Skills Development in Africa

# 6

Salim Akoojee

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## Abstract

This chapter examines the key features of learning in, and for, the informal sector in the African context. It posits the view that there is an important opportunity provided in the contemporary discourse of work-based learning for ensuring that learning in this sector is enhanced, while the more complex issue of the sector’s legitimacy in the national development discourse is being debated. It suggests that the emerging notions associated with the current work-based learning (WBL) discourse can be usefully incorporated to legitimate learning in this sector and to ensure its positive elements are incorporated into national skills development systems. The renewed interest in the concept provides an opportunity for

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advancing the skills development agenda in economies where the informal sector needs to be seen as a complement to a national system that requires all learning forms to be legitimated to ensure that national development imperatives are realized.

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**Keywords**

Africa and sub-Saharan Africa · Informal economy · Work-based learning · Workplace learning · Education · Training and skills for development

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## Introduction

Large parts of Africa, Latin America, and the Caribbean and Asia face major challenges in providing effective access to quality work-readiness opportunities that accord with their specific circumstances. The predominance of a large informal sector which comprises more than 90% (Walther 2007) of the regional economies in sub-Saharan Africa and East Asia and importantly makes up almost 30% (cf. Thai and Turkina (2013) of the international economy suggests that a new perspective is required for understanding and advancing its role in national development. While the importance of this sector has long been ignored, more recent attention by regional and international entities attests to the importance of this sector in national development – as a “. . .real economy, made up of micro- and small activities, which generates employment (up to 95% of the world of work) and wealth (estimated as up to 60% of GDP in some countries)” (Walther 2011: 3). Indeed, a recent ADEA conference called for some quite drastic attention to the sector as a mechanism for realizing an alternative developmental path

African economies too frequently operate according to a development model in which growth depends almost exclusively on the ever-greater presence of global companies. But current trends, reflecting the “third industrial revolution”, underline the crucial role that other types of production unit (particularly in the informal economy) will play in the future as a source of innovation and new types of jobs and activities. This sector exists in all countries of the continent, but it is currently either ignored or neglected. (ADEA 2014: 2)

While the sector has been relegated to the periphery in most transition and emerging economic contexts, learning in this sector has been marginalized. The continued existence of the sector, however, testifies to its resilience and reproductive capacity. Indeed, it is clear that some quite novel learning forms exist that secure its robust existence. Under the broad rubric of “informal apprenticeship” (ILO 2012), the work by the ILO has been seminal in attempting to come to grips with this somewhat less than conventional learning form. Coming on the back of considerable neglect of the sector, the very nature of the Technical and Vocational Education and Training discourse, which used the college as a basis for learning for work, clearly did little to engage this sector. Arguably notions of “work” clearly did not incorporate that which existed outside of the formal enterprise. Importantly,

it took the ravages of employment decimation of the 2008 subprime crisis that led to some attention to the sector. Asking “Is the informal normal” (OECD 2009) started the debate and discussion around its reality with respect to employment and jobs. We have, however, indeed come a long way from those heady days with the call for the more recent partial recognition becoming quite robust. Some work has recently become more acutely focused on the sector looking specifically at learning forms in this sector (see ILO 2012; Walther 2008; Charmes 2016; Stuart et al. 2018). It provides an important opportunity under the rubric of work-based learning to shine the spotlight on this unique learning and training form.

“Work-based learning” has become a significant component of the international discourse for enhancing school-to-work transitions. Under the broad rubric of learning associated with “real work contexts,” it not only incorporates the notion of “apprenticeships” but has also become a catch-all phrase to refer to all learning associated with real on-the-job training (see, for instance, Ismail et al. 2015). As a significant component of workforce development and learning for real work contexts, it can be usefully employed to legitimate learning in the informal sector – a learning form which while it is widely practiced still needs to be incorporated in national skills systems. The term has already significantly widened the existing understanding of effective school-to-work transitions and skills development systems (see, for instance, Maurer and Blom in this edition). Associated as it is with the renewed attention to expanding the ambit of apprenticeships, it provides an opportunity to bring into focus further forms of learning that exist in various contexts and that have not yet been fully incorporated in the national space in emerging and transition economies.

As an essential component in resolving skills deficits for the economy, challenges to implementing work-based learning solutions range from a lack of commitment to its implementation, an absence of sound legal frameworks, a focus on definitional clarity, and a perceived (in-)capacity for effective implementation. Clearly the policy intention that underpins its importance is sometimes lacking, but international attention has significantly advanced its currency. Many countries have started thinking through how this learning can complement and advance existing practices. The current attention to WBL forms, especially because it is an emergent notion, can provide an important moment to legitimating and advancing existing learning forms in the informal sector. Furthermore, the current international attention to advance work-based learning and incorporate it into the policy space provides an important historical moment to opportunity to advance its interest.

This chapter explores the nature, role, and form of learning in the informal sector in Africa and provides the basis for its incorporation into the work-based learning discourse. It begins with an overview of the nature of the informal economy and the learning “systems” in place that characterize it. This is followed by emergent notions of work-based learning and then how learning in the informal economy can be accommodated within a work-based learning framework. The potential for inclusion into the national skills development system and the opportunities provided by the current discourse of work-based learning is then examined with potential pitfalls analyzed.



## Understanding the Informal Economy: Size, Shape, and Legitimacy

Understanding the nature, form, and context of the informal sector is an important starting point for its overall development. A brief overview of the size and extent of the sector in Africa is provided in this section.

### Size and Shape

Evidence suggests that the share of those in the informal economy in Africa is extensive and expanding. It is estimated that nine (out of ten) workers in both rural and urban areas hold only informal jobs (ILO 2009). The share of informality varies across the region: informal employment is lower in Southern Africa, where it ranges from a low of 32.7% in South Africa to 43.9% in Namibia and other parts where it accounts for between 80 and 98% of people in work. In Zambia, for instance, at least 90% of the employed population has their main activity in the informal sector.) In other sub-Saharan African countries for which data is available, informal employment tends to be the first job for most youth. According to the ILO data in eight sub-Saharan African countries, at least eight in ten young workers are in informal employment (ILO 2015a, b). The Association for the Development of Education in Africa (ADEA) inter-country quality node conference (2014) has, for instance, also pointed out that “In most countries, the informal sector is large in comparison to the formal sector: it accounts for 80–98% of people in work. Formal employment levels are low (2–7%) and the formal private sector is little developed (1–5%) (ADEA 2014).”

Data extracted from various sources attest to the size of the sector in Africa (see, for instance, Stuart et al. 2018). The table below captures some of the available data. Employment in the informal sector in Africa (from among data cited from 160 countries) has placed Benin (96.3%) and Burkina Faso (90.5%) and Mozambique as among the top of the countries with highest presence of the informal sectors as a share of nonagricultural employment (Charmes 2016) (Fig. 1).

In addition, a number of other countries are cited with considerable informal sectors, with South Africa ranked as the lowest. The predominant female composition of the sector is also a key characteristic of the sector, with high incidence of poverty recorded by those engaged in it (Kamdima and Nkunika 2012).

### Nature and Character

Despite considerable advancement in the kinds of data available, key elements of the informal economy are still shrouded in mystery. For instance, its origin and nature is still contested. Singh et al. (2012) argue that the informal economy is a product of the twin failure of “poorly run institutions” and “excessive regulation”

Category	Employment in the informal economy as a share of total non-agricultural employment Figures (2005–2010) <sup>a</sup>	Share of persons in informal employment in total non-agriculture (%) by Gender <sup>b</sup>
>90%	Benin (96.3%), Burkina Faso (90.5%)	
>80%	Mozambique (87.2%), Cameroon (84%), Mali (82.7%)	
>70%	Morocco (78.5%), DRC (77%), Kenya 76.8%, <b>Zambia (76.3%)</b> , Madagascar (73.7%), Uganda (73.5%), Lesotho (70.7%)	<b>Zambia (2008)</b> Male (62.9%), female (80.1%)
>60%	Cote d'Ivoire (68.7%), Ghana (66.3%)	
>50%	<b>Liberia (56.4%)</b> , Zimbabwe (51.6%), Egypt (51.2%)	<b>Liberia (2010)</b> Male (47.4%), female (72%)
>40%	Tanzania (46%), Algeria (45.6%), <b>Namibia (43.8%)</b>	<b>Namibia (2008)</b> Male (41.1%), female (47%)
>30%	<b>South Africa (32.7%)</b>	<b>South Africa (2010)</b> Male (29.5%), female (36.8%)

**Fig. 1** Employment in the informal economy as a share of total nonagricultural employment (Africa). (a) Source: Charms 2016 (Employment in the informal economy as a share of total nonagricultural employment in 60 countries (%)); (b) Source: ILO (2012) Key Indicators of the Labour Market (KILM) 2011, 7th Edition, ILO, also cited in Kamdima and Nkunika (2012: 2)

which “force” individuals, workers, and businesses into the informal sector. Associated with a weak legal framework, informality is more likely to be prevalent among youth, women, and the more vulnerable individuals. In the case of developing and transition economies, it has been contended that “. . . employment is informal out of necessity for those not able to find formal jobs and in the absence of privately or publicly provided social protection” (ILO 2014: 24). Many African students have interrupted periods of education, alternating with significant work breaks, exposing them early on to informal work, and making it more difficult for them to acquire either proper academic qualifications or quality work experience (ILO 2016: 34). It can be confidently presumed though that the lack of adequate formal employment opportunities, therefore, provides an important impetus for the expansion and sustainability of the informal economy, especially in transition economies. It has, therefore, been a powerful element in livelihood development for large numbers of those unable to be absorbed in the formal economy.

The local circumstances that underpin its existence profoundly affect its form and character with various types evident. The spectrum ranges from conventional local home-based activities including vending of food and small merchandise to providing health products and care (traditional healers) and from tailoring of garments to more expansive furniture manufacturing and automobile repair. There are regional variations. The sector in the more central regions of the continent (i.e., Nigeria, Senegal, and Kenya) is associated with significant innovation in manufacture as opposed to a more retail-dominated form further South of the continent. Their widespread presence at both urban and rural contexts defines their character. The predominance of retail activity in urban areas is contrasted with quite innovative agri-based activities in rural contexts. Some quite novel forms of agri-based manufacture are also to be found in some areas.

Similarly, the underground mining activity in South Africa and the fishing activity in the lakes of Malawi differ significantly in the way they have originated and are currently undertaken. Authorities respond in different ways at both the local and national levels, and local circumstance ultimately shapes how these enterprises operate. Thus, while regulation powerfully defines their character, the very nature of the informal sector varies significantly, and its ability to adapt to differing circumstances is clearly difficult to track. In many respects, market demand defines its very existence, with regulation outside the purview of its logic.

Different kinds of entrepreneur types have also been identified depending on local and national circumstances. In Zambia, for instance, the informal economy is dominated by Micro, Small and Medium Enterprises (MSMEs) with most of these businesses (92%) often functioning with only one operator (Conway and Shah 2010). Many of these are family-based with little cash transfers changing hands, with only 12% of MSMEs being “entrepreneur” firms, employing workers who are paid solely in cash. Here, the vast majority of MSMEs are concentrated in the agricultural sector (70%), with most of the remainder in the retail sector (21%) (ibid.).

Another important characteristic of the informal labor market is its strong gender bias: a high proportion of women in the active labor force in the developing world are in the informal sector. In SSA, this share is even higher (Steel and Snodgrass 2008; CSO 2011). It has also been contended that women are concentrated in the more precarious types of informal employment (Chen 2007, 2008), with the average earnings from these types of informal employment too low to raise them out of poverty, but has been known to be used in the absence of other sources of income (Benjamin and Mbaye 2014). It is clear that governments are increasingly required to ‘acknowledge its existence and to the national economy’ (Conway and Shah 2010) if they are to attend to the welfare to those employed therein.

## **Advocating for the Informal**

Advocates for the advancement of the informal economy have become more robust. The international community led by the International Monetary Fund (IMF) has been vocal about its positive impacts. The admission that the informal economies are much larger in poor and emerging economies than in richer countries means that some concerted attention has to be given to its advancement in these contexts. The value of this economy has been identified to advance its role in employment and livelihood development:

...the informal sector has an important role of play, especially in developing economies where it may be viewed as the nursery of future economic growth in the formal economy. It serves as an important buffer against economic uncertainty and underdevelopment in the formal sector by providing livelihood to large segments of the population. (Singh et al. 2012: 42–45)

African voices have also become more vocal regarding its significance as a mechanism for development. ADEA’s ICQN Conference held in 2014 links

development of the informal economy with the very choices that need to be made regarding the developmental model, with increasing consensus that the upliftment of the sector needs to be taken much more seriously than has hitherto been done.

There is increasing consensus that if African economies are to succeed, then it is necessary to "... create added value and stimulate the informal economy at the heart of socio-economic development strategies and policies" (ADEA 2014: 2). Legitimacy and advancement of the informal economy are clearly at the core of this quest, and learning in, and for, its advancement could provide an important element in this quest for legitimacy. The admission that this sector is to be given attention is contained in this important regional pronouncement:

... Just because the vast majority of young people enter informal employment, they are no less in need of training in order to perform properly the tasks entrusted to them. (ADEA 2014: 3)

The reality of responding to this sector, however, still needs to be realized.

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## **Understanding Learning for That Informal Economy: Rethinking "Informal Apprenticeship"!**

Learning in this sector is perhaps more ad hoc than is conventionally conceded. The complex sector is marked by a less clearly defined learning environment that will require considerable understanding of the circumstances and contexts under which they take place. Just as there is very little engagement between the informal and formal economies, learning in, and for, this economy is clearly more disparate than they need to be. More clarity about its key features and its incorporation as a necessary component of national skills systems will clearly advance its legitimacy.

Learning in the informal economy was given prominence by inter alia Hoppers (1983), King (1977, 1996), and Haan (2006). The latter's work in sub-Saharan Africa which focused on apprenticeships in this sector found and referred to the learning formation in the informal economy as a form of "apprenticeship." It was clearly understood in terms of current nomenclature found in Western European systems. Referred to as the most common form of nonacademic training in the sub-Saharan region (Haan 2006), it represented an example of a learning formation provided outside of the state national system, offered sometimes for a fee. Importantly, it was found that the system leads to self-employment rather than to wage jobs. In Ghana and Kenya, for instance, where quantitative information on apprenticeships was most abundant, "informal apprenticeship forms" were found to be widespread and served as an important element of training in the urban economy (Haan 2006; King 1996). While the work placed learning in this economy in the international stage, its attractiveness has unsurprisingly not gone unnoticed. By referring to it as a form of "apprenticeship," however, it served

to simply undermine its key features, which were not rooted in formality, although clearly defined rules pertain. The nomenclature, however, was established.

The nomenclature is still widely used by various transnational entities. The ILO, for instance, has undertaken significant work in the area over the past decade (ILO 2008). Referring to learning in this sector as a form of apprenticeship, i.e., “informal apprenticeship,” it turned out to be an important starting point in understanding the learning practices in this economy (Comyn 2015). While the rubric of “informal” apprenticeships, of course, belies the extensive and established sets of rules and regulations that underpin its current form in different contexts, the reality of this learning form had been established.

Much has been done to distinguish this learning from its “formal apprenticeship” counterpart. This short ILO definition already makes this evident:

It [informal apprenticeship] is based on a training agreement between an apprentice and a master craftsman. In this agreement, which may be written or oral, the master craftsman commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsman. (ILO 2012)

The understanding of the learning form is clearly an important starting point in understanding its unique character.

The OECD have also described learning in this economy as associated with a “traditional” or “family-based” perspective (OECD 2014: 11). It is considered a form of “traditional” apprenticeship characterized by a master craftsman, who undertakes the training of a willing participant as he or she becomes inducted into the particular craft or skill. Learners in informal micro and small businesses learn technical skills from master craftsmen and practitioners at the workplace and are introduced into a business culture and a business network which makes it easier for them to find jobs or start businesses. Training in this “enterprise-based apprenticeship system” is referred to as cost-effective because it is integrated into the production process while for learning on the job enables understanding of what work in this context entails. The advantage of this training form allows learners an opportunity to opt out early if they find that it does not accord with their character.

While the learning environment is integrated into the work process, the chances of an unsavory learning environment are very real, with possibilities of exploitation and ineffective practices being sustained. As regards cost, the advantages of shared costs make it an inexpensive national learning form. Training investment is shared between the master craftsman and the “learner/apprentice.” It provides access to training for those unable to gain admission to some public and private training opportunities, which are sometimes not only costly but tend to exclude those without any formal schooling. As a training form suited to marginalized communities, learning is not only an option, but in many cases, it is the only alternative to accessing livelihoods. It is therefore not unsurprising

that informal apprenticeships that transmit the skills of a trade to a young person in a micro or small enterprise have operated for generations in many African countries.

The case for changing nomenclature of this learning form is a persuasive one. Referring to it as “informal apprentice” tends somehow to relegate its importance in the national skills development system. It undermines its key features and tends to suggest that it is “less important” than its formal counterpart. While it is clear that the reference to the informality of the apprenticeship is essentially a product of the kind of economic production to which it responds rather than a haphazard construct of selected practices, this can sometimes be mistaken.

Clearly, the key difference between the formal and informal learning and training systems is on the basis of the “theoretical” or “classroom-based” component. The absence of government involvement, together with any ostensible theoretical (read “classroom-based” learning) component is considered to reflect the crucial difference between the formal and informal systems as identified by the resource guide developed for engaging this sector (see, for instance, ILO 2012, op. x).

While it has been emphasized that learning in the informal sector should not be considered as “unorganized,” it can be misconstrued. As the ILO Director-General has pointed out, “Learning practices which are embedded in social rules, norms and local traditions provide a conducive framework for training to take place” (ILO 2012, Foreword). Their association with a socially agreed “rules and regulations,” agreed to and respected by all parties, is often defined by social norms, customs, conventions, or cultural values. They are also “socially enforced” by informal mechanisms such as reputation, reciprocity, social sanctions, shunning, ostracism, and religious beliefs which provide the basis of their legitimacy in their local surrounds. In some cases, traditional authority has some role in assuming some responsibility, but crucially the consultation and informal sanction occur outside of the national legal system (ILO Resource Guide 2012: 10), which tends to be less than ideal from a national skills system perspective.

The reality that learning in this informal sector is associated with a lack of a standard curricula experience, together with the absence of any formal certification, provides the basis for its current deficit. The importance of certification in this context will, of course, need to be reviewed, with the proviso of its utility in this sector.

Thus one of the key features of learning in the informal sector related to its current nomenclature will need review. Identifying it as a form of “apprenticeship” might well be expedient in the short term but will need to be reviewed if it is to describe accurately its peculiar features.

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## **Work-Based Learning (WBL) and Apprenticeships**

Work-based learning has commanded a considerable amount of attention internationally. Various countries are in the process of developing frameworks and policies designed to incorporate it into its national skills development system. Reasons for this are varied, from its promise to provide a framework for understanding and implementing more acute mechanisms to respond to employer needs as skills

development levies are introduced. Clearly in an important way, it suggests that a more deliberate attempt is being made to ensure that national education and training systems are charged to be much responsive to the economy than they hitherto been.

Much more work has, however, to be done to clarify what it means in different contexts. Described as a concept without a “commonly accepted definition” (Beijing Normal University 2017), the suggestion is that it has clearly become a catch-all phrase for all manner of school-to-work transition contexts. Not only do researchers and transnational entities have different understandings of the concept, reference to different practices in various countries attests to the complexity of the diversity of practices that are described by it, from classroom-based instruction to workshop-type practices to actual work in real contexts. It does, nevertheless, incorporate all manner of apprenticeships, learnerships, and mentorships and even has been referred to “workshop-type” learning which replicates simulated working conditions (although the latter is perhaps less frequent). Defining it in particular contexts is therefore particularly crucial in light of it becoming “. . . a research field parallel to TVET” and in light of the fact that it does, as Richard Sweet points out, represent “. . . a powerful pedagogical approach which is embedded in general education (high schools and universities) and vocational education” (Sweet 2013).

There is widespread optimism that it has capacity to resolve key socioeconomic challenges of unemployment, livelihood development, and poverty alleviation. The fact that the broad sweep of its purview is encompassing and inclusive does, however, lead to the danger that virtually anything can, and is likely to, be subsumed under its wing. This is not intrinsically a bad thing. The contextual variants will enrich its premises and provide a fuller meaningful response to its effective incorporation in ensuring that education and training systems become more responsive and inclusive. Recent attention by international development and transnational entities has, however, attempted to cast some light around its key features, which will provide an important starting point in the national space.

The Inter-Agency Group on Technical and Vocational Education and Training (IAG-TVET) agreed and published a policy guideline leaflet entitled *Investing in Work-Based Learning* published in June 2017. It provides a definition that represents an important starting point:

Work-based learning refers to all forms of learning that takes place in a real work environment. It provides individuals with the skills needed to successfully obtain and keep jobs and progress in their professional development. (June, 2017)

While arguably vague, the parameters to which it refers have been clearly sketched. Of course, notions of “work” and “learning” as is notions of “real work environments” will clearly hinge on final agreement as to its real meaning and import. The document does, however, go further in clarification. Reference is made to the “. . . the common types of work-based learning’ viz. Apprenticeships, internships/traineeships and on-the job training.” These essential forms are illustrated below:



- Apprenticeships  
Defined as those that “...provide occupational skills and typically *lead to a recognised qualification*.” As a combination of learning “...in the workplace and school-based learning,” it is referred to as being undertaken in a ‘structured way’- understood conventionally as being associated with a formal employment contract signed between the parties, with the incumbent in receipt of a regular salary
- Traineeships and Internships  
...are workplace training periods that complement formal or non-formal education and training programmes. They may last from a few days or weeks to months. They may or may not include a *work contract and payment*.
- On-the-job training  
This training form refers to “...training which takes place in the *normal work environment*. It is the most common type of work-based learning throughout an individual’s working life” (IAG\_TVET 2017).

Clearly, as a broad “consensus position,” the document is useful in prescribing the broad features of the concept. The consensus reached by the IAG-TVET suggests that work-based learning accords in general with a learning form linked much more deliberately to the world of work understood in its widest form in all of its manifestation-waged labor and other forms including that of the informal economy.

At some level, the document has resolved what has been regarded by some as the somewhat “tenuous” relationship between work-based learning and the formal education and training systems. As Maurer (in this edition) points out, the fact that it is often associated with work tasks rather than formal learning objectives makes its suitability to all forms of learning for work particularly enticing (understood in its most widest sense, i.e., livelihoods and waged employment). But, as many have also pointed out, informal learning can in fact occur by observing and imitating in the workplace modeling (see, e.g., Bandura 1972) or by learning through experience (Kolb 1984) or incorporate a degree of socialization by the development of “work ethics” (cf. Maurer citing Heinz 2005 in this edition), although these are essentially referenced to learning for formal contexts.

The importance of this initial work is that work-based learning can be utilized to expand notions of learning and “learning for work.” The attention drawn to the needs of the entire economy cannot be avoided. As a concept, WBL has the transformative potential of engaging national systems to rethink notions of skills and responsiveness to various sectors and perhaps be more responsive to sectors that have been ignored or not given adequate attention. It has potential to significantly transform the way national systems respond to their learning needs.

The tentative definition of work-based learning can be used to accommodate learning in the informal sector. While the notion of apprenticeships for the informal economy advanced by the ILO is an important starting point in ensuring that learning in this sector is not ignored, much work has still to be undertaken in support of advancing the specific learning in this sector. While the current nomenclature



under the broad umbrella of “apprenticeship” can be used, attention has still to be paid to the sector as a separate component of the skills system distinct from the “formal.” The starting point offered by IAG-TVET in the absence of a unifying framework provided for work-based learning can be used by those advocating learning in the informal sector. Clearly work-based learning can provide a valuable starting point in legitimating the learning in the informal economy, which is often lost to the national system and becomes subsumed as an “alternative” form of skills development that exists outside of what we regard as “conventional.”

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## **Work-Based Learning in the Informal Economy**

There is an opportunity provided by work-based learning to respond more adequately to the needs of those in the informal learning and training sector. It allows for a more measured examination of what is possible, without negating its potential, while ensuring that its more exploitative elements are challenged. There are valuable advantages in ensuring that skills development and learning in the informal economy are supported, enhanced, and sustained. The notion of work-based learning, however, provides a concerted attempt to advance its key features and expand existing attempts at engaging learning in this sector.

Unlike the apprenticeships designed and implemented in the formal enterprises, these informal “apprenticeships” provide a valuable opportunity for access and livelihood development that can be usefully replicated in the formal economy. It is evident that its ability to advance access to labor markets by providing opportunities for those who are outside of the formal education loop is considerable. It can represent a powerful means by which governments can access this group to enhance their literacy and life skills and advance the skills and employability in the sector. In addition to offering a flexible mode of training delivered on-site, usually in the learner’s own community, the organic sustainability of this form of training provides a valuable means by which to reach out to those that have been left out of the formal education sector. The skills focus of the sector that enables on hand skills to be transmitted is likely to result in enterprise development albeit in the informal realm. In addition, there is a possibility that the benefits of the additional education and training provided as a result of inclusion into the national system have the potential to establish partnerships with formal enterprises and generally uplift the sector.

The warnings to the limitations of current learning practices in the informal sector are nevertheless important. Criticisms that the training is still tied to the very excesses related to informal economy and those related to health, safety, and lack of livelihood security, exploitation, and inequity are clearly valid. They should not be ignored in our enthusiasm to embrace learning in this sector. Indeed, the African Development Bank (AfDB), for instance, has argued that while there was capacity in the informal sector to create jobs and incomes, there are challenges that need to be addressed. The association with poverty in the informal sector needs to be addressed. It clearly needs to respond to excesses related to those informal workers without secure income,

employment benefits, and social protection (AfDB 2013). The ILO has also posited the observation that some governments have committed to the need to protect those in the informal sector who work in low-skilled jobs, exposed to inadequate and unsafe working conditions (i.e., low wages, long working hours, and an absence of social protection) and inadequate training opportunities (ILO 2016: 83). The possibility that informal apprenticeships don't always function well in light of the precarious "decent work" outcomes is an important one and cannot be left unresolved. Engaging it through WBL can make that difference.

There are dangers and challenges in the sector, and it is necessary that the real challenges of the sector need to be examined, and responded to, within particular contexts. It is true that depending on the local context, the terms and expectations of the training may not be clear and there can be a lack of innovation in production and transmission of skills. In addition, while there may well be an absence of conventional "quality assurance" measures, the measure of an apprentice's competency is clearly continuously assessed by the mentor who is ever-present. Thus as a measure of the effectiveness of this training form, the importance of ensuring mentor development is overwhelming. Where work conditions fall far short of decent work standards, this can, and needs to be, be addressed within a skills development framework. Similarly, the gender biases existing in some trades can also be responded to within a national skills framework. Thus while it is often the case that master craftspeople may not be sufficiently skilled to train young people effectively, their expertise in ensuring that this training form is sustained cannot be ignored. Intervention in this sector will, however, need to be carefully managed.

Similarly, it is important, therefore, that the advantages of this informal training form are harnessed. Current attempts to rehabilitate it by formalizing its key features might, however, need to be carefully reviewed for its effectiveness. The danger of diluting its key premises by overregulation is real lest it undermines its core features. Thus, while regulation is an important starting point for incorporating it into the national skills system, there is, perhaps, a step that precedes this – that of understanding its key features. Regulation needs to ensure that its key premises are not diluted. For instance, the fact that learners (read apprentices) in this informal sector find their own master craftspeople, sometimes without any mediation or direction, is indicative of the strong social cohesion that exists in the sector. Ignoring this might well undermine a key ingredient of success. Formalizing this will invariably impact on its effectiveness. In addition, the on-the-job learning through active mentorship of the owner, or designated colleague, is clearly an area that needs strengthening.

Work-based learning needs to incorporate advantages of the current informal apprenticeship form. Learning in and for the informal economy is associated with learning a diverse range of different skills which are embedded and intrinsic to the manufacturing process. The different perspectives and starting point in this sector are arguably more fundamentally work-based than are routinely considered to be so. The holistic, rather than atomized, competencies are clearly directed at ensuring that the incumbents are prepared for the entire work process, rather than factory floor workers who are designated to achieve mastery of very specific and technical skills associated with effectively implementing technical tasks. In the

informal learning model, discrete technical tasks are enmeshed with a range of entrepreneurial competencies that are perhaps less useful for employees expecting employment than they are in a real-world work-related retail context. WBL can therefore provide an important opportunity for understanding and enhancing practices considered effective in both the sectors.

The one advantage that it has over its more formal counterpart – that related to employment outcomes and readiness for the task at hand – needs to be enhanced. Arguably one of the biggest challenges is that learners in this sector see no end to their tenure, except if they decide to terminate and move off into their own enterprise. Essentially, “graduates” from the “informal sector” either emerge from the system as fully able to undertake self-employment or serve in the “employ” of their mentor for longer than is warranted; in both cases, the aim of ensuring effective skilled outcomes has been met. In this way, informal WBL has resolved at least one fundamental critique of the formal apprenticeships system – that of effective outcomes. Francis Teal (2016) with reference to formal apprenticeships reminds us of the essential weakness of the current formal apprenticeship system, whose effectiveness is intrinsically dependent on the nature of the labor market. In the informal sector, the labor market demand element is eliminated. The clearly identified market-responsiveness agenda evident in the informal sector appears to respond effectively to real market circumstances.

Comparing learning and training in the informal and formal economy is less useful than understanding the strengths, premises, and objectives of each. Learning and training in a large-scale industrial work-space is clearly different from a small enterprise with limited resources. While understanding informal apprenticeship systems in context of its formal counterpart represents an important starting point in legitimating the sector, its very premises – as a result of its different origin, purpose, and form – make it far less useful exercise. In the context of an industrial economy with a focus on establishing mass-based employee training, the formal apprenticeship model is clearly an important one.

For work-based learning to respond to key imperatives of the informal economy, it is necessary to understand what it comprises. The information available has suggested that there are a large number of “known unknowns” in the informal economy, with widespread generalizations less easy to be made. As a result of the diversity and variation in types of enterprises, which is itself ultimately determined by a range of national, regional, and local contexts, it is clear that it will necessarily be differently experienced and understood in different contexts and its implementation and utility will be determined by context.

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## **Still Some Way to Go and Some Crucial Questions Need to Be Answered**

We have advanced significantly from early dubious hesitancy in legitimating the sector. The call for engagement with this education and training form is, as we have seen, shifted unquestioningly on the development agenda. The difficulty in

implementation has to start with commitment to include the sector in the formal policy space. Much has been done with many countries beginning to establish frameworks that attempt to meaningfully deal with the notion of work-based learning. Much is still to be done to realize the potential of the concept to be meaningfully applied to developmental contexts and make it responsive to the informal sector. It has been argued that although formalizing the informal system is not a sine qua non for improvement, the overall result of this initiative is likely to improve linkages to the formal system and might well aid in legitimizing the sector – a goal espoused by many (see, for instance, ILO 2017). The fact that it competes with key markets currently served by the formal sector, it will require some degree of legitimation and formalization, as the two complement each other for nationally effective outcomes.

It is clear that a combination of approaches and interventions may be required to improve the learning in the informal sector. The quality of training, the level of skills acquired, working and learning conditions, entrepreneurship and employability beyond the local community, and young women's access to nontraditional occupations will all need some attention. It is crucial that such provisions build on existing apprenticeship practices in the informal economy and do not drive out existing “good” practices while aiming to address deficiencies. It is likewise important to view policy approaches as complementing efforts to expand the formal TVET system in the quest to improve existing national skills development systems (ILO 2012, *Foreword*).

Some issues and questions that need to be addressed include:

- Do we need to rethink and separate the notion of “formal” (and “informal”) apprenticeships? What indeed does the notion of informal apprenticeships suggest and what are the implications for its usefulness?
- The nature of the strength of learning and training in the informal sector. Is this a conceptually unique phenomenon or a conventional practice “unworthy” of serious engagement except for identifying challenges?
- We need to improve it by bringing it into the ambit of the formal system. Is this a meaningful, yet tentative, response? What notion of formality do we have? Is it based on existing systems in these contexts?
- The issue of understanding the nature of the informal sector has been adequately acknowledged. How do we not destroy the essence, and value, of what is already there and “working for purpose”?
- Are existing apprenticeships in this sector competency-based? Is competency about recognition or quality? If recognition, what would be the purpose? And if quality, how to ensure success and legitimacy?
- The informational challenge. Do we really know what happens in these “learning” and “work places/spaces”? Is the challenge of appropriate methodology and “gross” (over-)generalizations that obfuscate, rather than illuminate, being responded to? Do we really understand what is happening in the sector?

While we can take some comfort that we have moved considerably from the quite questionable insinuation that asks “Is informal normal” (OECD 2009) to the

reality that “Informal is the new normal” (Stuart et al. 2018), there is much to be done. However, we still have some way to go in the skills development arena before we accept that the skills development and learning and training forms in this sector are indeed significant. Even the ODI report neglects to make the case for skills, suggesting that if the sector is to be revitalized, “Policies to target self-employed workers could include promoting access to capital and technology, supporting cross-border trade and improving infrastructure in the workplace, including for home-based workers (Stuart et al. 2018: 1). Clearly the overall need to, “... take the informal worker close to the definitional threshold of formality” (ibid, 26) is still overwhelming.

In this regard, changing terminology might well be an important starting point. Rather than consider it a form of apprenticeship, it might well be conceptually appropriate to refer to learning in the informal sector as a form of work-based learning that is clearly distinct from the formal sector apprenticeship model. As illustrated, learning in and for the informal economy is clearly distinct from its formal sector counterpart, with its clearly defined sets of rules of engagement.

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## Conclusion

The brief overview of the nature, form, and context of the informal sector, and learning practices within it, in the African context suggests that learning practices need to be considered an essential element in overall national skills development in emerging economies. Currently incorporated under the broad rubric of “informal apprenticeships” (ILO 2012), it is argued that the notion of work-based learning can provide a powerful means by which to ensure that informal learning forms are embraced in the national space. In the context of limited formal employment opportunities, embracing this education and training form can advance national development goals and resolve key socioeconomic deficits.

The opening of the opportunity offered by emerging notions of work-based learning means that some considered engagement around the concept can take place as it pertains to learning in, and for, the informal economy. The determined attention paid to understanding learning in the sector can ensure that national resources can be marshalled toward it. It is, however, necessary that the integrity of the current learning practices in the informal economy is not violated while, of course, ensuring that its key contradictions and excesses are curtailed. Crucially there is a wider need to embrace the informal economy as a whole which would lay the groundwork for revitalizing the system. Whatever interventions are to be explored, what is necessary is that it takes as a starting point what currently exists and is working. This might well suggest that understanding and advancing learning in the informal economy must relate intricately to its key strengths. It does, however, require a commitment to an overall view that it needs to be considered a legitimate element of the overall national development thrust considered appropriate for transition in developing contexts.

The issue of responding and learning from learning practices in, and for, the informal economy is captured appropriately by the following reminder by Ivan Light”

... Instead of a unitary theory of disease that yields a single remedy for all ailments, a quest allopathic medicine abandoned long ago, informal economy researchers have to tailor their policy prescriptions to the specific causal scenarios in different places. This requirement makes one-size-fits-all policy recommendations hard to craft and unsafe to implement. The right course, of course, is the hard work, sensitivity to detail and location-specific research. (Light 2013: xv)

We might well need to step outside and explore uniqueness and difference by engaging with this education and training form to learn what works, rather than to start from a perspective directed at improving the current practice by intending to insert within it a brush of formality that might well undermine its key strengths.

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# Innovation Skills in Apprentices Training

# 7

Ludger Deitmer

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## Abstract

Product and process innovations are of ultimate importance for a long-lasting enterprise competitiveness. Across all branches and services, innovations can be understood as changing the functionality, performance of products, and quality of services including the way they are produced. An important difference between innovations is that of radical versus incremental innovation. Whereas radical innovation is basic and of disruptive character and is based on paradigmatic change of the current technology concept, incremental innovations are of smaller scale and take place concurrently on the basis during work processes. While reflecting on innovation skills for apprentices, it can be stated that incremental innovations could be given into the hands of workers, foremen, and apprentices. Assuming that different in-company training pathways of apprentices are possible, the development of innovation skills toward incremental improvements on product, as well as production processes, could be brought into reality.

But many companies fail to do so because they miss specific vocational development know-how on the level of their vocational trainers. The quality of

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the products could be improved while a productive manufacturing is in place. But why is it useful that this starts already on apprentice level? Why should they learn things which go beyond the traditional demarcation beyond engineering and production areas? Why is it important of being creative on making *incremental improvements* within the work process? Under which framework conditions could achievements in apprenticeship training be found and developed further?

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**Keywords**

Apprenticeship · Assessment of work-based learning · Trainers · Quality · Cost and return · Incremental innovation

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## Introduction

Companies could develop the innovation skills of their workforce to increase innovative capacity of the enterprise. This is not exclusively on planning and product creation level but also on the direct production level, including that of product service. When the quality of the product is produced more efficiently by keeping quality standards, including the way they are produced, this has direct implications for the productivity and the companies' future.

The development of innovative capabilities of apprentices is discussed from different perspectives: innovation research literature and by case studies. This in order to define framework conditions for innovative work and learning environments within companies. The ways of how innovation processes in companies are currently organized and how in-company training of apprentices is addressed are under reflection. This chapter compares nine company cases of apprenticeship arrangements to analyze some lessons for innovative learning and working environments. The investigation instrument is called "QRC tool" which analyzes the relationship between quality of training, returns of different apprenticeship, and the cost related to the apprenticeship cases. The tool is used as self-assessment by trainers and person responsible of apprenticeship organization. The quality of the apprenticeship in its relationship between the design of the learning approaches and the in-company training plans is studied. Recommendations for elements of an innovative learning environment to enhance the innovative capabilities of apprentices are given.

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## Expanding Innovation Understanding

The notion of innovation as a social process, which includes many different actors, is widely accepted in innovation research (e.g., Lundvall 1992; Morgan 1997). In a classical understanding, innovation could be understood as a top-down process from research toward practice. This means that companies develop new products or launch new processes in which more or less engineers or researchers are *the key*

*actors within, as those one who drive an invention, an idea into innovation.* But in a wider innovation understanding, this is also influenced by the workers, tradespeople, and/or apprentices.

An important step in opening up the work arena for innovation is done by setting up *design to manufacturability* (e.g., Nonaka and Nishiguchi 2001; Nonaka and Teece 2001): This means leaving the sequential innovation track toward a more iterative understanding of innovation, in which also the manufacturability of a new product is one of the key problems to be solved and not at the end of the process but rather at the being of different development stages (Schlünssen 2014).

The economic studies of Hall and Soskice (2001) make clear under which conditions this new character of innovation is needed, when they summarize that “incremental innovation at the side of workers is getting increasingly important for the global competitiveness of enterprises. . . for example in such industrial areas where highly sophisticated industrial machinery; innovative tools or other process automated production machinery, automated transport systems and high quality engines are produced.”

Workers’ feedback into what is planned by the engineers is considered highly relevant because it entails information about the manufacturability of the concept design and before further design details are undertaken. *Therefore* it is necessary that workers are able to make incremental improvements to the manufacturing process to achieve better product quality and make the manufacturing easier and more productive. Workers must be able to confer the possibilities for improvement. There is a need for communication skills to interact with engineers, in the context of improvements to the manufacturability or the “design to assembly” quality of the different products. Therefore it can be said that the worker needs to maintain “holistic skills” (Rauner 2007; Ruth and Deitmer 2010).

Shared knowledge is one of the important issues for successful innovation practices. Therefore, the organizations, networks, or teams which have established the best structures and methods to develop a common understanding among individuals representing different functions (organizations or disciplines) are those with the best innovation performance and thus with competitive advantage (Hong et al. 2004). The synergy of shared knowledge cannot easily be achieved, because knowledge does not have a unique nature. There can be different “cognitive universes” between organizations and departments, and there can be incompatible knowledge domains between departments and teams; knowledge can be tacit in nature and thus difficult to codify or to make explicit (Senker 1993). This knowledge can be described as “sticky,” that is, held by individuals and cannot be separated or objectified. Thus we observe plenty of obstacles to knowledge sharing, which impede knowledge sharing as a planned process. But nevertheless, some good practices with regard to knowledge sharing are reported (e.g., Nonaka and Takeuchi 1995; Nonaka and Teece 2001; Harryson 1998).

Kevin Morgan (1997) pointed out the interactiveness and the multi-actor-based character of innovation processes: *There is now growing support for the view that*

*innovation is an interactive process between firms and the basic science infrastructure, between the different functions within the firms, between users and producers on interfirm level and between the firm and the wider institutional milieu and that this process should be conceived as a process of interactive learning (Morgan 1997, p. 493).*

I consider five influential key aspects of contemporary innovation (Ruth and Deitmer 2010) in relation to the involvement of workers in design and their construction work:

1. **The idea of sequential innovation steps has been overcome these days while the markets require higher quality and their flexibility on time:** Engineers and other technical experts design sequentially. In this role model of workers, manufacturing is at the end of the process.
2. **The concept of innovation in a wider understanding transcends the “expert model” and involves the workers much earlier.** Workers are interviewed about the plans that have been drawn up by the engineers and their feedback forms part of the development process. This can be considered relevant because it entails information about the *manufacturability and production of the concept design*. Apprentices taking part in such meetings not only learn about how to produce a quality product, but are better able to reflect on the quality of the product (Toner 2011).
3. **The evolution from sequential to concurrent (or at least overlapping) innovation phases.** The knowledge and experiences that are available in functional areas at the end of the innovation process (e.g., manufacturing expertise, but also suppliers’ capacities) are required at the earlier stage (concept design) and during the ongoing development phases. Knowledge sharing between the manufacturing and early design stages is alike, with the need to bring workers’ knowledge into the design process.

The following section will discuss this new understanding of innovation in terms of economic implications.

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## **Different Production Concepts and Vocational Formation of Workers**

Post-Fordism signified the beginning of a new industrial era, one associated with dynamic economic and social development, which has severe consequences for the personal qualification system including the vocational competencies of workers and apprentices. The competition between companies in a post-Fordist era arises from additional nonmonetary factors such as the unique quality, design, and technical performance of the products, including the timely responsiveness to the needs and wishes of the individual customers (Koch 2006).

Additional to that some of the customers even wish to receive tailor-made or one of a kind product. This sounds contradictory because one of a kind product sounds expensive, but their manufacturing has to be achieved cost-effectively. To follow

these new requirements, the factory becomes “leaner” with less hierarchies. The direct production capacities are equipped with planning and control competence in order to be more flexible when producing variants of a product. Such a production concept is based on the availability a skilled worker has knowledge of the planning, the preparation, the production, and control of his work based on strong communication abilities to coordinate himself with planning and other departments in the company.

The post-Fordism model is possible because digital technologies have advanced over the years to allow just-in-time manufacturing of high-quality product variants. There is no longer a need to stock up on a given product. Products are made on demand and then they are dispatched. The key to production flexibility and high productivity lies therefore in the qualifications of the workers and in the use of such production technologies, which allow direct and flexible control by workers (Table 1).

This change within production philosophy can be described as a move from a top-down management approach toward a participative management approach (Corbett et al. 1991; Deitmer and Attwell 1999) which requires a commitment to innovation at all levels of the workforce, not just at the top of the organization.

In a QECD literature study on workforce skill and innovation, Phillip Toner points out that across different sectors, learning by doing strategies is to be found in almost all fields of production. In the more innovative work environments, this can lead to improvement in the efficiency of the production processes and the product design and performance (Toner 2011, p. 28). The central place to find out such improvements is the direct production environment based on the existence of highly skilled workers. Such high-performance work structure is based on the practical and experienced knowledge of the workers which is sustained by theoretical knowledge provided by schools and extra courses (Nyhan 2002, p. 112).

Practical knowledge is generated on application context and is directed by validity criteria such as practicability, functionality, and failure-free use of given technologies. Such expertise is based on a strong worker history by years of practical work experiences on more and more complex work projects and task (Hirsch-Kreinsen 2008, p. 27). Learning by doing is a result of the experience of the direct production workforce and the way how this experience can be accumulated in the production and service process. Besides the worker qualities, it is the management which must be able to motivate the workers to share knowledge, for example, by incentives, like extra bonus, etc. The overall competitive strategy of the firm is crucial and specifically to which extent it competes on quality, customization of client needs, design creativity, and the ability to achieve cost reductions through innovation and investment (Toner 2011, p. 29).

As part of this understanding, the worker has to communicate regularly with engineers, managers, and other planning functions based on team sessions. Equipped with multiple skills, including the ability to assess the quality of products, they must be able to confer about the possibilities for improvement (Deitmer and Heinemann 2009).

**Table 1** Change of innovation management strategies and effects on skills of workers (Deitmer 2011)

Innovation management by: segmentation of quality and control	Innovation management by: participation and involvement of all company actors	Consequences for the skill formation of workers and apprentices
Function-oriented work organization	Business-oriented work organizations	Learn to work within the business process cycle and at different workplaces
Distinguished hierarchy, separation of production and control	Flat hierarchy, more integrative skills needed such as	Self-regulated working based on methods like “plan, do, act, and control cycle”
Lower and fragmented qualifications	Process and shaping competencies	Improving ability feedback for products and production processes
Production follows a work execution function	More commitment, responsibility on direct production level	Developing vocational identity and occupational commitment
Quality by external control	Quality consciousness on all hierarchy levels	Professional level of training based on key work and learning task; co-shaping of workplaces

## The Case Study Method

In the next two sections, several company cases are analyzed to find out key lessons for an innovative apprenticeship. But before methodology and criteria for this evaluation is explained, some information on the background to this development is given. The “Quality, Return and Cost (QRC) tool” was developed by the Bremen University research group (Analyzing the results of more than 170 companies by using the Evaluation Tool in the industrial region of Bremen, Northwest Germany, the IBB research group discovered that, on average, the apprenticeships produced net returns (Rauner et al. 2008; Heinemann and Rauner 2009). In fact, some 55% of the companies that took part in the self-evaluation realized net returns. The companies’ actual net returns diverge, some companies gaining more than 10% net return per apprentice over the full training time. It is an online- and questionnaire-based research and development tool for company trainers to assess the innovation capabilities of their apprentices. They are examining the workplace learning within their companies. However, it should not only allow the analysis of the training practice but also to stimulate a debate in the involving company about how the apprenticeships can be improved further.

The case studies are based on the generated (self-)evaluation data by the trainers. They were invited to (self-)evaluate the apprenticeship by rating ca. 35 questions on costs, achievements/benefits, and quality reached in the particular apprenticeship (QEK-Fibel 2011). The data of these investigations allows answering questions such as: Is our apprenticeship innovative? What could be the reasons for this? How do costs and benefits of the apprenticeship in our company interrelate with quality?

Based on the aggregated data also the sector, branches, or occupational groups can be analyzed. In addition the cost of undertaking an apprenticeship can be analyzed, for example, if there are high cost and little return of costs by the productive work of the apprentices. Because a high-quality apprenticeship taking the apprentice into the center of company work processes can at least in the 2nd year of the apprenticeship allow for net benefits of the apprenticeship. Therefore the IBB Group identified that a high-quality apprenticeship correlates with a better rentability of training. This means when apprentices are given high-quality work tasks in a systematic and well-organized training way (based on a prior company specific system of task from beginner task up to advanced and young expert task (Rauner and Haasler 2009, pp 25–37), they then get a semi-productive worker within the company and offer returns to the relatively high costs of an apprenticeship (min 2 up to 3.5 years). However, this correlation does not work for all apprenticeships. It has to be differentiated that often high quality can be also reached by relatively high costs. Employment-oriented vocational training represents such cases, which count for a big majority of companies (see Rauner 2017, in which he speaks of a quarter of companies with primary interest in getting cheap labor workforce).

The quality of learning within an apprenticeship is evaluated by six main criteria followed by questions for the trainers. The first four criteria and indicators are input criteria representing quality and innovativeness of the in-company work and learning processes. The last two criteria (output dimension) are related to the effect of the training on the apprentice formation, his or her commitment to the occupation, as well as their professional competence, which is seen as an outcome of the training process:

1. **Supporting work-based learning at the workplaces:** This criterion counts for the frequency and quality of work and learning task with a high relevance for the professional profile. The level of professional task involvement is measured by percentages for each apprenticeship year. High percentages of professional and real tasks are appreciated in distinction to simple and easy to learn task which are representing low skilled task not on the level of a skilled worker and.
2. **Developing the professional level of the work task:** This is done by the QRC users who give the achieved average final examination figures at the end of the apprenticeship. These figures are the results of the final written tests and interviews undertaken by the examiners (VET teachers and company professionals) to prove the ability of the apprentices to reach the functional, processural, and holistic skills. Also the time needed to become acquainted with the professional area after the apprenticeship is rated by the users.
3. **By supporting self-regulated learning, the learning is learned:** This criterion investigates the relationship between detailed assignments and the level of the apprentice ability for self-oriented business and work orders. Is the apprentice able to plan, do, act, and control his work on his own?
4. **Learning within the work and business processes:** Studies the degree of the apprentice participation on real work assignments as part of business processes.

Does the apprentice understand the relevance of this own work task in relation of the whole company? Can the apprentice explain the relationship between work and business process? This has an impact on the apprentice quality responsibilities.

5. **Professional competence:** This is assessed by the level of professional competence (low, middle, or high) in relation to work order on skilled worker level.
6. **Vocational and occupational commitment:** The commitment from the apprentice to be innovative at work and attention spent by the apprentice toward quality while accomplishing work tasks. Also the way the apprentice finishes and controls their work task in a professional manner consistent with the level of a skilled worker.

Real work process-oriented learning in enterprises can work as a basis for developing innovative capabilities of apprentices. In the next section, I will show that the presented concept (Heinemann and Rauner 2009; Piening and Rauner 2014) can identify and separate stronger innovative cases from less stronger case due to his quantification by an innovation spider. By contrasting stronger with weaker cases, some framework conditions for an innovative learning environment can be identified.

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## Examination of Cases

The nine cases come from different labor market areas, such as industrial and craft trade sectors. These are vocational occupations such as industrial and building electricians, mechatronics engineers, mechanics, and hairdressers and painters. All cases are analyzed by using the QRC tool (The cases were identified by Bremen University VET teacher students. These students are doing their internships in companies during their VET professional teacher education.). They were investigated to find out whether there is a relationship between the quality of learning environment and innovative capability of the apprenticeship students.

Table 2 gives an overlook of the cases about company types covered and the QEK results achieved. The different cases are ranked in three fields: *top*, *middle*, and *lower field*. The first three represent stronger apprenticeships which relates to the way that they organized and developed the innovative capabilities of apprentices. In the middle field are three cases clustered. All cases are above average but still have different weaknesses regarding some of the dimensions of the QEK tool (e.g., too little support for apprentices; missing real work task). The cases in the lower area represent cases which are below the common quality standards of the sectors and have in all dimensions of the QEK tool more or less bigger deficits represented by weak quality index and *poor* spiders. The comparisons are possible because they are taken out of a pool of more than 170 companies in several German regions (Rauner et al. 2008).

Table 2 allows us to compare the conditions and personal capabilities needed to reproduce innovative behavior at the side of apprentices and help us to summarize recommendations for an innovative training organization. It helps us to understand better the mechanism for an innovative training organization and deliver ideas for

**Table 2** Ranking cases by quality index and their spider profile

Quality index (QI); innovation spider profile: stronger, developed with weaknesses, greater weaknesses	Type of company	Strength; weaknesses
Top field: innovative and high-quality apprenticeships		
Place 1; QI 2.0; stronger spider +++	Manufacturing company, HB, automation packing technology	The productivity of apprentices above average
Place 2; QI: 2.42; stronger spider +++	IT service company, OL; Lower Saxony (KS)	Above sectoral standards trainer system
Place 3; QI: 2.62; stronger spider: +++	Small electric craft trade, Lower Saxony; (MK)	Learning on real work task already in the 1st year; weaker involvement into business processes
Middle field: satisfactory apprenticeships		
Place 4; QI: 3.13	Automation control systems, Lower Saxony. SME (MM)	Learning based on real work task
Well-developed spider: ++		First two learning years too many unqualified work task; vocational commitment is weakened by too little involvement in business processes; no skilled work task in the 1st year at all
Place 5 QI: 3.18	Lower Saxony, high precision metal production parts (CV)	Above average in making work experience; profitable training, lacking own work task; lacking well involvement into overall business processes; professional commitment still too weak
Well-developed spider: ++		
Place 6 QI: 3.35	Electrical engineering and installation; supplier shipyard (SF)	Weak occupational commitment while dominant in-house orientation; not involved in real work task in 1st year; not effective learning while too little learning in the total business process cycle; too much learning in company training centers, too little at the workplace
Well-developed spider: ++		

*(continued)*



**Table 2** (continued)

Quality index (QI); innovation spider profile: stronger, developed with weaknesses, greater weaknesses	Type of company	Strength; weaknesses
Lower field: weak practices and of apprenticeships with low quality and profile		
Place 7	IT development and service company, HB (CD)	Missing trainers or responsible skilled colleagues giving advice and feedback; too little own and responsible work activities; experience-based learning is not well planned, structured, and/or guided within the company business processes; 1st year a real waste of time by “staying around” and looking for relevant real work task
QI: 3.98		
Spider with greater weaknesses: +		
Place 8	Hairdresser, North German town (KN);	No learning on real work task; cannot make work-based experiences while only learning on “dolls and puppets”; but learning by simulation is too narrow, missing recognition on customer requirements and needs, reached professional skill and experience-based learning level too low
QI: 4.01		
Spider with greater weaknesses: +		
Place 9	Small painting company, Lower Saxony (KB)	First year nearly no learning within the work process, too much aside from the real work and learning activities; no involvement in real business processes; 1 year over 85% of activities are unskilled; only under 40% of the learning time is based on skilled work activities; too much theoretical learning in so-called courses; learning at work in general by 36% too little; normal is 60%
QI: 4.31		
Spider with greater weaknesses: +		

training the trainers as well as introducing organizational development processes (OD processes) into the training organization of an apprenticeship company.

Across all cases, the time spent within real work environments is a critical issue and influences the quality of learning. In other words, when apprentices have too little involvement in the real-work environment and business processes, they do too much unqualified work (on the level of a helper or unskilled worker). This means that they learn little and have greater difficulties to develop their full professional competence they would normally achieve. In cases where the students get a chance to get challenged by real work task, they can develop much higher vocational

commitments. These students seem to be much better motivated to overcome problems or any barriers in getting real work tasks in a good manner.

Another feedback across all nine cases is the critical factum of the 1st year of apprenticeship which challenges all companies. All companies face rising business and workplace requirements due to market and technology changes. Apprentices are not well prepared by the previous school education and have not learned to be self-oriented. But to get them involved on business-related work task right from the beginning is rather a challenge for the companies. Apprentices need therefore beginner task on a less complex level which also allow them to make mistakes and follow different pathways, because mistakes may damage costly products and could have critical implications on company orders. Here comes the difference toward the stronger apprenticeship cases (see Table 2). They were able to bridge such critical situation by developing *beginner task*. Another possible strategy is to develop cooperation projects with the VET school by cooperation projects or that of some companies in the same occupation work together in a training network. This allowed all apprentices to start on challenging work task related to their occupation.

In the following sections, the first good practice case is explained in more detail. The guiding principles of training personal and the organization of the apprenticeship are described. The case is placed in the machine tool sector market of medium-sized manufacturing industry (see case in the top field on place 1, in Table 2).

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## In-Depth Analysis of One of the Best Cases

The manufacturing company was founded 40 years ago by an entrepreneur with an engineering background in process technology. Entrusted by his former engineering post in the regional food processing industry (coffee brewer), he began to develop packaging machinery for other application fields, like packing automation machinery of pharmaceutical products.

Most of the products are cutting edge in whose performance customers have been extremely satisfied and which are now widely exported to other countries like the USA and Asian markets. Customers make demands in relation to the timeline, reliability, and robustness of their machinery. Therefore, the productivity of the company and its business future is dependent very much on the creativity and technical competence of the engineers and technicians and of the skills and competences of workers, meisters, and apprentices on the shop floor. The company recruits its shop floor personnel by apprenticeship; most have undertaken an apprenticeship of at least 3 years in occupations like industrial mechanic, toolmaker, or industrial electrician.

Because of its rising turnover and expanding sales figures, the company has grown over the years to become a medium-sized company with around 250 employees. Fifty percent of the employees are involved in manufacturing, while 21% of the company staff are involved in the construction and design of the products; engineers and technicians are mostly recruited for this purpose. In many cases the engineers began their career as apprentices. The number of management

and administration personnel is small, at around 17% of the workforce. Apprentices represent 6% of the company employees.

The apprenticeship is supported by school lessons at the local technical vocational school, and a normal apprenticeship lasts for 3.5 years, including theoretical and practical exams at a chamber of commerce and trade before a regional expert commission of company representatives and technical or commercial vocational school teachers.

But what makes the apprenticeship training at this company so different from other German companies and why can it be regarded as innovative and of good practice by comparison with the apprenticeship practices of other companies?

This is because there is a common understanding of some key principles across the trainers and co-trainers as well as other technical workers of the company. The following three key principles of the training organization are discussed and widely implemented within the company apprenticeship training:

**First lesson: “Our apprentices are in the middle of company action.”**

The apprentice has an active role in the everyday production and manufacturing of the complex products, in the different workshop departments. This means that the apprentices follow the production process throughout the company. It can be said that apprenticeship training is part of the everyday life of the company. The apprentices are directly present in the production process not in a training center which does not exist. They are visible to the other workers and make in touch with internal “customers” from the others departments (from pre-production up to service and assembly). Therefore, the apprentices are expected to integrate well into the everyday life of the company. An apprentice road map is defined by the part-time acting company trainers. Here it is laid out what kind of key work task can be learned within each production unit or department.

**Second lesson: “Our apprentices can work on our products as early as possible.”**

The principle encourages the apprentice to get in touch with real company and work orders and the handling of related products and machines in an early stage, which should enable them to develop a better understanding of the importance of the production quality of the various product components to the quality of the finished product and how this can be best achieved. In this respect they learn about the involvement of the key actors and what role they take during the planning, manufacturing, and maintaining or servicing of the product. With such a holistic understanding of the business process, the apprentices are later well prepared for production, system assembly, and customer service activities, even abroad.

**Third lesson: “Sharing of knowledge between manufacturing, construction and design is one of our key assets.”**

The company employees understand this key lesson as an approach to establishing a strong relationship between engineers and workers. This means that working with the engineers is not a one-way street but is more an understanding or dialogue between partners. One partner is more responsible for the design and construction of the production machinery, whereas the other partner takes on the role of manufacturing

this product in an effective and high-quality way. During the vocational training of the workers, an intelligent dialogue between skilled workers and engineers is established right from the beginning, and the process, from design to manufacturing, has to be understood as early as possible. This means that the apprentices are also learning partly the task of designing products and of constructing via CAD, etc. This means that during the apprentices' active learning tour or their work experience journey through the company, they are supported by a stay of up to perhaps several months within the design and construction department. Nevertheless, this is supported too by apprentice learning on company action projects. These are small projects within the first apprenticeship training year and which allow a team of apprentices to undertake their own construction and design work. Through these learning routes, the apprentices learn to give feedback to engineers, for example, whether the product will be appropriate to manufacture or not.

The analysis of the self-evaluation results shows that major differences occur first of all between the 1st and the 2nd year of the apprenticeship. In the 1st year, apprentices have difficulties undertaking directly productive jobs with the products they are working on. It is just too expensive when apprenticeship makes mistakes since they have not learned enough during the 1st year of the apprenticeship. But the apprentices in this case study reach much higher quality standards as their professional competence and independent learning and working increases. The apprentice in this highly innovative apprenticeship in this case study learns to carry out demanding work and learning tasks that support the development of autonomy. The result is a relatively fast growth of competence, along with higher occupational commitment as well as the achievement of higher levels of professional competence.

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## Conclusions

The different cases show that good training companies developed a training structure which influences quality and efficiency apprenticeship. This is the way how the company can organize its apprenticeship, by, for example, allowing time for work task reflection and impact after completion. In the strong cases, this helped to maximize learning potential of work and learning processes for the apprentices. In the same occupational field, there are quite considerable differences between the various companies. It can be stated that the companies themselves are able to influence the learning quality of their apprenticeship. A key role plays the trainer and the co-trainer system which are in nearly all cases not on a full-time level but part-time trainers. High-quality apprenticeships do not only benefit apprentices but also it's worthwhile for the company in purely economic terms, while training cost can be somehow compensated.

*Informal learning based on reflecting on work experiences:* To enhance the innovative capabilities and building capacities of workers, it is important to start by learning from work experiences and this should be right from the beginning of an

apprenticeship. This means that from the beginning, the apprentices are motivated by real work and learning tasks (WLTs). Work and learning tasks are integral parts of the company's business processes, and they can increase in their difficulty: from beginner and advanced beginner to young and full professional expertise task (Havighurst 1972, Rauner and Haasler 2009, pp 25–37). As shown in the above described good practice case example, this is done by maximizing the learning time within the production. Learning for apprentices in learning workshops or training centers resides in a real work task and not in general learning task. But to create a learning climate, it is important for apprentices to be in the “middle of the action” and to take part in the business process. But to get this done, a kind or internal “road map for the apprentice” has to be developed by the company training management (Howe et al. 2001).

*There are different kinds of work and learning tasks for beginners, advanced beginners, and young experts:* The work and learning tasks have to be placed in a certain order; this means there are work and learning tasks for beginners, advanced beginners, and young experts. This means that the latter, the most difficult tasks, should not be at the beginning of the learning career of the apprentice. The principle for ordering the WLTs in a training package for the apprentice program (road map) is building on his prior knowledge. The collection of WLTs in a training plan therefore displays an increasing complexity. At the beginning there are more experiences which allow orientation; later more detailed work process knowledge is built (Rauner and Haasler 2009).

*Comprehensive work tasks with planning and preparation as well as assessment after work completed:* All work tasks to be picked up for the training package of the apprentice should be verified by the trainer to ensure that comprehensive work tasks are undertaken. This means that the apprentice learns to do the job in its operation but they also need to understand other quality assurance activities like planning the work and preparing and assessing the work done. The full documentation of the work task undertaken should be included. This also covers feedback on the work activities, whereby work steps are discussed with planners and engineers. The manufacturing of the products has to be discussed as openly as possible to see whether the quality of the product can be met or, if not, where the difficulties and hindrances lie (Deitmer and Ruth 2007).

*WLT as a part of the company's business process based on common quality standards:* The work and learning tasks must be arranged in a systematic order and not arbitrarily. For the trainer it is therefore important to consider which learning and work tasks are appropriate for the current status of the apprentice. In some company learning cases, it may be advisable for the trainer to plan a deeper investigation of his company. A questionnaire or an investigation grid with the most important aspects to be adhered to could be utilized. Such instruments turn a non-systematic visit by the trainer into a target-oriented investigation. It is therefore important to track down details at the workplace and to interview the other workers for further ideas. The most interesting points will be the verification of the work tasks for the apprentice. The trainer has to coordinate this kind of investigation with the company management in order for

these measures to be supported and to obtain the necessary financial backing. It must be underlined that all activities are about obtaining more information on work tasks.

*WLTs should force apprentices to cooperate with colleagues and departments:* The basic idea of a WLT concept is to develop complete units of working and learning that match the practical skill needs of work-specific tasks and which, although covering a complete task, build upon each other and in total cover the complete business processes (Howe et al. 2001). WLTs not only describe the object of the work, work methods, work instruments, and other requirements, but they should also look for learning through others and in cooperation with others. Therefore the social and cooperative situation in which the WLT is embedded is important. The apprentice may be encouraged to cooperate with other apprentices and with colleagues but also learn to talk with the design and construction department at an early stage. This can help to enrich his/her innovative capabilities so that he/she is able not only to undertake work but also to talk about work and the effects of work on the completion of the complex technical product.

Reflecting on QRC tool impact, there can be a positive statement to be received from all users of the instrument. Different levels of the quality of apprentice learning can be studied. This allows to direct and stimulate after the assessment is done perspective dialogue between company and external researcher or consultant on which of the quality criteria and dimensions are differently scored and why. The following discussion can be used to install an apprenticeship development debate within the company training organization. This process could have a new training arrangement in mind. Also the constructive review of less and well-developed spider delivers room for interpretation and discussion under training and co-training staff. In conclusion, the quality, return and cost tool (QRC) seems to be a good tool to make company decision-takers more receptive to a quality of training debate. This needs to be followed by other training quality improvements such as specific train-the-trainer measures.

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# Challenges to Agency in Workplaces and Implications for VET: Mechatronics Artisans in the Automotive Sector in South Africa

# 8

Angelique Wildschut and Glenda Kruss

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**Abstract**

Vocational education and training (VET) is challenged to respond to a shifting work milieu, globally. In South Africa after apartheid, the current goal is to train more artisans to address growing inequality, high youth unemployment, critical shortages, and continued blockages to the production of quality intermediate-level skills, significant challenges within the national context. A particular concern is the need to train and retain more black and women artisans (Wildschut et al. 2015) to shift past patterns of discriminatory access and success. This makes recent critiques of a productivist approach to vocational education and training (VET) particularly significant in the South African context.

One response has been to draw on the capability approach of Sen (1992) and Nussbaum (2011) to argue for an approach to education and training that builds broad capabilities and human well-being, not only the skills immediately required for the workplace, and that this should be done in a way that is driven by social justice, equality, and human development concerns (see Part 2 of this volume). The capability approach rightfully shifts emphasis toward the role VET plays for individuals and communities. However, our research highlights that systemic, sectoral, firm, and occupational conditions shape the possibilities for individuals to truly enact capabilities within workplaces in significant ways. We cannot ignore the implications of these changing conditions if we aim to transform the development of VET skills and capabilities in a holistic manner.

The argument is built through reflecting on the case of intermediate-level skilling in the mechatronics function area in the automotive sector in South Africa, as an emerging economy. The growing use of technology in intermediate-level work requires different and higher-level knowledge, skills, and attributes than has been traditional for intermediate-level occupations. But boundaries in the workplace are maintained in such a way as to disadvantage the enactment of new capabilities especially for those from disadvantaged and poor backgrounds, women, and blacks. At the same time, the South African automotive sector is strongly governed by global production chains, which also tend to constrain the types of VET required from those employed in the sector.

The analysis raises a critical question for the global debate on the future of VET: with a multiplicity of factors that impact on both the development and enactment of intermediate-level skills and capabilities in workplaces, how can VET systems more effectively enable the development of holistic individual capabilities that support empowerment and agency?

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**Keywords**

Capabilities · Functionings · VET · Intermediate skills · Occupational boundaries · Workplace Culture · Artisans

## Introduction

Strengthening the outputs and outcomes from vocational education and training (VET) is increasingly recognized as critical to addressing inclusive economic and social development goals, globally (Unni 2016; Agrawal 2014; Aggarwal and Gaskov 2013; Nuwagaba 2012; Awogbenle and Iwuadmadi 2010; Khan et al. 2009; Kuruvilla and Chua 2000). There is a strong call that VET should play more than a narrow role in development, beyond the traditional vision of preparing young people with the right skills for the workplace.

Critics of the dominant productivist approach to VET argue that it is “. . . too short term in its focus on immediate employability rather than lifelong processes” (McGrath 2012: 625). Critiques are emerging in a range of country contexts (Lopez-Fogues 2016; McGrath 2012; McGrath and Powell 2016; Ngcwangu 2015; Balwanz and Ngcwangu 2016), stressing that the purpose of VET is greater than contributing to economic growth and national competitiveness. Rather, VET should develop the agency and human capabilities of individuals and communities to participate actively in all spheres of life, in a holistic manner, and to promote social justice (McGrath 2012; Powell 2012; McGrath and Powell 2016; Tikly 2012; Velde 2009). A related strand of research aims to understand how VET can contribute to sustainable development (Fien et al. 2008; Anderson 2009). The concept of human capabilities, by definition, stresses agency, and the opportunity to select and choose (Nussbaum 2011), which these scholars argue, should inform the role and nature of VET in future.

The capability approach rightfully shifts emphasis toward the role VET can play in the human development of individuals and communities, and its tenets have been useful to shift the discourse around VET, by emphasizing the mutuality and inclusiveness of capabilities across multiple domains (Anderson 2003: 4), not only toward the labor market. In an emerging economy like South Africa, with complex patterns of inequality that are resistant to change, the development of individual human capabilities through VET is particularly significant. As noted by Anderson (2008), as a principal site of subjectivity formation, and one that has been historically constituted by productivism, VET must reflect critically upon its own origins, assumptions, and purposes to adapt to its changing landscape and prepare its learners for alternative, post-productivist futures. Giroux (2012) likewise asserted the need for paradigms that oppose and supersede the “productivist” frameworks within which VET is currently located and has traditionally been evaluated. Productivist frameworks have tended to “underplay the wider economic and labour market contexts in which providers operate, focusing on the ‘failings’ of learners and colleges rather than those of employers and government . . . also displaying a methodological deafness to the voices of learners, lecturers and communities, instead assuming that employability was the only goal of VET” (Powell and McGrath 2014: 127).

However, we live in a world in which digital technological requirements are affecting and, sometimes, disrupting the nature of work dramatically. But while there is wide-scale acknowledgment that work change impacts on skills requirements (Christidis et al. 2002) actually, there is a very small and highly contested, empirical

evidence base showing how the skills demanded from individuals in particular occupations are actually affected in the workplace (Burke and Ng 2006; Burns 2007).

Our research in the South African context highlights how systemic, sectoral, firm, and occupational conditions shape the possibilities for individuals to enact human capabilities within workplaces in significant ways. We cannot ignore the implications of these changing conditions if VET aims to develop skills and capabilities in a holistic manner.

In this chapter, the value of understanding the complex and intertwined socio-economic challenges inherent to a specific work context is demonstrated, to frame further engagement on the ways in which VET can contribute. The heart of the chapter draws on a fresh analysis of a set of case studies on intermediate-level skills development and work in a single industrial sector, the South African automotive sector. The case studies were conducted for different purposes and used diverse conceptual frameworks, all as part of the Labour Market Intelligence Partnership (LMIP) (McGrath 2015; Garisch 2015; Garisch and Meyer 2015; Wildschut and Meyer 2016). Full details of the design and methodology are available online, in each case study report ([www.lmip.org.za](http://www.lmip.org.za)).

The chapter begins by exploring South Africa's position in the global automotive value chain and how mechatronics is seen as a critical function area toward maintaining and/or strengthening the current global position. Drawing on Lall (1992), we argue that developing technological capabilities at intermediate levels is as critical for technological upgrading and economic growth as it is at high-skills levels. This highlights the critical role of VET in building technological capabilities, particularly in work environments disrupted by intensive digitalization.

The section entitled “[Workplace Conditions Can Constrain the Contribution VET Can Make to Capability Building](#),” moves to the firm level, to explore expectations for growth, and changes to the organization of work that result from growing automation of production. The section entitled “[VET Needs to Ensure that Artisans Have a Wider Range of Capabilities to be Effective in the Current Automotive Workplace](#),” outlines the challenges for VET in terms of the capability development of mechatronics artisans, in this context. The section entitled “[Workplace Culture and Discourse](#),” adds another layer by illuminating how, despite changing expectations, the dynamics of workplace discourse, shaped by social inequalities, may constrain the enactment of individual capabilities at the intermediate level – with implications for the future role and nature of VET.

Drawing on these empirical insights, in the conclusion, we propose that VET needs to build individual technological and human capabilities in ways that allow for agency and navigation of the growing demands of the workplace, on a more equitable basis.

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## **Mechatronics Artisans in Global and National Context**

In this section, the specific nature and challenges of the automotive sector in South Africa is considered, and then, the new field of mechatronics is explained.

The national automotive industry has its origins in an industrialization strategy based on import substitution, heavy industry, and the extension of the color bar (Gelb 1987; Barnes 2000, 2013). Since 1995, government faced the challenge of reintegrating the industry into international producer-dominated chains, at the same time as having to respond to new dynamics of globalization and liberalization (McGrath 2007) and to extend access and participation in long racialized systems of education and training, occupations, and professions (Mbatha et al. 2015; Bonnin and Ruggunan 2013).

### The Globally Disciplined Automotive Sector in South Africa

Figure 1 represents the current producer-driven automotive value chain diagrammatically: a collection of vehicle assemblers that operate with a string of upstream component manufacturers. The bulk of the value chain is currently made up of seven light vehicle assemblers (the Original Equipment Manufacturers or OEMs), with a primary production focus on passenger and light commercial vehicles. All OEMs are multinational corporations, and there is no domestic capacity for vehicle assembly. There are domestic component manufacturers alongside multinational firms, tiered according to their position: direct suppliers to OEMs are considered to be Tier 1s, while those that supply the Tier 1s are classified as Tier 2 or 3. Component manufacturers may also supply the automotive replacement market, either via an

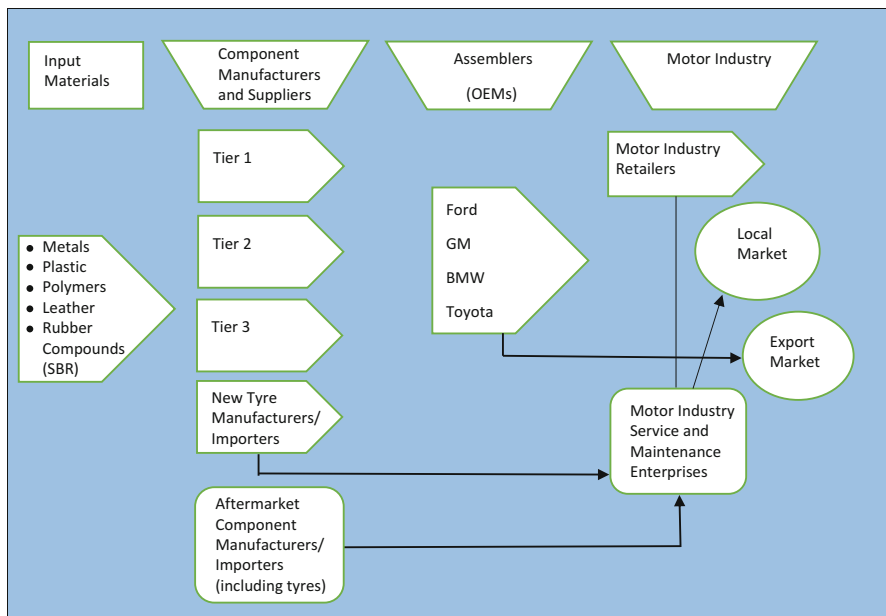


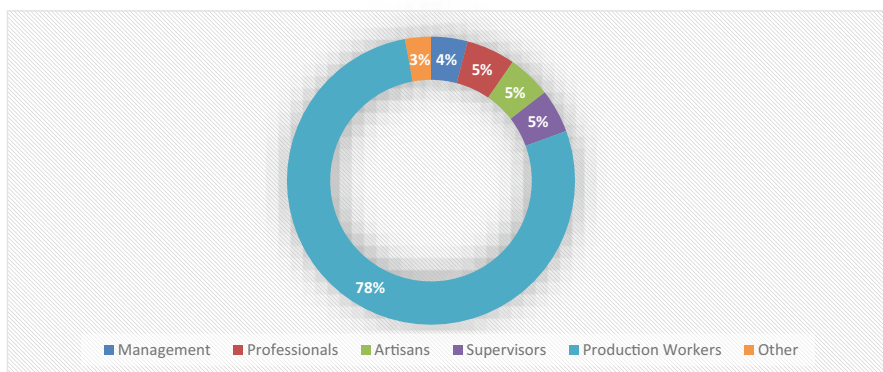
Fig. 1 Automotive value chain in South Africa. (Source: Garisch and Meyer (2015))

OEM's dealership network or the independent aftermarket, which is dominated by large wholesale groups (Garisch 2015).

The automotive sector is significant to the economy as a whole, being a major employer, and vital to trade strategy, with over 50% of its output exported (B&M Analysts 2013: 8). The bulk of employment is production workers at the semiskilled level, but with growing automation, the small group of artisans and technicians at the intermediate level play an increasingly significant role (Fig. 2).

The strongly structured value chain is dominated by the small group of OEMs, who are able to organize production at a global level and to discipline their suppliers to produce what, where, and when they demand. This implies severe constraints on the ability of national industrial and skills policies, or innovation systems, to influence production decisions (Sturgeon et al. 2008, 2009). South African factories are also subject to a degree of competition for output quotas with existing and potential sites in other emerging economies. Their relative position is based on their own productivity and competitiveness, but also considerations about size of local and regional markets, and proximity to major international markets (Kruss and Gastrow 2012; Gastrow and Lorentzen 2012). OEMs increasingly have concentrated their supply, forcing many local South African Tier 1s into partnerships or mergers with global Tier 1s, in order to survive and avoid the very real risk of being excluded from the value chain entirely.

However, some emerging countries have been able to grow their technological capabilities to engage proactively in automotive innovation, rather than only local routinized production to the benefit of the multinational companies (Nübler 2014; Lall 1992). As Lall (1992: 166) explains, "simply to gain mastery of a new technology requires skills, effort and investment by the receiving firm, and the extent of mastery achieved is uncertain and necessarily varies by firm." Such technological capabilities can secure local firms' place in the global value chain, and can grow jobs in the local economy, to alleviate poverty and inequality (Altenburg et al. 2008;



**Fig. 2** Breakdown of employment by category for South Africa 2012. (Source: B&M Analysts 2013: 33 from original data from the South African Automotive Benchmarking Club and the Automotive Industry Export Council)

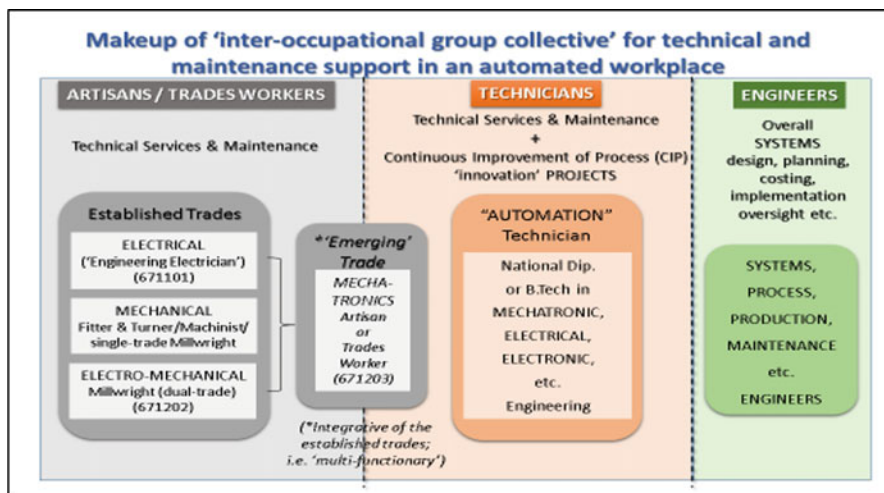
Dias et al. 2012). In an emerging economy like South Africa, therefore, a key developmental role is the extent to which the national VET system builds technological capabilities, to contribute to shifting an industrial sector’s current unfavorable position within the global production chain (Gastrow and Kruss 2012).

### **Mechatronics as a Field of Practice Critical to Sustaining the Automotive Sector’s Global Position**

Mechatronics is at the forefront of global automotive design, manufacturing, and production processes and, hence, is one of the critical competences required to sustain and grow the position of the South African industry (MerSETA SSP 2011). It encompasses electrical, mechanical, control, and computer engineering skills across a range of traditionally distinct disciplines.

Engineering professionals, technicians, and artisans are the current mechatronics functionaries, although, until recently, they were trained as generalists. Figure 3 illustrates the collective mechatronic support team that characterizes most automotive firms today.

A dedicated mechatronics qualification at the vocational skills level was recently instituted (see Table 1), along with recognition as an artisanal trade (DHET 2012). These effectively formalized opportunities to practice mechatronics skills at intermediate levels. Whereas artisans are the hands-on functionaries who keep the production line running, the tasks of technicians are essentially digital information processing-oriented, while engineers are responsible for overall systems development and management. The intermediate-level work required in the mechatronics



**Fig. 3** Occupational groups in a collective mechatronic systems support team. (Source: Garisch and Meyer (2015))

**Table 1** Vocational subjects in the curriculum for NC(V) mechatronics

NC(V) Mechatronics – vocational subjects		
Level 2	Level 3	Level 4
Introduction to computers	Stored program systems	Stored program systems
Electrotechnology	Electrotechnology	Electrotechnology
Manual manufacturing	Machine manufacturing	Computer-integrated manufacturing
Mechatronics systems	Mechatronics systems	Mechatronics systems

Source: Garisch and Meyer 2015

field typically deals with maintenance and process modifications of the mechatronics systems that require automation and less directly with automated production itself.

Locally, public technical vocational education and training (TVET) colleges have become the focal point for the delivery of intermediate-level skills. Increased funding support is channeled into improving the capacity of the system to deliver on its mandate, both in terms of human resources and capital upgrading (DHET 2013). Fundamental challenges remain endemic across the system: often outdated training curricula, weak lecturer capacity, poor access to appropriate and up-to-date equipment, and machinery and training facilities that lag behind production and technological changes in the workplace (Akoojee et al. 2005; McGrath 2004; Kraak et al. 2016; Buthelezi 2018).

For an individual, in the context of very high unemployment rates, gaining a VET qualification to access employment may be highly significant. However, the challenge for the VET system is to build individual human capabilities so that those who complete a mechatronics qualification at intermediate level are also able to make work, occupational, and career choices in a rapidly changing workplace. In the automotive sector, mechatronics artisans with the technological skills and capabilities to contribute to productivity and process innovation in the workplace are also critical to sectoral attempts to retain and enhance the local industry's position in the global production chain.

The following sections present evidence on changes and continuities in automotive workplaces to begin to identify the specific challenges for the VET system in South Africa and for the enactment of individual capabilities of mechatronics artisans.

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## **Workplace Conditions Can Constrain the Contribution VET Can Make to Capability Building**

This section draws on the empirical studies (McGrath 2015; Garisch 2015; Garisch and Meyer 2015), focusing on how changing conditions in the workplace may impact on what is required from VET, in relation to two dimensions. First, company trends, and how automotive firms articulate their skills needs, are considered. Second, the focus shifts to changes to the organization of work and how this creates specific intermediate skills needs.



**Table 2** Senior management views on trends in employment

Trends in employment	Engineering (mechatronics)			
	“Medium or large”		“Small”	
	At present	In the future	At present	In the future
Subcontracting	1	1	0	0
Outsourcing	3	2	1	1
Centralization	1	1	0	0
Casualization of work	2	1	0	0
Temporary contracts	1	0	0	0

Source: Garisch (2015)

### Company Trends and Expectations

Firm expectations for growth and change shape their training climate and, also, their relationship with outside training providers. The research finds that firms highlight the dictates of the global economic climate as the single most important factor impacting on future business growth, followed by market volatility and shifts, with smaller, privately owned firms perceiving themselves as more vulnerable to these factors than larger firms. Technological advances in work organization, ecological and environmental footprints, and training opportunities for workforce development are not deemed significant factors likely to affect growth (Gamble 2016). It could be that factors such as improvements in production efficiency are perceived to be easier for firms to control, than external economic forces, given the strongly disciplined automotive production chain.

New, less permanent forms of work in specific function areas were found to be a significant and growing trend across all firms included in the study, but mostly in larger firms (Garisch 2015) (Table 2). For example, installation of new equipment is often done by external contractors, or maintenance support can be privatized. Employment trends such as subcontracting, outsourcing, decentralization, casualization of work, temporary contracts, and seasonal work fluctuations will not only affect employment flows. They have clear implications for firms’ motivation to invest in education and training of current staff and prospective entrants.

McGrath (2015), reflecting on Tier 1 firms’ perceptions of skills needs, found low labor force attrition, limited recruitment targeting very specific skills needs, and a tendency to upskill internally. These employment practices do not reflect a strategic vision for technological capability building. They can lead to low demand for new VET qualifications, which, in time, can become a constraint on technological capability building.

### Organization of Mechatronics Work

Technological change did not impact strongly on firms’ expectations of future business growth and forms of employment, but it was perceived to impact extensively on the organization of work at the intermediate level. Specifically, changes arose from the

impact of automation of production, equipment, and processes. The most salient features of these developments include computer-based technologies like human-machine interfaces (HMIs), programmable logic controllers (PLCs), and supervisory control and data acquisition (SCADA) systems and networks in relation to both the automatic control of electromechanical systems and capturing performance data of equipment and processes. As indicated by one respondent:

Basically, all your companies these days are going the automation route . . . everything has gone more software/hardware-based . . . interlinked or integrated. You're getting a lot of PLC computer-based integration with your hardware components and stuff that you're running on your production line . . . (*Technologies Trainer, OEM*)

More functions are driven by ICT platforms, which are predicted to “become increasingly clever” in the future, and so the organization of work is viewed as having become more complex and sophisticated. There was broad agreement across all firms (with some differences by size of firm) that there has been an increase in the level and breadth of the knowledge and skill required from those in the technical and maintenance support functions. The spread of sophisticated automation has given rise to the *need for increased maintenance and manufacturing engineering expertise* to support automated production.

With a growing focus on data processing and analysis, and programming-related aspects in support of CIP, respondents agreed that it is important for artisans to have a grounded understanding of the workings of equipment. This ensures that a modified process, or even a whole system, is not made to run on false assumptions, with potentially disastrous consequences. Strong and up-to-date technological capabilities are of critical importance to assist artisan-level functionaries to adapt to the shift to systems-driven production processes. For example, they may have to contextualize a vibration problem on a machine within the context of the total system. Also, root-cause analysis involves extensive reliance on the *digital analysis* of equipment and process performance *data* using specialized statistical software tools. That is over and above routine process monitoring and fault detection by computerized means (such as error codes on the PLC or running a diagnostics program from a laptop or iPad).

In addition to the demand for more holistic system-level *thinking* capabilities and associated *higher-order analytical capacity*, the types of skills required from mechatronics artisans are also affected by the ways in which firms and departments organize mechatronics work and the level or extent of workplace automation across departments or plants. By all accounts and based on actual observation, these manifestations of automation are most pronounced in body and paint shops. Conversely, intermediate-level work at assembly plants was least affected, as work processes will always involve manual operations (Garisch and Meyer 2015). McGrath's (2015) research similarly provides evidence of limited impact on some intermediate-level work, depending on firm size and different departments within an automotive firm. Some Tier 1 firms – particularly the more routinized metal-working elements of the domestic segment – asserted that the nature of technological change does not result in radical changes in artisanal skills requirements:

Motor companies will come to us to say we have a new requirement/specification. We then align with licensor who will give us the initial technology . . . The licensing agreement will tell you exactly where to get the machines from. . . . Once a polymer technologist knows theory, when you get a new recipe, he knows what to do . . . same old stuff; different colour. (*Manager, Tier 1 firm*)

The impact of such changes on workplace organization, and on the nature of work, holds profound implications for the knowledge, skills, and overall competence requirements for artisans to function effectively and successfully. They are now required to install, repair, service, and maintain production machinery and equipment controlled by computer-based or intelligent systems. The pace of change and extreme variation in the intermediate-level mechatronics skills requirements means that many firms opt for in-house training to ensure better alignment with their needs, rather than formal VET qualifications.

A strong trend observed in the automotive assembly companies where automation of production lines has taken root was the emergence of a distinctive mechatronics systems support function rendered by teams. Such teams generally included a troika of functionaries drawn from the electrical, mechanical, and automation fields that collectively underpin the disciplinary and skills base of mechatronics. The electrical and mechanical functionaries are typically traditional artisans who have been upskilled internally to meet the systems-level operational expertise required, usually through one of the two means: (1) self-driven or initiated on-job learning through curiosity or (2) attending specialist or advanced education through in-house training centers or at parent companies (Garisch and Meyer 2015).

At the same time, compliance with international technical standards and safety regulations, as well as in-house quality assurance systems, contributes toward the growing proceduralization of the local work of artisans and technicians. This includes the work of fault detection and problem-solving in the mechatronics field of practice. Overall, technical functionaries are compelled to adhere to formalized task descriptions. Only when such prescripts fail to deliver solutions can creative problem-solving be employed. Incidentally, it is often claimed that newer-generation artisans, conditioned by a culture of procedural compliance, often lack creative and analytical thinking capacity.

What are the implications of the competitive pressures automotive firms experience, and of the changes to the workplace that accompany automation, for the role and nature of VET? The next section demonstrates the wide range of capabilities VET needs to develop in mechatronics artisans.

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## **VET Needs to Ensure that Artisans Have a Wider Range of Capabilities to Be Effective in the Current Automotive Workplace**

Firm respondents were unequivocal in their views that for artisans to be effective in such a changing work environment in the automotive sector, their capabilities – the knowledge, skills, and dispositional sets – need to be extended and more holistic, so that they can exercise choice and agency. As one respondent indicated:

the type of person or artisan that we need in that type of [automation] environment is a person that is multi-functional – whether it's robotics or systems, mechanical, electrical or whatever . . . (*Engineer, OEM*)

This section summarizes key changes to intermediate-level skills requirements in the workplace, identified through the empirical research on changes to firms' expectations and the organization of work.

### **Artisans Must Employ Planning, Organizing, Management, and Administrative Skills**

Work schedules are usually developed by maintenance planning engineers. While supervisors carry the responsibility for the allocation and coordination of tasks, it is ultimately up to the individual artisan to plan and organize his/her work. Of critical importance is the timely identification and procurement of the parts required for maintenance jobs and, similarly, the reordering of parts for those replaced in breakdown situations. These practices stand in stark contrast to the old-school era, in which artisans simply arrived at the breakdown scene with their toolbox and walked away upon completion of the repair job, with all administration-related aspects being left to the supervisor and engineer for processing.

Management responsibilities have traditionally been considered a function performed only by professionals, but this has shifted dramatically in the last few decades. Artisans and technicians are increasingly called upon to perform and be responsible for certain managerial functions. For example, if a breakdown occurs and lasts for more than the allocated time (in some cases no more than 10–15 min), a report must be drafted and presented to the management. Artisans in automotive firms are increasingly responsible for procurement, planning, organizing, leading teams, and reporting to line management.

Greater administrative capabilities are also required from present-day artisans. Such “additional” responsibilities include compiling and presenting breakdown reports (in a team context) as well as handover reports upon completion of shifts. Older artisans reportedly found administrative tasks to be severely challenging. In this changing work environment, artisans are required to take greater ownership for preparation and post-task administrative responsibilities, which necessitates higher levels of organizational competence. The narrative of this artisan respondent illustrates the trend:

Production pressures sometimes force you to lose sense of how to organise and then you might get into trouble with your safety or injure yourself and whatever, but if you get your organisational skills right and you start planning, okay. (*Artisan, OEM*)

Another respondent highlighted the administrative shift required as work becomes more procedural: “whatever you are doing you have to do procedurally, for example . . . that has to be in the log . . . they must be able to trace every step back . . .” (*Artisan, OEM*).

## Artisans Must Possess a High Level of Computer Literacy, Research Skills, and Dispositional Attributes

In the past, artisans mainly required basic levels of computer literacy, but increasingly, much higher levels are required for intermediate-level work:

I will plug in my laptop, do diagnostics – where is the problem? What needs to be replaced - things like that. I also make slight programme changes on PLCs, modify present operations, HMIs [human machine interface systems], setting your drives . . . and maintain those things . . . (*Artisan, OEM*)

Another respondent concurred, “your basic electrician does not cut it anymore because he now also has to service your robot . . . he has to understand basic PLCs and programming because all of the jigs and fixtures are nowadays running off PLCs” (*Engineer, OEM*).

The increased expectation that artisans should be aware of, and be able to analyze, different technologies, and engage with abstract knowledge, is widely shared. An artisan respondent reflected on the new technological capabilities required “if, in my work, I read about something or somebody comes . . . with a new product or a new type of machine, I have to research it and evaluate it . . . can it work or can it not work and if it makes sense . . .” (*Artisan, OEM*). Other respondents confirmed the growing intellectual work “. . . they [artisans] need to be able to read a little bit more . . . it’s no longer about you working with your hands, it’s also more about reading papers about different technologies . . . to understand what is happening in those areas” (*HR professional, Tier 1*). Mechatronics technicians and trades workers are increasingly required to conduct *research* in relation to specialized information, with the main research areas being technology and programming updates, and properties of materials. As indicated by another HR professional, reflecting on the entry of mechatronics apprentices and artisans to their firm, “that’s why we changed our entry requirements and made it to a higher level just to make sure that we got people who . . . are analytical thinkers” (*HR professional OEM*).

In addition to high levels of research capacity and increased systems-level thinking capacities, a set of aptitudes and dispositional attributes were outlined as crucial for present-day artisans. The following attributes were the most highly rated for mechatronics artisans: passionate interest in mechanical equipment, such as robotic equipment and technologies and a natural curiosity to know how it all works; ability to think creatively, identify, and solve problems; being good at physics and mathematics; ability to integrate different knowledge types (e.g., conceptual vs situated knowledge) and across disciplines; willingness; and being self-driven, showing commitment and determination to work until the job is done and doing the best possible, even with small jobs (Garisch and Meyer 2015).

Across all automotive firms, there are increased instances of employees in different occupational groups required to work more closely with each other, in multidisciplinary teams. Teamwork is a notable trend in the world of work and an essential feature of plant work globally. Hence, increasing emphasis is placed on the importance of interpersonal communication skills and capabilities for artisans.

In sum, respondents highlight that to become a “true” artisan in the automotive sector context, one must develop a comprehensive understanding of the overall production process, intimate knowledge of equipment and components, technologies, and interlinking systems, as well as the appropriate hand skills, dexterity, and experience to cope with and resolve major breakdowns as part of a team.

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## Workplace Culture and Discourse

Thus far, we have analyzed the changing knowledge, skills, and dispositional capabilities that artisans need to develop to be effective in the workplace. Two further intertwined dimensions have implications for the nature and role of VET in the South African context. That is the focus of this section, to demonstrate how workplace cultures and workplace discourses can constrain how mechatronics artisans are able to enact their capabilities.

In theory, the trend toward growing use of technology and the need for increased mechatronics teamwork should result in less hierarchical organizational structures and increased inter-occupational interaction. Another expectation is that occupational descriptions or titles will become less significant in setting the parameters of work and engagements within workplaces. There is an established literature (Burns 2007; Muzio and Kirkpatrick 2011) suggesting that organizations have become the major site and normative location of where the bulk of work takes place, so much so that it has led to the conflation of occupations and organizations in many instances. Equally convincing are those authors arguing for the decreasing relevance of occupational belonging to an individuals’ conception of self. Strangleman (2012) argues that work was once absolutely central to individuals and groups as a whole. People carved out meaning and identity and would be socialized into and through employment in an occupation. But this has now been largely eroded through shifts in the nature of work, such as new organizational systems, technological advancements, as well as rigid organizational cultures. Such perspectives have led to the argument that, much more so than was the case in the past, it is the organization that regulates the behavior of individual members, rather than the occupational or professional grouping that an individual belongs to.

In practice, the research found occupational description remained very important for delineating the scopes of artisanal work and its relation to other occupational scopes of work. This led to new mechatronics functionaries at the intermediate level facing resistance and contestation in their attempts to enact their skills and capabilities in the work setting.

To take the example of teamwork. Teamwork is increasingly deemed necessary for optimal plant functioning. It is expected to offer excellent situations for positive experiences, knowledge transfer between different occupational groups, and successful navigation of social boundaries. In more instances than not, actual mechatronics teamwork was characterized by the reassertion of boundaries between occupational groups, often sparked by conflict. Breakdowns become key sites of contestation, where it is common place for artisans, technicians, or engineers to

indicate – “this is not my work.” The constraints on artisans enacting new capabilities were evident in this typical comment: “I’m a technician, I’m not going to take that motor out because that’s a job for an artisan” (*Technician, Tier 1*).

The strict protocols for problem escalation and the hierarchy involved in the day-to-day planning and scheduling of tasks appear to create spaces that strengthen boundaries, because tasks are determined in relation to the traditional responsibilities of artisans, technicians, or engineers. When conflict arose over the responsibility for work tasks such as fault-finding and fixing, lower status mechatronics tasks were always assigned to the artisans. It seems that closer working relationships illuminate potential overlap in tasks and responsibilities, which result in ongoing reaffirmation of status and position.

Furthermore, in great part due to the history of South Africa, the research shows that occupational boundaries are typically inscribed with social differences. Occupational boundaries between artisans, technicians, and engineers are maintained and contested in automotive workplaces, reflecting deep-rooted racial, gender, and language inequalities (Wildschut and Meyer 2016, 2017). For example, one respondent, referring to why there are not more women in mechatronics, asserted that “they’re probably not interested in manual labour” (*Trainer, OEM*). Another respondent highlighted how workplace perceptions are linked to race and age, “white artisans are inclined to stay at the plant and are loyal” (*HR Professional, Tier 1*).

These dynamics not only affect the enactment of capabilities but also the acquisition of VET skills, as central to artisanal training is a close mentoring and supervisory role played by a qualified artisan through an apprenticeship program. In this regard, for example, one respondent describes the language dynamic that might arise between an artisan and their apprentice:

we have a country full of diversity so sometimes things you say in Afrikaans . . . this guy maybe he is Xhosa he doesn’t understand Afrikaans . . . So communication is coming in the in between language, English . . . I’m fortunate I know a bit of Sotho and Tswana so I can communicate well. (MinCase)

Another respondent acknowledges the language dynamic and is aware that being able to speak “their language” puts him in a position of advantage. Brockmann’s research (2010, 66) similarly highlighted the centrality of the “social norms and values of occupations and pathways, governing ideas of how apprentices are expected to behave and what and how they are expected to learn.” Here the implication of historical language values impacts on African apprentices who do not speak the language well. Another respondent reflects on an incident where he asked the supervisor to explain a concept and the supervisor responded in Afrikaans, saying “los maar” (leave it!). The question was more related to the fact that the apprentice did not understand Afrikaans that well, rather than the inability to grasp the concept. Consequently, the whole interaction made the apprentice feel incompetent. This aligns with the work of Trice (1993, 26) who demonstrates that occupations establish “rigorous socialization experiences underscoring that the knowledge, skills and abilities are not easily learnt by just anyone and that they require a special learning experience and a special person to grasp them.”

In South Africa, a range of descriptors of social difference can intertwine to affect true access to artisanal training and employment. In this case, the extent to which individuals can become “true” mechatronics artisans is negatively affected by social difference.

VET therefore needs to ensure that the *capabilities that matter* to individuals are developed in such a way that they are empowered to enact them in the workplace. Artisans need to develop not only a wider set of technological and non-technological capabilities as discussed in the previous section. They require a set of human capabilities that can support increased agency to judge when and how to navigate occupational boundaries, so that they can play a proactive role in the workplace. In the case of mechatronics artisans, the capabilities required to navigate social boundaries within the workplace are becoming a critical skill that the VET system of the future needs to facilitate.

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## Conclusion

The study highlights a set of critical points as we think toward VET of the future. Firstly, it shows how sectors and firm contexts shape the types and scope of capabilities required by intermediate-level workers in significant ways. Secondly, in contrast to expectations, we find the notion of occupation remains important for describing intermediate-level work within this specific field of practice. Lastly, we find that social difference remains a fundamental basis upon which occupational description is discursively maintained, given the historical context of South Africa.

In the 2009 version of this volume, Maclean and Wilson (2009: lxxviii) stated that VET has had to respond to “changes in demand over time for skills and technologies used in workplaces, the globalisation of production, the increasing utilisation of information and communication technologies (ICTs) and related matters.” We are of the view that our research contributes to add substance to understanding the way these dynamics are unfolding in emerging economies, illustrating the complex intersecting dynamics that impact on the required VET systems in future.

A range of “other” influences and important considerations were also outlined through our findings. Company strategies, workplace organization, workplace cultures, and occupational boundaries can nuance the requirements for skills development to such an extent that VET needs to change significantly. Developing capabilities such as critical thinking, agency, and empowerment is typically proposed to promote individual freedoms. Our research suggests that these “other” capabilities are equally critical for developing the artisans of the future: individuals who are able to enact the capabilities required to navigate complex workplaces and constantly changing technologies.

The evidence presented in this chapter emphasizes that systemic, sectoral, and workplace conditions cannot be ignored in moving toward VET that capacitates individuals to respond better to the changing world of work and their social reality. Thus, while HCT has been useful to shift emphasis to individuals and communities, the workplace remains a critical site of evaluation.



The evidence also underscores the social nature of work and the importance of understanding this, as we engage toward VET systems in the future (Vallas 2001). In this regard, research on the economic and social relations of work (Greckhamer 2011; Weeden 2002; Kalleberg 2009; Griffiths and Lambert 2011) could usefully contribute to further theoretical engagement around the role of VET in developing capabilities required for contemporary workplaces. The South African evidence shared in this chapter reminds us that we cannot ignore the role of class categories and discourses within workplaces. These dynamics have the potential to powerfully mediate economic and political benefits (Burger et al. 2015), and so if we want to transform inequalities and capacitate individuals and firms, VET has to understand and confront such issues.

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# Migrants in the Labor Market: Implications for TVET

# 9

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## Abstract

Migration is increasingly being seen as a political challenge and, thus, a policy priority. Yet the integration of migrants into labor markets is a key element of the political contestations of migration. On the one hand, successful labor market integration offers the promises of wider integration into society and the prospect of

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migrants being net financial contributors to the host economy; on the other, xenophobia often centers on the notion of migrants “taking our jobs.” Clearly, these wider issues cannot be solved simply through TVET. The reasons for migration, immigration law, and overall labor market structure lie outside TVET’s sphere of control. Nonetheless, TVET can and does play a role in managing migration.

Conventionally, this has been largely a systemic response, focusing primarily on qualifications and certification. These do have an important role to play, but we have learned over time the limitations and costs of such approaches. In particular, opinions of employers and educational institutions regarding comparability of qualifications have proved resistant to messages of portability. We suggest that there is a need to look beneath the system level at how institutions, classrooms, and teachers can become more responsive to migration. Key issues here include language and psychosocial learning, as well as information, advice, and guidance. Migration can change classrooms and learning for the better, but vocational providers and teachers need support in capitalizing on the opportunities available.

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**Keywords**

Migration · Skills · Policy · Qualifications

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## Introduction

Migration is a central facet of human history. It has played a crucial role in who we all are today. At a personal level, all four coauthors of this chapter have been migrants. While migration is a feature of human development across the ages, there is currently an arguably unprecedented level of movement of people for a range of reasons. Because the people who are moving are predominantly of working age, there are particular effects of migration on the labor market in both sending and recipient countries and increasingly in transit countries too. While many migrations exist beneath popular and policy gaze, large and sudden migrations are often associated with xenophobic reactions in recipient countries and become problems of politics and social policy. Significant attention is now focused on how best to integrate migrants into the labor market. Another policy response to this is to try to limit future migrations by focusing on reducing some of the push factors. While out-migrations are not usually a major policy tool of countries, more than a century of large-scale migration from the Philippines and decades of outflows from South Asia and parts of Eastern Europe have sensitized governments to the possibilities provided by remittances. Thus, there has been increasing management of such movements, including the eventual return of migrants to their native countries.

TVET has been widely identified as part of the policy toolkit for managing migration. This is the subject of this chapter. After briefly describing some of the current trends and highlighting the various types of migrants, we turn to consider skills and migration. This discussion will be at three levels. First is the extra-systemic. While TVET can play a role in responses to migration, its role is limited and matters of political economy loom large. These include questions of labor

market structure, and immigration policy. Second, we look at the systemic level, in particular issues around qualifications and certification, where much of the TVET and migration debate has been focused. Third, we consider the level of colleges, teachers, and learners, with a specific focus on what migrants need to learn and how this can be supported. Although we touch briefly on issues in sending and transit countries, our focus here is mainly on recipient countries. However, throughout our discussion it is vital to remember that TVET and migration is not a simple technical issue but is currently a highly contentious matter of public policy where policy drivers lie outside the control of sector specialists.

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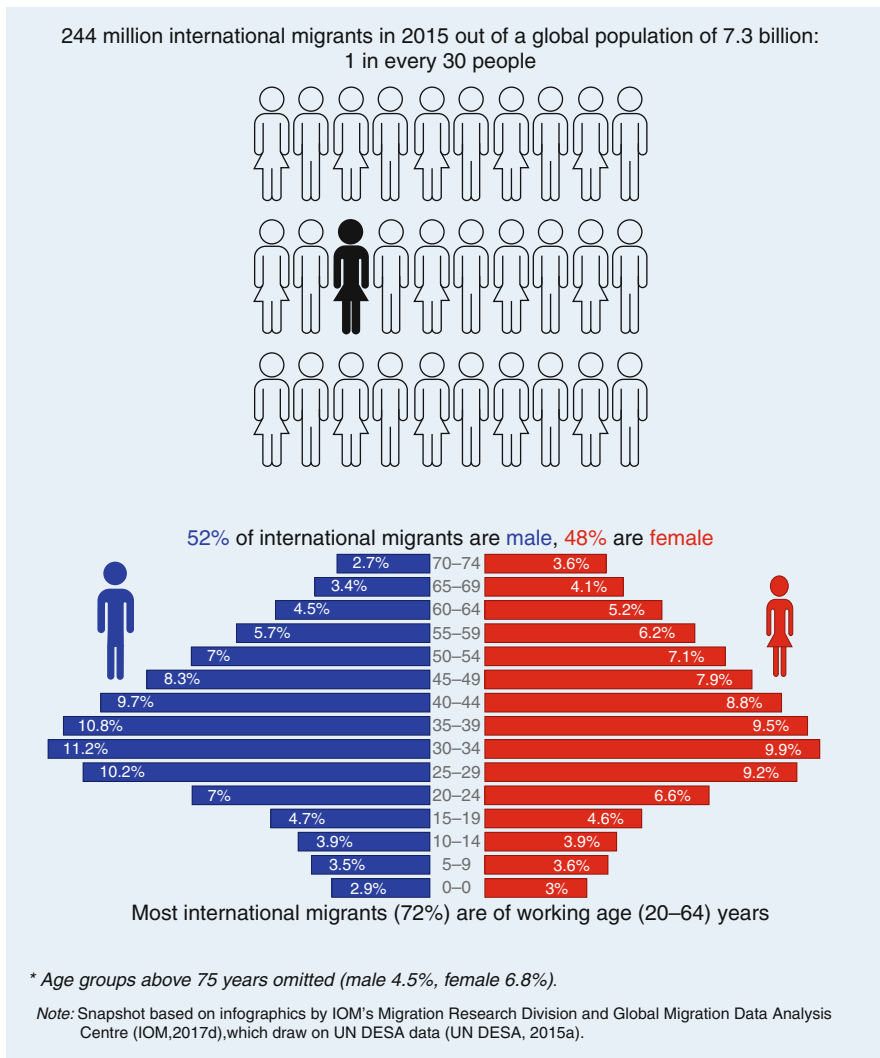
## Migration

Migration is increasingly becoming a controversial topic and high on the global policy agenda. Media-fuelled hostility toward migration is more visible in advanced economies than a decade ago. Politicians are using migration to shift electoral debates. Alleged threats to state security, austerity, and concerns about labor market integration, especially for refugees and asylum seekers, have dominated the anti-immigration rhetoric.

However, migration is not just on the agenda because of the rise of xenophobia in certain settings. The stock of international migrants rose to 258 million in 2017, compared to about 150 million in 1990 (International Organisation for Migration 2017). This stock comprises refugees and asylum seekers, and labor migrants and their families, with those moving for labor migration being roughly twice as numerous as the former categories combined. This large increase in the number of international migrants has attracted the attention of the global community, although it represents only 3.3% of total global population (*ibid.*) (Fig. 1).

Migration is a complex and multi-causal phenomenon. The decision to migrate places migrants in two main categories, namely, forced migration and voluntary migration, although these categories are best understood as two ends of a spectrum. The former includes irregular migrants, environmental migrants, refugees, and asylum seekers, while the latter consists of labor migrants and leisure migrants such as retirees. Recognizing the diversity of the types of migrants is intrinsic to discussing the current trends and challenges of migration. Labor migrants are often further divided into two major types, namely, highly skilled, which includes health professionals, engineers, and other professional occupations, and low-skilled migrants, such as domestic and construction workers.

While some countries afford migrant workers the same rights as citizens, others explicitly discriminate against them, rendering them more vulnerable to indecent work and, at worst, modern slavery. In settings where the informal economy predominates, they may find themselves subject to the worst labor conditions, but may also flourish freed from state regulation and supported by diasporic networks. Many OECD countries now implement increasingly selective criteria favoring highly skilled migrants with skills that are in short supply (UN 2013). In contrast, in the Middle East, the percentage of low-skilled domestic and construction workers within labor migrants is estimated at 95% in Gulf Cooperation Council (GCC) countries (International Labour Migration *n.d.*). Many such workers are considered victims of



**Fig. 1** International migrants out of the 2015 global population. (Source: IOM 2017)

forced labor migration (ibid.). These migrant workers are paid low wages and often live in work camps in remote locations with restrictions on bringing family members (Humphrey et al. 1991).

A distinction between asylum seekers and refugees is essential. While asylum seekers and refugees are often mentioned alongside each other, both statuses offer individuals different sets of rights. Asylum seekers are those waiting for a decision to be legally identified as refugees (United Nations High Commissioner for Refugees 2015). It is estimated that the number of asylum seekers pending decision is 2.8 million worldwide (United Nations High Commissioner for Refugees 2017).

The average waiting time for a decision on an asylum claim varies from one country to another. For example, in the UK, more than 50% of asylum claimants wait more than 6 months for a decision. This is important, as during the waiting period asylum seekers have no access to education, training, or the labor market (Doyle and O'Toole 2013). Similarly, in Ireland and Lithuania, asylum seekers have no access to the labor market at all until they can be granted a refugee status (European Employment Policy Observatory 2016), while in Kenya asylum seekers are interred in camps and have no access to the labor market. In contrast, Greece, Portugal, and South Africa grant asylum seekers the right to work as soon as they claim asylum. In Germany, those awaiting a decision are guaranteed 3 years leave to remain while in training and a further 2 years post-training (Diehl 2018). This reflects a deliberate legal change designed to encourage employers to take on immigrant trainees.

Refugees, on the other hand, are internationally defined, and their legal rights and the state's obligation toward them are explicit, even if not fully honored. The number of recognized refugees has increased by an estimated 65% in the last 5 years (United Nations High Commissioner for Refugees 2017). In Europe, refugees have full legal access to the labor market and vocational training, which is promoted as the best method of integration (European Council on Refugees and Exiles 2011). Nonetheless, challenges for refugees in the European labor market go beyond work permits, as we will show below.

A large proportion of refugees reside in developing and middle-income countries. In countries such as Turkey and Jordan, where the number of refugees is particularly high, access to the labor market is still practically restricted by limited number of work permits for refugees (Lenner and Turner 2018; Takahashi et al. 2018).

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## Beyond the TVET System

In trying to define the different statuses of distinct migrant groups, we have already touched upon how the combination of immigration and employment laws and policies affects migrants. More general issues of labor market structure are also central to migrants' integration into host societies and economies and how much TVET can do to facilitate this.

Historical accounts show that migrants have always been an important source of labor for host countries, filling positions that are unattractive to citizens (Doomernik and Bruquetas-Callejo 2016). At different periods, both economically and politically, migrant movement is either encouraged or curtailed through immigration policy (van Mol and de Valk 2016). While their contribution to the growth of some sectors in host countries cannot be ignored, migrants are often the subject of debate in trough periods. Recent examples include the negative immigration discourse around Brexit and the increasing popularity of far-right leaders in Europe as well as anti-immigration policies in the USA, Australia, and South Africa. On the other hand, migration policy is used by high-income countries to attract high-skilled labor in sectors such as health and information technology. For instance, in 2013,



56% of STEM workers and 70% of software engineers in Silicon Valley were foreign-born (Kerr et al. 2016: 4).

In spite of migrants' contributions to host countries, their impact on labor markets is often perceived negatively by the public, particularly when the general political atmosphere is toxic. Such perceptions have led to studies conducted to ascertain the actual labor market effects of immigration. A meta-analysis by Longhi et al. (2010) concludes that immigrants' average impact on residents' wages and employment is very small. They suggest that effects are dependent on comparative skills levels of the two populations.

Migration is not just an issue for recipient countries. The issue of "brain drain" has attracted considerable attention. Emigration necessarily has effects in the sending economy. The conventional argument was that the emigration of skilled workers from less developed countries was a major brake on national economic development (e.g., Bhagwati and Hamada 1974). Particular attention has been paid to health and education workers, in light of both the costs of training and the well-documented place that both have in economic and social development (e.g., Bodnár and Szabó 2014). Moreover, there are concerns that remittances may reduce the incentives for other family members to participate in the labor market (see Vadean et al. 2017). However, there is counterevidence that several of the most prominent sending countries are exporting low-skill labor, that the remittances generated outstrip any losses to the domestic economy due to wage differentials, and that returnees contribute to upskilling and improved productivity. There is evidence too that higher-skill migration may not be so negative, resulting in "brain circulation" rather than "brain drain" (Morgan et al. 2006; Varma and Kapur 2013). Indeed, some countries specialize in training skilled labor for export, due to the perceived benefit to be gained from remittances or return migration. Examples include the Philippines and Pakistan's export of health professionals (Dodani and LaPorte 2005; Hartmann 2008). This point is buttressed by the fact that in 2015, remittances to developing countries reached about \$429 billion, exceeding the amount of ODA in the same year (Ratha et al. 2014). In the most extreme example, that of Lesotho, remittances exceeded GDP for more than a decade after 1982 (World Bank 2018). However, the positive effects on the labor market can only be reaped where migrants worked in positions commensurate with their skills at the time of departure or improved their skill set through training or further education abroad. This means that for migrants who worked in low-skilled jobs due to the poor recognition of their skills or skills mismatch, return migration will not benefit their origin countries maximally. Remittances will also be affected by such barriers (Bodnár and Szabó 2014). The recognition of migrants' skills and qualifications is therefore central to gains in migration. This will be discussed later in this chapter.

A third category of country has begun to be talked about more in the very recent past: transit countries. With the large flows of migrants into Europe, countries around the edges of the Mediterranean have found themselves hosting increasing numbers of migrants who intend to move on to Northwest Europe. Similar patterns can be found elsewhere, as on the Latin American migration routes to North America and in certain sub-Saharan migration hubs. Clearly the influx of a population that is

supposedly transient but which may in fact be sedentary for the medium to long term brings a whole set of new dynamics for labor markets, for TVET systems, and for social policy more broadly. Migrants in transit countries may try to avoid the state and its agents, fearing repatriation, and so are unlikely to enter formal TVET. However, they are likely to access the labor market. This is necessary to raise income to move forward in their journeys but is typically characterized by illegality and informality, making them particularly vulnerable to indecent forms of work.

What TVET can do to support migration and immigrant labor market insertion inevitably is highly dependent on overall labor market structures and specific approaches and attitudes to migrant labor market participation (Beicht and Walden 2017; Friberg and Midtbøen 2017). We will illustrate this with three brief examples.

Ghana is typical of African countries in having a large informal economy. Historically, this has been the major labor market destination of immigrants, reflecting the lack of regulation and the ease of entry and exit (Callebert 2016). A large number of Nigerians were working in Ghana in the first decade of independence. Eventually, this led to a xenophobic reaction, and the 1969 “Aliens Compliance Order” resulted in the expulsion of about 200,000 West African migrants, mainly Nigerians (Kobo 2010). There are no contemporary figures for the number of migrants in the informal economy, but it appears that there are significant numbers, facilitated by their own diasporic networks (Meagher 2013).

Jordan, like other countries neighboring Palestine, has had more than 70 years of experience of large numbers of Palestinian refugees. While much has been done to support this population, there has been a strong political view that problems of Jordanian unemployment mean that locals should have priority in the labor market. More recently, Jordan has experienced a new wave of refugee migration, this time from Syria. With support from the European Union, Jordan has adopted a new approach to migrant employment through the creation of special economic zones that employ Syrians and which have access to the European single market (Huang et al. 2018). A goal was set to issue 200,000 work permits for Syrian refugees. What makes this policy possible is that the jobs are not attractive to Jordanians, but this does raise challenges in terms of decent work and how standards might improve over time.

South Africa has a long history of migrations. In the past 150 years, a mineral and then industrial revolution sparked a series of waves of major European immigration. The mining sector in particular then became dependent on large numbers of African migrants, both from within South Africa and from the wider Southern and Central African regions. Since 1994, South Africa has also seen large-scale immigration from other parts of Africa, including DR Congo, Eritrea, Nigeria, Somalia, and, especially, Zimbabwe, with current estimates pointing to approximately four million immigrants (UNDESA 2017: 26). While international migrants were central to the building of the economy, there are now significant barriers to legal migration. Moreover, migrants, both legal and illegal, forced and voluntary, have been subjected to a series of xenophobic attacks in recent years (Crush 2014).

## Using the TVET System to Respond to Migration

The drivers and dynamics of migration are highly complex, as we have indicated already. However, for the purposes of this chapter and its location within the wider Handbook, our primary concern is with the far more modest question of how TVET can be organized so as to better meet the needs of migrants and the firms and societies in which they are seeking integration. Indeed, this is not even all that could be said about TVET and migration, as TVET in sending countries is being supported in part to improve local employment prospects in order to limit migration. However, that is not our focus here.

In this section, we look at the related issues of recognition of formal qualifications and prior experiential learning, how these relate to debates around modularization, and questions of financing TVET for migrants.

### Recognition of Qualifications and Prior Learning

Migrants' smooth integration into new labor markets is very dependent on both the actual and the perceived extent of mismatch between their skills and competencies and those required in the new setting. That it is potentially both a matter of actual measurable gaps in their skills and an issue of informational failures is crucial to addressing this issue as it implies the potential need for multiple strategies.

One of the driving forces behind the rise of qualification frameworks in the last quarter century has been the need to address labor migration. This is very apparent in regional frameworks, perhaps most obviously in Europe given freedom of movement within the Schengen Zone, but also, for instance, in the Southern African region with its history of major labor migrations. Regional qualification frameworks are designed so that equivalences between qualifications across members states are agreed, qualifications are harmonized, and the equivalence of qualifications is communicated to employers and workers alike.

Of course, there are greater challenges when individuals are moving between different formal qualifications frameworks, e.g., from the Southern African to the European. Official processes of establishing equivalences between such frameworks necessarily are complex political and technical exercises. UNESCO has made considerable progress in the higher education sphere through its *Convention on the Recognition of Higher Education Qualifications*. Progress in TVET, however, has been slower.

Qualification frameworks have sometimes been motivated by the challenges of large-scale inward migration. For instance, one of the rationales for Hong Kong's qualification framework was to help the special autonomous region to deal with large influxes of workers from the rest of the country (Ip 2013). Equally, Australian efforts to support framework development in the Pacific Islands and similar EU efforts in the Balkans and the Mediterranean littoral have been motivated by concerns to ease integration of likely migrants into the host economies.

While qualification frameworks are not without their wider problems (e.g., Young and Allais 2013), this is an important function for them. However, inevitably there

still remain challenges at the level of whether employers are convinced that, for instance, an EQF level 4 mechatronics engineer from a particular country is really the equivalent of someone from the local vocational training center.

What is possible with formal qualifications and perceived/actual gaps is a relatively straightforward process of mapping these gaps and then intervening to fill them. The issue of the recognition, validation, and accreditation of prior learning (RVA) is conceptually more complex.

The *ILO Recommendation on Human Resources Development: Education, Training, and Lifelong Learning* and the *UNESCO Guidelines on the Recognition, Validation, and Accreditation of the Outcomes of Non-formal and Informal Learning* both call on member states to establish a framework for the recognition and certification of skills, including prior learning and previous experience, irrespective of where and how these were acquired.

Many have answered this call. However, the terminology, methods, and effectiveness of approaches vary considerably. Many countries operate a portfolio system in which candidates prepare a collection of evidence that they meet the requisite skills and competencies of the formal qualification they wish to acquire (Aggarwal 2013). In the French system, this dossier is only developed after the candidate has received guidance about the process and the likely viability of their case. At this point, they typically develop a portfolio, supported by an advisor, which is brought together through an overarching declaration of how they meet the requirements for the sought qualification. This then goes to a national board for assessment, which includes an interview. Where the candidate is judged not to have all of the requisite skills and knowledge, the board is required to give clear information on what is lacking and how and where it can be acquired, and further support is offered until successful certification (Paulet 2013).

France also does allow a second, less common, route, consisting of a practical test of a real or simulated situation in which the candidate can demonstrate competence (Paulet 2013). This is closer to the trade test tradition of some Anglophone countries, where a candidate can present themselves to an accredited testing center to undergo the same practical test as would be required of an apprentice or public vocational learner.

RVA was not originally designed with migrants in mind but is potentially well-suited to many of them, as has been noted by the Southern African Development Community, for instance (Aggarwal 2013). However, issues of language, of understanding the complexities of the new system, or of lack of access to evidence from home, particularly for refugees, may get in the way. The French emphasis on an advisor is likely to be an important support in such cases, although clearly the cost will have to be borne by someone, most probably the state.

Although RVA is clearly an attractive idea that can promote both labor market efficiency and inclusion, it has not developed as smoothly as advocates have expected. Federal countries, such as Canada and Germany, have particular problems due to their devolved governance structures for recognition of skills (Rietig 2016). This can serve to exacerbate a key RVA system challenge, that of stakeholder buy-in. Governments, educational institutions (of different levels), and employers must all actually recognize what is notionally recognized (Yang 2015). However, there are many cases of RVA not resulting in employment, wage increases, or access to higher

qualifications, particularly where there is excess supply of potential learners or workers.

Moreover, such systems are primarily seeking to meet the needs of those with the lowest levels of formal education and training, but portfolios, declarations, and interviews require relatively complex and advanced organizational and comprehension skills. Support, as in the French model above, thus is likely to be crucial. This though hints at one key weakness in many national RVA systems: that of mentor/assessor quality. Yang (2015) notes a range of countries in which these key individuals receive little or no training.

RVA systems are also complex and costly to administer (Yang 2015). Moreover, where there is no national qualifications framework or one exists but qualifications are outdated and of little relevance to the world of work (including the informal economy), then it is hard for RVA to operate.

Even less than qualification frameworks was RVA setup to address migration. However, this is clearly a potentially important role for RVA in supporting migrants' labor market integration. Nonetheless, the challenges facing RVA are often heightened where migrants are concerned, and these needed to be addressed seriously in host countries.

An interesting recent development in the area of RVA comes from the Philippines. One of the world's largest labor exporters, the country has become concerned to improve the conditions of its migrants while outside the country and to ease their reintegration into the national labor market. Working with major recipient sites, such as the GCC states and Hong Kong SAR, the Technical Education and Skills Development Authority (TESDA) has been developing mutual qualification recognition agreements and has been carrying out testing of expatriates in situ, leading in most cases to awards of TESDA certificates (De la Rama 2018).

## **Modularization**

Our discussion of qualifications and RVA has been implicitly couched in terms of whole qualifications. For several decades, the move toward "modern" qualifications has typically been aligned to a focus on competency-based modular training (see elsewhere in this Handbook for more of that debate). Modularization potentially aids migrants with existing skills as it allows a focus on smaller units of additional learning to be acquired to make up mismatches in skills (Rietig 2016).

Modularization has been an increasing trend in some parts of the world (e.g., Europe). In reviewing the European modularization experience, Pilz et al. (2017) note that inclusion has often been a major priority of such reforms. However, they suggest that modularization's effects on inclusion have often been less positive. This relates to the point we have already made about RVA's complexity. Modularization does allow for learning to be digested in smaller chunks, but it also can lead to huge menus of options that are difficult to navigate. The anti-equity effects of this may be particularly present for migrants who may add an unfamiliarity with modular systems to a wider set of marginalizations.

## Finance

Much of what we have discussed in this section can be seen as an extension of existing debates about TVET system reform, around qualifications, and assessment. A discussion of TVET financing is a staple part of such debates. There are major concerns internationally about the inadequacy of TVET funding. This includes underinvestment by states, employers, and learners/families. The costs of seriously trying to integrate migrants into labor markets through TVET are inevitably higher than for the reform processes more generally.

However, the societal costs of weakening labor market insertion are likely to be far higher. Why TVET is expected to play a part is due to its own philosophical understanding that people become fully human and fully part of a community through participation in decent work. While many migrants are poorly placed to invest in their own skills needs, the greater imperative of social integration may make governments and employers (through corporate social responsibility) willing to invest. This will be necessary to ensure that migrants can access as necessary RVA and some of the services we will describe in section “[College, Teachers, and Learners](#).”

Additional training comes with both financial and opportunity costs. The longer and more full-time a program is, the greater both types of costs are. Evidence from Germany suggests that both contribute to high dropout from training of migrants and refugees (Rietig 2016: 7). Of course, legal barriers on migrants earning while learning only serve to increase the likelihood of dropout and the pressure for bursaries.

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## College, Teachers, and Learners

The migration and skills debate has been too heavily concentrated at the systems level, reflecting the wider dominance since the early 1990s of a global TVET policy “toolkit” (McGrath 2012). However, there are a range of other issues and initiatives that require consideration.

## Information, Advice, and Guidance

Navigating the labor market has become more complex for everyone in the light of multiple forces. Watts (2011) argues that this complexity requires that more attention be awarded to the information, advice, and guidance (IAG) given to those trying to navigate labor markets. These challenges are particularly great for migrants, who are likely to be dealing with unfamiliar languages, cultures, labor markets, and education systems. Hence, their need for quality IAG is even more pressing.

However, IAG services are absent in many countries, particularly the poorest. Where they exist, they tend to be uneven in their coverage and limited in their effectiveness. Developments in South America (Jacinto 2011) are indicative of both strengths and weaknesses. Job search assistance and counseling services after initial TVET in South American countries are generally undertaken by the training or public employment

services. For example, the Peruvian Programme of Training for Work (CAPLAB) organizes a network of education for work centers and has integrated them with labor information and intermediation public services. The more innovative schemes usually go beyond career guidance. They offer young people tools to build their own strategies on the basis of their interests and potential, providing them with better information about social and work environments and postsecondary education. Different initiatives of career guidance for young students of secondary school have developed in recent years. For example, the ILO's Project for Youth Employment Promotion in Latin America (PREJAL) promotes the development of training and the participation of private companies in fostering social and work-related inclusion. Specific actions include career guidance and support services for young people from disadvantaged socioeconomic backgrounds who have recently graduated from secondary education and are seeking to enter the labor market. While IAG is most needed by the more marginalized, including migrants, it is most available to the most privileged. This may further exacerbate the inequitable aspects of modularization described above.

IAG for migrants is essential to improve their labor market integration. However, this requires careful consideration of the experiences and aspirations of migrants (Rietig 2016). Local authorities need to understand the needs and experiences of migrants in order to offer appropriate guidance and opportunities. A study of migrants' experiences in the UK and Australia shows that much of the guidance for forced migrants is provided within communities and charity organizations where the focus is more on welfare and legal advice. In some Australian centers, even though dedicated employment and education officers are available, they are often unable to keep up with the changes in the country's educational and vocational systems, and they are rarely informed of the quality of the international qualifications formerly acquired by migrants (Hannah 2000). Similarly, Webb et al. (2017: 358) argue that, in Australia, professionals employed to assist migrants to secure training and education fail to recognize the different needs of migrants. Rather, migrants' accents are used to decide which service they may need without any probe into what their skills needs are (ibid.). Moreover, any consideration of IAG for migrants must acknowledge the ways in which migrants, whether legal or illegal, have good reason for being suspicious of their host states and any advice that they receive from their agents.

## Language Training

Where needed, early language training is essential to help migrants transition smoothly into education, training, and labor markets in host countries. However, in spite of its importance, language provision across countries varies due to many factors such as coordination between different providers and funding (OECD 2014). Inadequate funding for language training reflects in the poor language proficiency and labor market outcomes of migrants. On the other hand, extensive duration spent learning a host country language locks migrant in, further delaying their access to employment. This is a feature of integration programs in the Nordic countries and Germany (OECD 2014: 87). As a result, while the learning of a host country's language ideally should



precede education or employment, improved outcomes are realized when language training is integrated into vocational education and training (Desiderio 2016). Sweden's adoption of an occupationally embedded strategy has proven to be successful in integrating migrants quickly into the labor market (OECD 2014). Moreover, this is important in enabling migrants acquire vocational language proficiency peculiar to their trade or occupation (Guo 2013). In this regard, research on highly skilled Zimbabwean migrants with fluent levels of formal English has shown that the communicative competencies required to flourish in the workplace are very different from proficiencies in formal language settings (Madziva et al. 2016). The challenges here include writing of CVs, performing in job interviews, and successful integration into workplace cultures through informal socializing. Issues may also face migrants whose cultural or religious differences from the majority in terms of eating and drinking may complicate rather than lubricate social interaction.

For TVET institutions and language providers, therefore, there is the need to understand the different language needs of migrants and tailor training or pedagogy to meet these needs. A study of the experiences of African migrants in TAFE institutes in Australia by Onsando and Billett (2009) showed that there were differences in the language learning needs of adult and young refugees, but teachers did not comprehend this. This phenomenon has been observed in other countries and is partly explained by the fact that vocational teachers often lack the expertise to teach language courses, while other language providers lack the expertise to offer vocational language training (OECD 2014). As a result, strong coordination between the stakeholders involved is needed to address the gaps for the benefit of migrants. Also, while challenging, tailored language training is necessary to enable migrants make the most of the language opportunities provided (ibid.).

## Psychosocial Learning

Moving to a new culture requires much learning to fit in to meet the ways of daily life in the new society. We have already talked about the relatively obvious issues of language learning, but this can be likened to the tip of the iceberg. In VET, there are further challenges in understanding how the world of work actually works in another country, including issues such as how to interact with employers, customers, etc.

The process of moving country is stressful and migrants may need support in developing resilience. Issues here extend to the realm of mental health. As the WHO notes:

Being a refugee or a migrant does not, in itself, make individuals significantly more vulnerable to mental disorders, but refugees and migrants can be exposed to various stress factors that influence their mental well-being.

Refugees and migrants have often faced war, persecution and hardship in their country of origin. Many will have experienced displacement and difficulties in transit countries and embarked on dangerous travels. Lack of information, uncertainty about immigration status, potential hostility, changing policies, and undignified and protracted detention all contribute to additional stress. (<http://www.who.int/migrants/about/areas-of-work/en/index5.html>)



This means that ensuring successful integration of migrants into TVET and labor markets needs to take account of the challenge of supporting mental health.

## **Facilitation of Local Work Experience**

Successful labor market integration often depends on a mixture of qualifications and work experience. The lack of one or both often hampers local youth in their search for decent work. Young migrants may face similar or worse problems. However, older migrants may also find themselves in the peculiar situation of having their previously valuable stocks of both qualifications and experience suddenly devalued. We have already addressed the qualification issue, so it is worth a brief consideration of how work experience in the host country can be acquired.

Cedefop, for instance, has highlighted the potential of internships and volunteering to enable migrant workers to build the social capital necessary for employment after training (Cedefop 2011). Webb et al. (2017) have found some evidence for success in this strategy in Australia. However, here we need to be mindful of the wider critiques of internships and volunteering as also serving the function of allowing core activities of organizations to be excised from the wage economy, permitting heightened exploitation of labor. Moreover, volunteering and internships are often seen as the preserve of the privileged. This points to the real and opportunity costs of doing unpaid work. While this is certainly true, many more vulnerable new entrants or returnees to the labor market are forced to take on such roles as what they perceive as their only hope of accessing decent work. The costs of this, and the potential for exploitation, of course are likely to be even higher for migrants.

This points to the need to address the challenge of local work experience for migrants robustly. This means designing programs that maximize the learning and other benefits of such opportunities and minimize the costs and risks of exploitation.

## **Implications for Teachers and Classrooms**

While the focus of skills and migration thinking has largely been at the system level, it is evident that there are major implications at the classroom level, as illustrated by the above points about information, and language and psychosocial learning. However, the implications for classrooms and teachers go much further. Here it is worth reflecting quickly on lessons from the much larger debate regarding the internationalization of higher education. Put simply, this literature increasingly suggests that curriculum and pedagogy will need to undergo changes if the classroom demographics change (Leask 2009). Mertkan et al. (2016) point to the profound but unplanned ways in which learning and institutions start to transform when the student body radically changes. However, even where smaller numbers of migrant learners enter institutions, it is essential that commitments that “no one is left behind” result in changes that accommodate new learners.

Much of the range of changes outlined in this section have very major implications for teachers and teaching in vocational systems. They add to the complexity of the work of being a VET teacher. This points in turn to questions about adequate initial and subsequent professional education for VET teachers to support their processes of facilitating learning of migrants, regarding the provision of specialist support beyond these teachers in the areas outlined above, and concerning the funding of better approaches to supporting the learning of migrants.

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## Conclusion

Migration is increasingly being seen as a political challenge and, thus, a policy priority. Yet the integration of migrants into labor markets is a key element of the political contestations of migration. On the one hand, successful labor market integration offers the promises of wider integration into society and the prospect of migrants being net financial contributors to the host economy; on the other, xenophobia often centers on the notion of migrants “taking our jobs.”

Clearly, these wider issues cannot be solved simply through TVET. The reasons for migration, immigration law, and overall labor market structure lie outside TVET’s sphere of control. Nonetheless, TVET can and does play a role in managing migration.

Conventionally, this has been largely a systemic response, focusing primarily on qualifications and certification. These do have an important role to play, but we have learned over time the limitations and costs of such approaches. In particular, opinions of employers and educational institutions regarding comparability of qualifications have proved resistant to messages of portability.

We suggest that there is a need to look beneath the system level at how institutions, classrooms, and teachers can become more responsive to migration. Key issues here include language and psychosocial learning, as well as information, advice, and guidance. Migration can change classrooms and learning for the better, but vocational providers and teachers need support in capitalizing on the opportunities available.

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# The Fourth Industrial Revolution: Trends and Impacts on the World of Work

# 10

Sang Yun Kim

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## Abstract

The world is at the onset of the Fourth Industrial Revolution (4IR). Already we are using 3D printing to manufacture cars, drones to deliver products, and even talking with robots. In the late 1990s, the world was shocked by the emergence of the smartphone equipped with computers, phones, and cameras. Now, just 20 years later, we are at the brink of using bio-implantable communication devices. The emergence of such new technologies is dynamic, and it is bringing about radical and holistic changes in the way people live, work, and conduct relationships. These changes are found everywhere, not just in certain elements of society or markets, and are occurring simultaneously to create a whole new order. That's why we call the 4IR a revolution, not just a change or transformation.

This chapter analyzes the current state of dynamic change and an unpredictable future, discusses both positive expectations and negative concerns and implications

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on societies as humankind has been rearranging its rules and orders to accommodate such technology-led developments. In particular, this chapter examines changes in technological environment, industry and business developments, and changes in economic processes such as shared economy and platform economy.

The implication of these changes to role required of humans, its corresponding capabilities and required skills and the structure of labor market will be discussed. And finally, under these circumstances, the role of education will be also discussed.

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**Keywords**

4IR · Industrial Revolution · World of Work · Role Required of Humans · Shared Economy · Platform Economy

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## **Introduction: A New Era of the Fourth Industrial Revolution**

The world is at the onset of the Fourth Industrial Revolution (4IR). Already we are using 3D printing to manufacture cars, drones to deliver products, and even talking with robots. In the late 1990s, the world was shocked by the emergence of the smartphone equipped with computers, phones, and cameras. Now, just 20 years later, we are at the brink of using bio-implantable communication devices. The emergence of such new technologies is dynamic, and it is bringing about radical and holistic changes in the way we conduct business and interact with each other. These changes are found everywhere, not just in certain elements of society or markets, and are occurring simultaneously to create a whole new order. That's why we call the 4IR a revolution, not just a change or transformation.

The World Economic Forum (WEF) declared the dawning of the 4IR in 2016. Participants at the forum defined the 4IR as “a revolution that fundamentally changes the way people live, work, and conduct relationships.” In response, Klaus Schwab, Founder and Executive Chairman of the WEF, suggested that all stakeholders from every part of the world with issues must participate in discussions to come up with countermeasures.

In the book, *The Second Machine Age*, Professors Erin Brynjolfsson and Andrew McAfee (2014) of the Massachusetts Institute of Technology described the changes of the 4IR as the inflection point of “unprecedented things” resulting from the “full force” of digital technology. They also pointed out the possibility of negative impacts that could come from such revolutionary changes, such as social imbalances.

This chapter analyzes the current state of dynamic change and an unpredictable future, discusses both positive expectations and negative concerns and implications on societies as humankind has been rearranging its rules and orders to accommodate such technology-led developments. In particular, this chapter examines changes in technological environment, industry and business developments, and changes in economic processes such as shared economy and platform economy.

The implication of these changes to role required of humans, its corresponding capabilities, and required skills and the structure of the labor market will be discussed. And finally, under these circumstances, the role of education will be also discussed.

## Historical Significance of the Fourth Industrial Revolution

About 10,000 years ago, early humans hunted and gathered for survival. Then, beginning in the sixteenth century, the agricultural revolution introduced tools and livestock that increased food production and enabled food storage. The human population increased and people started to settle down into communities around food centers. Subsequently, the clothing, food, and housing industries developed, around which human labor was centered. Moreover, the division of labor marked the beginning of what we know today as jobs.

During the middle of the eighteenth century to the nineteenth century, the railway-based transportation industry and coal-fired energy industry were at the center of the First Industrial Revolution. Steam engines produced electricity and soon factories were replacing human workers with machines for mundane tasks. This led to a sharp rise in productivity and people began to explore the most efficient way to make use of human labor. For example, people began to take breaks between labors.

During the Second Industrial Revolution that lasted from the end of the nineteenth century to the early twentieth century, the conveyor belt marked the beginning of the widespread application of machinery for labor. This enabled the mass production of goods. The massive quantities of goods naturally led to trade and distribution, igniting the growth of commerce and industry, and the concept of capitalists and laborers took hold. Laborers were hired by capitalists via contracts, and the type of employment in which workers receive wages in exchange for the provision of labor became mainstream.

From the middle of the twentieth century to now, the Third Industrial Revolution involved the evolution of global industries spearheaded by digital technologies such as the computer, semiconductors, the Internet and mobile phones. Such digital technologies further advanced automation in the manufacturing industry and created new service sectors across all industries. Services within the shared economy such as ridesharing and home-rental services are just some recent examples.

During the Third Industrial Revolution, digital technologies went through decades of progress and development and are now resulting in waves of new innovations. Modern digital technologies affect not only industries, technology, and products but every aspect of human life. And the 4IR coincides with the innovation and convergence of such digital trends. High-dimensional digital technologies are converging with relevant or nonrelevant counterparts to create new combinations, bringing about changes that were unimaginable in the past.

In an interview with the Huffington Post in 2015, Ray Kurzweil, Google's technology advisor, and mastermind inventor predicted the future of humanity as the result of the 4IR (Howard 2015).

Dr. Kurzweil said:

By 2025, 3D printers will print clothing at very low cost. There will be many free open source designs, but people will still spend money to download clothing files. 3D printers will



print human organs using modified stem cells with the patient's own DNA providing an inexhaustible supply of organs and no rejection issues. We will spend considerable time in virtual and augmented realities allowing us to visit with each other even if hundreds of miles apart. We will be able to reprogram human biology away from many diseases and aging processes, for example deactivating cancer stem cells that are the true source of cancer. . . .

At the time, his claims seemed somewhat over the top, but one by one, Dr. Kurzweil's predictions became reality in less than 2 years.

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## **Changes in the Global Industry Due to the Fourth Industrial Revolution**

### **Changes in the Technological Environment: Rapid Progress of Technology**

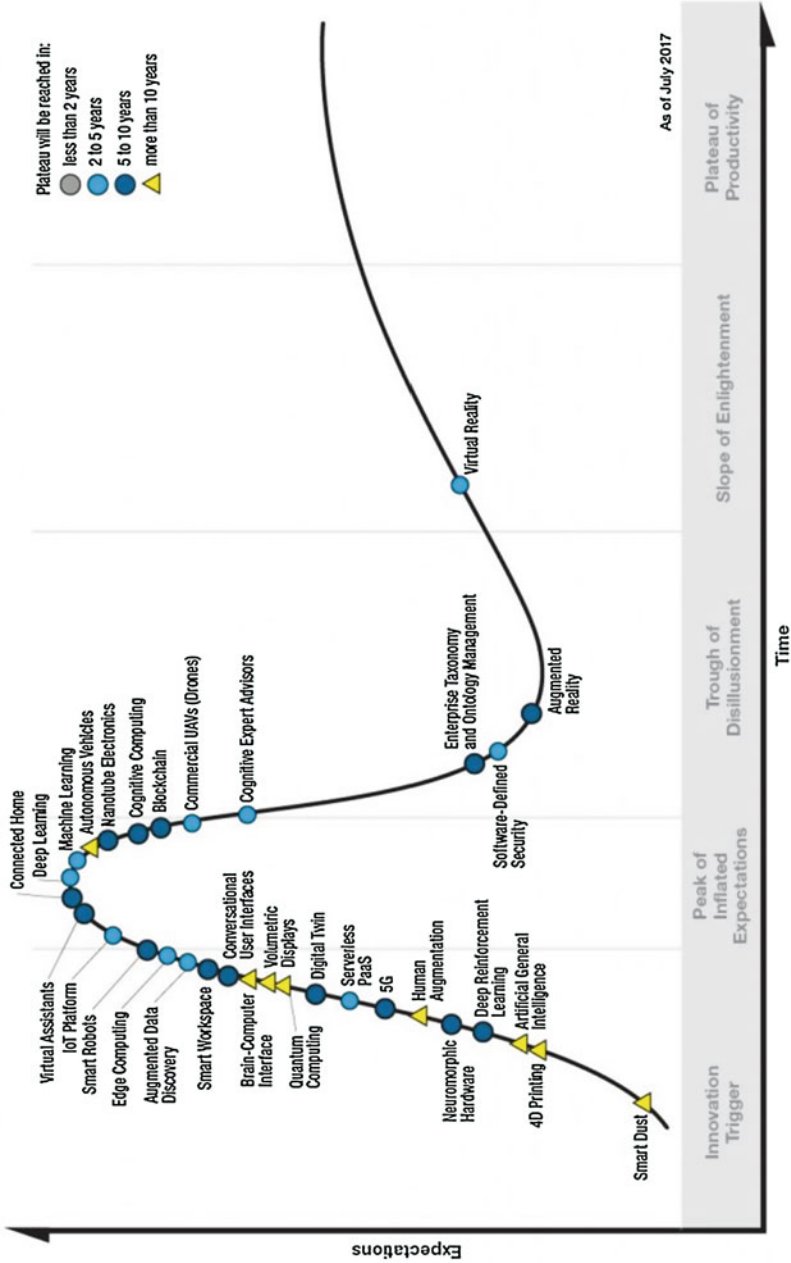
Recently, many researchers have put forth their own analysis and predictions about the 4IR, but each of them is different. Each researcher uses his or her knowledge and logic to create a narrative about how the 4IR will affect industries and cultures, and how it will evolve in the future. The reason why so many different narratives can coexist is that the 4IR is moving at a rate so fast, it is impossible for us to predict the future, and it is so diverse that we cannot view it holistically at just one glance. We call this the destructive power of change. An important reason why the 4IR has the destructive power of change is that it starts from a time of radical advancements in technology.

According to the hyper curve developed by Gartner (Fig. 1), an IT market research firm, the digital technologies that are driving changes in the 4IR such as the Internet of Things (IoT), 3D printing, robots, and Big Data are now at the "Peak of Inflated Expectations." For a certain technology to be at the peak of inflated expectations means the innovations expected from utilizing the technology has reached its highest level. Some of these technologies may not end up developing as we expect in the future. However, the fact that there are so many technologies at the peak of inflated expectations can also mean that recent technologies have given us many sources for creativity and imagination.

From now on, we need to go over several technologies among representative technologies of the 4IR such as artificial intelligence (AI), Blockchain, IoT, and 3D printing.

The research of AI was first published in academia by Alan Turing, a British mathematician and logician. This was 68 years ago in 1950. Unfortunately, research results over the past 50–60 years have not even reached the lexical meaning of AI of "embodying human intelligence." This is not the case anymore. AI technologies, such as Google's AlphaGo and IBM Watson, are displaying levels of intelligence comparable to that of humans. It may be more accurate to say that they have already surpassed human intelligence. The influence AI will have on humankind in the





**Fig. 1** Gartner Hyper Curve for emerging technologies 2017. (Gartner 2017)

future may be frightening. As high-level AI technologies gradually penetrate into the human realm, they can threaten not only human jobs but human dignity as well. That's why AI is the core technology of the representative technologies of the 4IR.

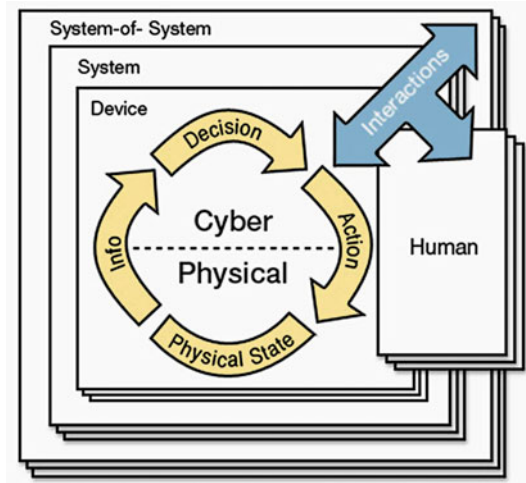
Blockchain technology has recently gained attention due to virtual money's popularity and is another representative technology of the 4IR. Literally, Blockchain means to connect blocks via chains. It sends every party involved in a transaction the transaction history (block), and every time a transaction takes place, it happens transparently by cross-checking every block to prevent data forgery and hacking. At present, the technology is used for specific uses such as for virtual money, but it is expected to be used for a variety of personal and business transactions in the future. The widespread application of Blockchain technology will transform the traditional business structure where a central host controls and manage transactions to one where authority and information will be distributed equally to stakeholders. For example, in the financial industry, the central banks of each country have the say over monetary circulation and financial transactions, thus all authority is centralized. However, if Blockchain technology is applied in the future, participants will have equal access to financial information and have the right to manage financial transactions via distributed operation system.

The Internet of Things is a technology that is playing a key role in connecting everything on earth, and it is even called the "Internet of All Things." In the 1990s, computers were personalized and the Internet became widespread, opening up a new, information-centered paradigm for business. We called this the digital revolution. Back then, we expected a time would come shortly where all information would be stored and managed in cyberspace (atom to bit), and used the word "revolution" to describe the period of change. But only now, 30 years later, we are finally heading toward a true "digital revolution." The IoT is the foundation and technical bundle that connects all the physical information of the world with cyber information. It also stores and utilizes the information.

In order to understand the core technologies of the 4IR, we need to review the concept of a Cyber Physical System (CPS) (Fig. 2). The term CPS was introduced for the first time in 2011 as a part of "Industry 4.0" in Germany, where the 4IR was first introduced as a new industrial paradigm. CPS is a virtual system that connects the physical world with the digital world and is similar to IoT. If the Internet is a substantial term, CPS is a conceptual term. The concept of CPS is still evolving and is constantly being updated by associated agencies such as Germany and the United States. In 2016, the National Institute of Standards and Technology (NIST) published a report by the CPS Public Working Group detailing the specific definition of CPS and its development outlook. According to NIST, CPS is an interactive network-based smart system that links the physical with the cyber world.

Similarly, 3D printing technology transforms cyber information into physical entities through additive manufacturing. For example, in today's manufacturing environment, axles and bearings of automobiles must be manufactured separately and then assembled together. By using 3D printing, bearings and axles can be made at the same time in a single process. A US company called Local Motors already produces finished vehicles using 3D printing. The applicable

**Fig. 2** CPS conceptual model. (CPS 2016)



areas for 3D printing are expanding rapidly, and there are even expectations to use 3D printing to replicate human organs in the near future.

Industry 4.0 technologies Brenna Sniderman et al. (2016)

Product impact	Technology
Physical → Digital	Sensors and controls Wearable Augmented reality (AR)
Digital	Signal aggregation Optimization and prediction Visualization and POU delivery Cognitive and high-performance computing
Digital → Physical	Additive manufacturing Advanced materials Autonomous robotics Digital design and simulation

According to global consulting firm Deloitte, core technologies and concepts of the 4IR such as IoT, 3D printing, and CPS ultimately play a key role in transforming physical objects into digital information and digital information back into reality. In the process, information technologies such as AI, Big Data, and Blockchain use digital information to provide useful services as well as value to human beings.

Numerous research institutes and distinguished professors are presenting innovative technologies that will lead to the 4IR and ranking their importance. They also talk about the future changes in industry and society to come as a result of innovative technologies. The technologies mentioned above cannot be said to represent all the technologies of the 4IR. In the future, even more influential technologies may arise. The important thing is that in the next few years, industry, society, and the labor market will be greatly influenced by such new technologies, and we need to be ready to accept change.

## Changes in Industry and Business: Breaking Boundaries

Even though digital technologies are leading the changes of the 4IR, changes such as product-technology convergence, manufacturing and service convergence and alternative industries are also happening simultaneously. Traditional boundaries segmenting industries may be destroyed or replaced by new ones. Some industries can be replaced by new promising industries, and companies that fail to accept new changes will lose their competitiveness and disappear.

The “war without guns” between automakers and IT companies is a prime example of the struggle for control over the disappearing boundaries between two industries. The current transition from manned, gasoline engine cars to autonomous electric cars cannot be seen as a mere evolution of technology, but a paradigm shift in the automotive industry as well as the beginning of rivalry among companies to survive. If autonomous electric vehicles end up dominating the market in the future, the automotive industry will be led by core technology companies such as batteries and autonomous navigation software companies, not traditional automotive manufacturers. Then, IT companies will have the most say in automobile design and gain the most profit. Existing automakers may transition to mere car assembly companies. This is a likely scenario based on the following three facts. First, the cost of IT is increasing more than 25% per vehicle produced; second, the core technology of automobile production has shifted from engines and brakes to batteries and software; and third, the value added from production itself can be reduced by utilizing new technologies such as smart factories.

In addition, intangible businesses and platform-based businesses are expanding. There is no need for a company to possess all the necessary resources or capabilities internally. Companies can find resources and capabilities externally and use them appropriately. This means, platform businesses that provide resources and capabilities for other companies are increasing, and the number of companies that make use of such services to conduct transactions and share information with other companies is growing. Platforms are expected to become even more diverse in form and function, from servicing online-based commerce and data sharing to off-line manufacturing.

A representative example of a manufacturing platform is a smart factory. The unmanned factory controls itself, and the materials and machinery communicate with each other. Factory facilities are run by a central control system, and information and data are shared in real time among the facilities, processes, and systems. When a product is ordered, the manufacturing schedule is optimized by the central control system, and the necessary processes are carried out by the factory itself. When manufacturing begins, information about the current production situation and specific manufacturing processes are collected and analyzed in real time, and the system determines and controls production according to product-specific requirements. The production flow is automatically designed and executed as if the product and facility are in communication. In some processes, 3D printing can be used to produce and assemble parts that previously had to be made separately from the production process.

Global companies have recently built smart factories to produce a variety of products with minimal costs and manpower. In 2017, GE invested USD 200 million in Mumbai, India, to put its “Brilliant Factory” into operation. GE’s entire line of

products, including aviation, power plants, oil and gas and transportation, is produced in a single plant. The central control system selects materials based on the input costs, and through radio frequency identification (RFID) tags on the selected materials, the necessary parts are manufactured, optimal processes are identified and everything is assembled on its own. In addition, it produces products with digital files and 3D printing, and links various information stored in the system to other value chains (orders, supply chains, services, etc.).

As seen in the case of advanced automobiles and smart factories, the 4IR has blurred and destroyed existing boundaries between industries and businesses, and new alternatives and convergences have surfaced.

New values can be found in the connections between data, technology, business and other areas that were once considered unrelated. The subject of connection does not always have to be new. In some areas, two separate entities can go beyond connection and become a whole new entity in a “strategic convergence.” The boundary between the manufacturing and service industries began to blur in the 2000s. However, recent inter-industry convergence patterns are much more dynamic. The IT industry is already behaving as any other industry such as the automotive, energy, distribution, and financial industries. A convergence among such entities will create a completely new output.

## **Changes in Economic Processes: Shared Economy and Platform Economy**

Recently in Germany, there has been an active food sharing movement/social business (Foodsharing.de). In 2012, a local initiative to share leftover food began, which is now sharing 6.7 million kilograms of food per year through 22,000 food savers (volunteers who manage food stores and connect them with consumers). Initially, a store set aside food that was close to expiring on a separate shelf for people to take as needed and underprivileged people began to make good use of the food. In response, the store became more active in promoting the initiative, and the public also took part by donating its own food on the shelf. Subsequently, the store’s brand image improved and sales increased. There are now food sharing companies all over Germany, specializing in reducing food waste and helping neighbors in need.

Another reason for the success of the food sharing business in recent years comes from a mobile-based, real-time information sharing technology called Online to Offline (O2O). Thanks to smartphone technology, it is now possible to share food storage statuses and quality information in real time to connect suppliers and consumers. The expansion of the food sharing movement can be explained by the emergence of the concept of a “shared economy.” Within a shared economy, the product or service in transaction is not owned by a single party, but shared by many on the basis of collaborative consumption.

Mass production during the Third Industrial Revolution led to excessive consumption, and it was not easy to connect surpluses with new demand. However, as in the case of food sharing, the O2O technology of the 4IR can match the surplus of resources with

new demand in real time. In other words, a shared economy seeks to achieve efficiency in consumption rather than in production. Consumers share things they do not need with other people, and those who need certain goods pay a certain fee to use them. As people focus on utility rather than ownership, the notion of ownership is also changing. People think, “Not all of the goods I use have to be mine,” resulting in the reduction of over-production. Thus, attitude change is an essential part of the process.

In the future, not only goods but intangible things such as time, ideas, and technologies may be shared. Already companies such as Uber and AirBnB have grown into leading global companies and are conducting platform-based businesses based on the concept of sharing goods. Platform start-up Quirky has already attempted to trade ideas, and business platforms that share, manage, and buy and sell intangible goods such as volunteer work and time management applications are emerging.

There is a term “prosumer” that refers to those that are both consumers and producers at the same time. The 4IR is breaking the barriers between consumers and producers and actively turning out proactive prosumers. They often order customized products to fit their needs and even make their own products by using technologies such as 3D printing. We call making one’s own product DIY.

TechShop, a chain of membership-based, open-access, DIY workshops and fabrication studios in the United States is a prime example of companies for DIY. The first TechShop opened in Monroe Park, California in 2006, and gave members access to a variety of tools and facilities for design and manufacturing for a membership fee of around USD 100 per month. The company even provides 3D printers, laser-cutting machines, and other expensive prototyping equipment for members to make their own prototypes for ideas and designs. Some users ended up achieving their dream of starting a business. The spread of DIY culture and companies like TechShop is not a temporary phenomenon. It is a key change in economic activities based on the revolution of manufacturing and consumption. The cost of “machine activities” such as manufacturing will decrease as costs that go toward value-added “human activities” such as design, ideation, marketing, and services increase. Prosumers will act as communication channels for manufacturers and consumers in the 4IR.

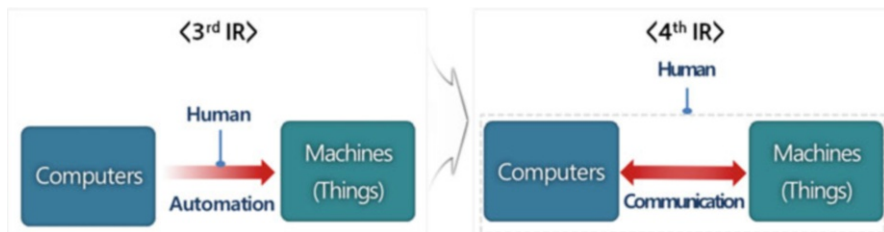
Going forward, economic activities will be carried out within the changing environment of the 4IR, including the shared economy and platform economy. As a result, the daily economic activities of people will differ greatly from the present, different types of skills and competencies will be required.

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## **Possible Changes in the World of Jobs**

### **Machine Replacement: Redefining the Role of Humans**

In the nineteenth century when Ford introduced a conveyor belt, most people welcomed the revolutionary automated production system, but some futurists were concerned that low-skilled human jobs would be replaced by machines or robots. At present, 4IR presents the same expectations and concerns. So then, how will the role of humans change within the 4IR?



**Fig. 3** The changing role of humans

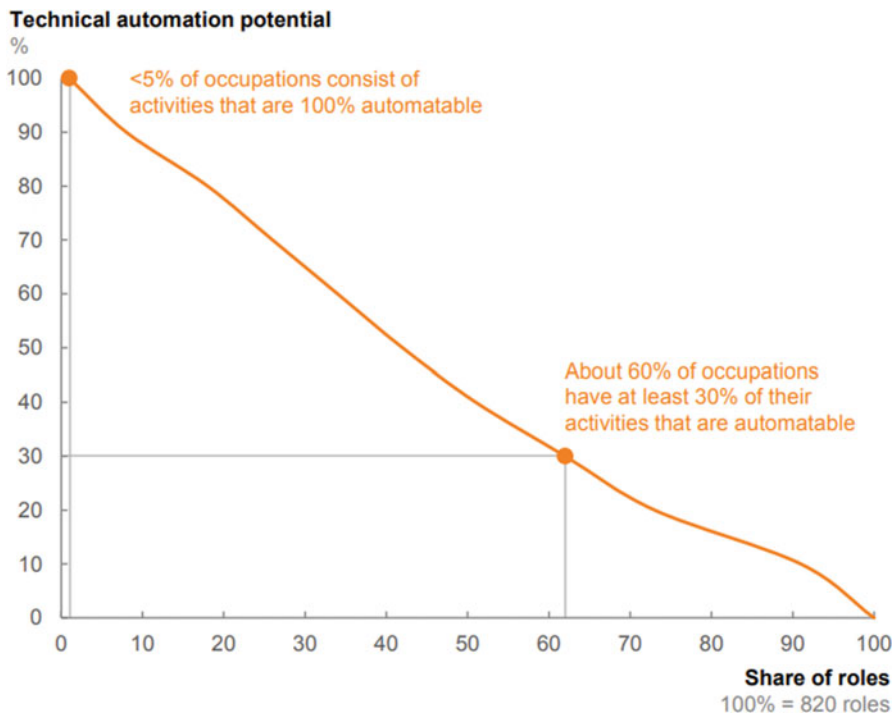
In the Third Industrial Revolution, humans were closely linked with computers and machines to automate (Fig. 3). In the 4IR, computers and machines will communicate independently via systems with diverse SW technology like AI. From this point of view, the most urgent issue of the 4IR is the changing role of humans and the possibility of job cuts. People are concerned that machines are increasingly able to replace humans even in creative and specialized jobs, and that human jobs will disappear as a result.

PwC suggest that in the next few years, the drone business will replace USD 127 billion in the added value of various industries (PwC 2016). Drones are already in use in various industries such as agriculture and transportation and have clear cost-saving benefits. The recent explosive growth of the drone market has even been viewed as the first step toward world domination by robots. Some economists argue that automation via robots will be a major threat to human labor in the next few years, and that by 2030, machines will replace 50% of all jobs. However, McKinsey recently presented an alternative opinion: AI, robots and objects are not going to replace human occupations, but human activities. Since a single occupation is made up of various activities, even if some activities are replaced by machines, the entire occupation will not be replaced.

McKinsey categorized “activities” into 7 categories: people management, professional work, work that requires interaction, unpredictable physical labor, data collection, data processing and predictable physical labor. According to their analysis, predictable physical labor in the accommodation and service sectors is most likely to be replaced by machines (Fig. 4). However, McKinsey concluded that every human job involves unpredictable, specialized, or interactive tasks, so only 5% of the profession will completely be replaced by machines, and the rest will not be completely replaced. Whether this opinion is right or wrong, there is no question that machines will replace humans in many activities in the future. People need to accept that they will have to coexist with machines, adapt to change, and evolve to become better as a result.

### **New Human Capability: Connectivity, Creativity**

In 2012, *The Economist* described the coming world as “The Realms of GAFA” (Fig. 5). GAFA stands for the four leading global IT companies: Google, Apple, Facebook, and Amazon, and *The Economist* described them as “kingdoms”



**Fig. 4** Technical automation potential. (McKinsey 2017)

(The Economist 2012). The age of all four companies combined is less than 100 years old, and with the exception of Apple, these IT companies were only founded in the 1990s. Nonetheless, GAFAs has tremendous influence over many areas of the global industry as predicted by *The Economist*, and their influence only seems to be growing. This is because the key driving force of the 4IR is data and these companies hold the majority of the world's data.

Within the 4IR, it is important not only to collect data but also to create new values by linking and utilizing data. This is the process by which humans find meaningful connections with creative ideas and perspectives in the world of data where data is as numerous as the sand on the beach.

In the next 10 years, a trillion sensors will be able to collect all the data in the world and the 7 billion people of the world will all be connected via the Internet. For new growth industries such as O2O businesses, wearable device industry and autonomous car industry, the connection of data will play a key role in creating value. Even in traditional industries such as agriculture and manufacturing, new value will be added through expansion of data connectivity. The combination of new values will become more diverse starting with data-to-data connections and ultimately expanding to service-to-service connections → company-to-company connections → ecosystem-to-ecosystem connections.





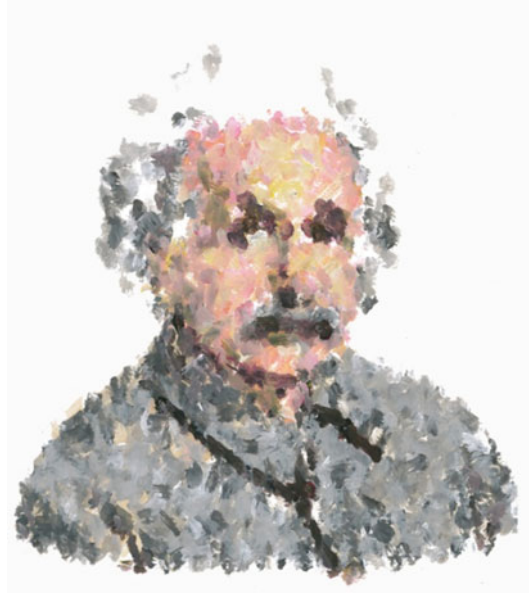
Fig. 5 The realms of GAFA. (Source: The Economist 2012)



Fig. 6 Expansion of data connectivity

The key to this expansion is the “removal of asymmetric information” (Fig. 6). Traditionally, companies have focused on the internal ownership of information and technology, and blocked external access to critical information. In a situation with “asymmetrical information,” only the information provider can carry out one-way communication, so there is a lack of feedback about the product or service from customers. However, the recent expansion of data connectivity makes it possible for not only businesses and consumers to communicate flexibly, but also companies and consumers to communicate among themselves. Information can be used selectively and influence others’ decision-making. It can also allow for the incorporation of various ideas into the development of new products and services. Ultimately, interactive communication creates new values through collaboration, convergence, and communication. In an ecosystem of interactive communication, it is necessary to

**Fig. 7** An artwork by robot artist <Einstein> Source: 2016 Robot Art Competition <http://robotart.org>



accept external ideas and capabilities rather than trying to develop them internally, and then have the insight to match them with changing needs and trends. Connectivity is really the combination of human sense and knowledge.

Fig. 7 above won first place at a global art competition in 2016. This competition was for robot artists and the portrait of Einstein was also drawn by a robot. Up to now, most people have been concerned about a robot-dominated world, but agree robots would never be able to compete with human creativity. So then, how should we process the painting of Einstein above? It is difficult to judge the extent to which robots will penetrate our world. Could a time where humans appreciate and purchase robotic artwork be coming?

This is not the only example where robots have invaded the creative realm of humans. In a new field of media called “Robot Journalism,” robot journalists deliver news instead of human journalists. The *Washington Post* even created an AI journalist called Heliograf to write and report news in real time at the Rio Olympic Games. Although such news is limited to delivering facts, future AI articles may be able to embody human emotions.

In addition, there are robot composers, novelists, and robots that communicate with humans, proving robot activity can expand into diverse fields. AI technology combined with Big Data and IoT aims to provide not only objective thinking and rationale but also human creativity and emotion as well. In the era of the 4IR, how originally will AI be able to express human creativity?

In fact, there is a key technology to achieving this – machine learning for AI. Put simply, machine learning can be described as “the machine version of human perception and cognitive processes.” When humans perceive sounds or objects,

they use sensors such as their eyes, nose, and ears to collect data related to sight, smell and noise that get sent to the brain to be processed. In order for machines without brains to recognize and perceive things, complex algorithms and calculations are required. Machine learning is part of this process where machines increase their accuracy through repetition.

Recently, machine learning has become more popular because of the development of Big Data technology that can process vast amounts of data accumulated on the Internet, as well as the development of computing technology to handle the data. Deep learning is one method of machine learning that recognizes more complicated and diverse situations by implementing a multi-layered, neural-network-shaped algorithm. The drastic development of AI has resulted in robots with recognition and judgment capabilities similar to humans' (although they go through a different process than humans). There are continued attempts to extend the scope and depth of learning to give human-level creativity to robots.

There is, however, a way to protect the creative work scope of humans in the 4IR. It is to draw out even more creativity in the midst of discomfort. Korea Advanced Institute of Science and Technology professor Jae Seung Jung, who is a master of bio-brain engineering, said, "Coincidental creation, as in the 'Eureka moment' is only possible with humans." Computers do not have the competence to come up with ideas related to B while looking at data for A. For the computer that is filled with data related to A, information related to B makes it uncomfortable. Moreover, it is impossible for the computer to create a completely new C by weaving A and B together. We cannot expect computers to have a Eureka moment as Archimedes did in the bathhouse. The ability to draw coincidental results from unrelated fields is limited to human capabilities.

Within the 4IR, the role required of humans and its corresponding capabilities will be redefined. We have to build a framework for development in order to coexist with AI, robots, and computers and continuously work to shape the boundaries that define human roles. Connectivity and creativity are the core competencies that highlight the need for human capacities.

## **Labor Market Restructuring**

The report, *Future of Jobs*, published at the World Economic Forum in 2016, predicted that the 4IR would eliminate seven million jobs and create two million new jobs, resulting in five million job cuts. It states that the jobs with the greatest decrease in jobs are mundane office work and production jobs, and jobs that will see the greatest increase are related to business, finance, management, computers, etc. (World Economic Forum 2016).

There are also warning signs that the 4IR could lead to job reductions and the polarization of job quality. Oxford University's Frey and Osborne (2013) predicted that 47% of US jobs and 42% of German jobs will disappear within 20 years due to automation, especially for skilled labor. They argue that technological innovation will replace the labor force within the next few decades. In particular, the

employment rate of the highest- and lowest-skilled workers has not changed much, but middle-skill jobs that require simple and repetitive tasks are easy to automate and is expected to decrease.

On the other hand, Germany, which is spearheading the 4IR, predicted through political, economic, and educational policies that the “Accelerated Digitization Scenario” will lead to a rapid increase in productivity and a sharp decline in unemployment rates (Federal Ministry of Labor and Social Affairs 2017). They predict 750,000 jobs will disappear from 27 sectors (e.g., retail, paper/print, public administration, etc.), but one million new jobs will be created in 13 sectors (e.g., IT, R&D, etc.). As a result, 250,000 new jobs will be created.

Just as the future of technology, industry, and business in the 4IR cannot be accurately predicted, the resulting changes in the world of work are even more difficult to predict and ambiguous. In the end, it is important to figure out how to create more jobs within the 4IR rather than debate over whether it will lead to an increase or decrease in the number of jobs. We need to consider which sectors will create more jobs, what can be done to speed the growth of these sectors, and what kind of education and training will people need to develop new competencies required in the future.

First of all, you can expect new technologies to create new jobs. Examples include artificial organ manufacturing experts, avatar developers, space travel guides, smart transportation system engineers, shared asset value specialists, and advanced science and technology ethics scholars. The technology sectors that are rising in importance due to the coming of the 4IR need more manpower. Regardless of educational background, IBM is calling people who are adapting to the era of digital revolution “New Collars,” and has filled a third of their workforce with such workers at their US headquarters. New collars are experts in AI, cloud and computers, and belong to a separate category of workers from blue and white collars. IBM has also set up a “P-Tech School” to nurture their own new collars. P stands for Pathway. Talent in this new field cannot be distinguished via existing industrial classifications and cannot be nurtured by traditional educational programs.

In addition, we can predict the increase of jobs that form as a result of the convergence of different knowledge and domains. Some examples include technical writers, user-experience designers and hologram exhibition planners. Change does not happen on its own, but is premised on human efforts to connect new technologies and changing businesses in different ways and to think in an integrated way. In other words, the “complex problem-solving ability,” “social technology,” and “system technology” discussed at the World Economic Forum are areas where human “connection and convergence” must be applied.

Moreover, jobs will become highly specialized and segmented in the future. Jobs such as robotic engineers, retirement planners, virtual reality recreation designers, and climate change experts that cover multiple fields can be even more specified and segmented. An emerging economic trend called gig economy (contracting temporary workers based on immediate needs) shows that in the future, jobs can be further subdivided by occupation and sector type.

In the future of the world of work, companies can be more expected to hire suitable talent and manage them more efficiently, and people can be more likely to work according to their skills and expertise and also enjoy a higher quality of life more than at present.

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## Conclusion

The Fourth Industrial Revolution will bring about changes to the global industry from three perspectives. The first is the radical advancement in technology. The Fourth Industrial Revolution has begun with the accumulated advancement in innovative digital technologies over the last decades (e.g., AI, Blockchain, IoT, 3D printing). Innovative technologies are developing significantly further to impact the global industry, business, and human life.

The second is breaking boundaries of industry and business. Changes such as product-technology convergence, manufacturing-services convergence and alternative industries to destroy traditional boundaries or create new boundaries are also happening simultaneously. Companies that develop their competitiveness in order to adapt to changes will survive while those that fail to do so will be edged out of the market.

The third is changes in economic processes such as shared economy and a platform economy. A shared economy pursues “collaborative consumption” by sharing not only goods but also time, ideas, and technologies. The shared economy is drawing attention as a new solution to “excess production” in a modern society. A platform economy goes beyond a traditional method of transaction (1:1) to include transactions involving multiple players (N:N). Platforms differ by types and purposes, from online transaction platform to a DIY manufacturing platform.

The Fourth Industrial Revolution will influence the role of humans, its corresponding capabilities, and skills required. Human activities will expand in the areas where humans’ capabilities and skills required such as connectivity and creativity work importantly and create new values, such as R&D, design, ideation, marketing, and services. In addition, humans should develop themselves to live together with advanced technologies of the Fourth Industrial Revolution. Humans will improve their capabilities or even create new capabilities accordingly. Complex problem-solving ability, social technology, and process technology are capabilities that humans should improve or create from now on.

Under these circumstances, the labor market is expected to restructure. In the short term, middle-skill jobs will decrease or undergo significant changes. In the long term, high-skill and low-skill jobs will also decline, be replaced, or change. However, close attention should be paid to a new labor market in which new kinds of jobs are created, whereby humans will be able to take new opportunities in the new labor market.

Education should clearly convey the changes in our society and industry in the future. Starting with the concept of the Fourth Industrial Revolution, education should make students understand the massive impact of the Fourth Industrial

Revolution, including the impact of key technologies and changes to global industry and human life caused by such technologies. Second, as stated earlier, the role of humans, its corresponding capabilities, and required skills should be understood. Detailed methods and content of education should be also developed in each domain. Third, students should be taught about the ongoing labor market restructuring. They should learn how new roles, capabilities, and skills of humans can be naturally used in the new labor market. Furthermore, it is also an important role of education that encouraging changing attitudes to have a new value to labor in life such as the gig economy and to coexist with robots and AI.

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# Greening of the Economy Through Partnerships: Issues and Impacts on Skills Development

# 11

Margarita Pavlova

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## Abstract

The importance of transitioning toward a greener economy, which is part of the sustainable development agenda, has been recognized throughout the world. This chapter analyzes greening initiatives at the regional, government, and industry levels to understand the current and desirable role of partnerships for pushing the greening of economies to a new level. Intergovernmental collaboration between ASEAN countries that deal with environmental issues and countries' initiatives illustrate the ways challenges have been addressed individually and through coordinated efforts. At the industry level, greening measures are also adopted driven by CSR policies and targets to decrease cost of running operations.

The chapter suggests conceptualization of current and future actions for greening hotels in Hong Kong through a shareholders' value framework that

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enables a clarification of strategies required for improvement in a systematic manner as well as identifying ways in which partnerships between TVET and the hotel industry can contribute to innovations for greening. It is a useful tool that allows hotels to focus attention on current and future actions that can bring green development for a company. Although this set of actions has been formulated in the context of Hong Kong, they can provide useful guidelines for the hotel industry throughout the Asia-Pacific region.

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**Keywords**

Green economy · ASEAN collaboration · strategies for greening Hong Kong hotel industry · shareholders' value framework · partnerships for greening · TVET

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## Introduction

The importance of transitioning toward a greener economy, which is part of the sustainable development agenda, has been recognized throughout the world. Overall, debates on this issue are closely linked to the increased use of renewable energy, a shortage of resources and their increased prices, technological development and innovation, new markets, changes in manufacturing practices, and consumption patterns. At the state level, increased challenges related to the above issues, and climate change, have been high on the governments' priorities. The sustainable development goals (SDGs) adopted at the United Nations Summit in September 2015 reaffirmed many governments' commitment to green economic growth. A new index that accounts for the notion of sustainable growth, called the Global Sustainable Competitiveness Index (GSCI), was developed to measure the sustainable productivity levels of a country's economy with respect to environmental stewardship and social sustainability (Solability 2016). (The Global Competitiveness Index [GCI] that has traditionally been used to measure economic development has been reviewed.)

Overarching policies and plans that aim to support the development of low-carbon economies reflect these specific greening priorities in the Asia-Pacific region. Such examples as *the National Action Plan for Haritha Lanka Programme* (Sri Lanka), *the Vietnam Sustainable Development Strategy for 2011–2020*, *the Vietnam National Green Growth Strategy*, *the National Action Plan for Climate Change and its Eight Missions in India*, *the Law of the Republic of Indonesia No.17/2017 on the Long-Term National Plan 2005–2025*, and *the Green Development policy* approved in 2014 by the Mongolian government highlight these governments' commitment to greening their countries' economies and indicate an increased understanding of "important interlinkages between the environmental resource base, economic systems and social development" (UN 2012, p. 50). These green growth models adopted by governments and which are focused on the ideology of "beyond GDP" (European Commission 2009, 2013) can be illustrated by taking the example of China. The law that introduced a circular economy in 2008



decoupled economic growth from resource consumption and pollutants but simultaneously pushed the development of a new economic model that can help China to achieve sustainable development (Greeneconet 2017). *The 12th Five-Year Plan for Economic and Social Development of China (2011–2015)* (The Central People's Government of the People's Republic of China 2011) put forward a circular economy as the key strategic focus for the development of the country. This economy minimizes waste by using the outputs of one industrial process as inputs for another.

Greening of economies also necessitates structural alterations to the countries' labor market through changes to existing jobs and the introduction of new jobs. Therefore, new competencies for work in a restructured environment have been gradually introduced into education and training at different levels, including technical and vocational education and training (TVET). To ensure that skills development meets the demands of green growth and promotes a more inclusive future, it is particularly important to recognize the challenges industry is facing and to support its needs (including policy environment) before attempting to address skill gaps.

Considering the nature of sustainable development challenges, the creation of partnerships has been identified as an important measure for making more rapid progress toward addressing environmental degradation and achieving SDGs. Inter-governmental cooperation, and other coordinated efforts at different levels, can deliver the best solutions for the pressing challenges of green growth. Therefore, this chapter focuses on the role of partnerships in supporting the greening of economies as well as skills development at different levels. It examines partnership initiatives on the part of the Association of Southeast Asian Nations (ASEAN) (the *intergovernmental level*), analyzes some greening trends in the development of the ASEAN economic community, as well as its attempts to include green skills in training standards. Then this chapter unpacks challenges and measures taken at the levels of *government* and *industry* in Hong Kong (a Special Administrative Region, China) and illustrates issues related to partnerships and skills development using an example from the hotel industry. Findings of the study (*Greening skills in Hong Kong: Effective Partnerships between vocational education, government and industry to support greening of economy (2016–2018)* funded by the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. HKIED 18,601,515)) are presented in the form of a framework that reflects the ways hotels currently manage greening in order to create stakeholder value. The study also puts forward greening approaches for the future by focusing on internal developments as well as external influences and support. This innovative way of clustering activities provides clear guidelines for hotel managers on how to address the multiple challenges involved in the greening of the hotel industry in the context of Hong Kong. Although the results of this study are a contextualized account of greening, the proposed actions clustered within the framework can be used in other contexts to inform green changes in the hotel industry. In conclusion, this chapter argues for the need to strengthen partnerships for greening at all levels to guarantee the effective implementation of sustainable development goals in the region, including the development of skills needed for greener economies.

## Partnerships for Green Development and Green Growth in ASEAN

### ASEAN Economic Community and Labor Market Restructuring

The Association of Southeast Asian Nations (ASEAN) is a vibrant community that includes 10 member states with a total of more than 600 million people from Brunei, Indonesia, Cambodia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

The ASEAN Economic Community (AEC) Blueprint (ASEAN 2007) called for the transformation of ASEAN into “a single market and production base, highly competitive, equitable economic development and fully integrated into the global economy and the global marketplace” (ASEAN 2007). This single market will support the implementation of existing economic initiatives, such as accelerating regional integration in priority sectors; facilitating the movement of business people, skilled labor, and talent; and strengthening institutional mechanisms. Findings from an ILO and ADB (2014) study calculated a change in GDP under the ASEAN Economic Community scenario using data from 2015 as a baseline. Most of the ASEAN countries would experience a gain in GDP between 2015 and 2025; however, the increase in GDP is likely to be different between individual countries. It is predicted, for example, that Cambodia will experience the largest increase of 19.9% by 2025, while Indonesia is predicted to gain 2.5% in GDP. In general, it is predicted that the lower-income ASEAN member states will experience the greatest change and will have the highest GDP growth relative to the baseline, since increased regional trade will benefit consumers and producers in these countries.

Significant changes to the labor market caused by closer trade integration under the establishment of the ASEAN Economic Community (AEC) in 2015 will lead to an increase in total employment by 2025 (ILO and ADB 2014 modeling). Around 14 million additional jobs could be created by that date. Indonesia, for example, will create an additional 1.9 million jobs over the baseline (1.3% of total employment) (ibid.). The AEC Blueprint recognizes the importance of the free flow of skilled labor. Therefore, intensive mobility and the exchange of labor within the AEC market require human resource development strategies, so people’s competencies and skills can be recognized. Mutual recognition arrangements have been signed for several occupations, including engineering, nursing, architecture, surveying, medical and dental practitioners, and accountancy. There is, however, a need for further guidelines that can be used as a reference for recognizing individual competency and skills. This will help to deal with such HRD issues as (i) human resource recruitment, (ii) project requirements, (iii) qualification compliancy, and (iv) competence/skill standard (Bateman 2016).

Inter-ASEAN labor migration rose substantially between 1990 and 2013: from 1.5 to 6.5 million (ILO and ADB 2014). Malaysia, Singapore, and Thailand account for 97% of these inter-ASEAN migrants. Around 50% of migrants in these countries come from a single country of origin: Malaysians travel to Singapore, Indonesians to Malaysia, and Myanmaris to Thailand. The majority are low- and medium-skilled

workers. It is predicted that migration within ASEAN will continue the same patterns, primarily in manufacturing, construction, fishing, and domestic work.

## Green Growth of ASEAN

The enormous challenges involved in developing an integrated market of goods, services, and labor in ASEAN have not drawn attention away from the need for the sustainable development of the AEC. In addition to the ASEAN Economic Community (AEC) Blueprint (ASEAN 2007), the ASEAN Socio-Cultural Community (ASCC) Blueprint 2025 (ASEAN 2016a) was also adopted by the member states. It has a special section on sustainable development (Section C) that calls for an increase in “policy and capacity development and best practices to conserve, develop and sustainably manage marine, wetlands, peatlands, biodiversity, and land and water resources.” Sustainable development has been a shared concern for the ten member countries. Since 1977, ASEAN has promoted environmental cooperation among its members. Currently, ASEAN’s environmental cooperation focuses on four priority areas of regional importance that are suggested in the “Sustainable” section of the Blueprint (ASEAN 2016a):

- C.1. Conservation and sustainable management of biodiversity and natural resources strategic measures
- C.2. Environmentally sustainable cities strategic measures
- C.3. Sustainable climate strategic measures
- C.4. Sustainable consumption and production strategic measures (pp. 10–13)

Realization of these measures will lead to labor market restructuring of all member states, although the levels of change (the introduction of new jobs and the adjustment of existing jobs) are different in each country.

The document states:

The ASCC envisions the achievement of a sustainable environment in the face of social changes and economic development. . . . The objective of this Characteristic [Sustainability] is to promote and ensure balanced social development and sustainable environment that meet the needs of the peoples at all times. The aim is to strive for an ASEAN Community with equitable access to sustainable environment that can support its social development and its capacity to work towards sustainable development. (ASEAN 2016a, p. 10)

ASEAN countries have started mainstreaming various climate change and green growth priorities into their national development plans because economic growth, human well-being, and environmental performance are inseparable. Evidence from the region shows that environmental degradation has already begun to undermine human well-being and economic growth. For example, the number of deaths from outdoor pollution and the costs associated with medical treatment have been increasing in ASEAN countries. Indonesia leads the ranking, with almost 65,000 deaths in 2010, and the costs associated

with medical services are now around US\$50,000 million (OECD 2014). Therefore, the model based on “grow now, clean up later” does not work.

Overall, ASEAN countries have moved down the global sustainable competitiveness index in 2016 compared to 2014. In 2016, the ranking range was between 33 (Malaysia) and 125 (Cambodia), but in 2014 the range was between 24 (Singapore) and 117 (Philippines) (Table 1). However, three ASEAN countries moved up the scale – Malaysia, Brunei, and the Philippines. This is largely related to the emphasis these governments put on the greening of their economies (e.g., the Malaysian government put forward strategies for developing green technologies and supports the green skills training provisions stated in the Roadmap on Green Technology, prepared by the country’s National Green Technology Centre). (The Malaysian government recognizes that technology is one of the key drivers for green economic growth. *The National Green Technology Policy* was launched in the country in 2009 to provide directions for development, including growing the **green technology industry**. It stated that there should be minimal environmental degradation and have zero or low greenhouse gas emission, should be safe to use and promote a healthy and

**Table 1** Global sustainable competitiveness index (ASEAN)

Country	Sustainable competitiveness index 2014		Sustainable competitiveness index 2016	
	Rank	Score	Rank	Score
Malaysia	42	45.9	33	47.4
Brunei	53	44.8	46	46.5
Indonesia	35	46.1	57	45.0
Singapore	24	47.4	60	44.7
Laos	61	44.1	67	44.2
Vietnam	79	42.3	92	42.4
Philippines	117	39.4	97	42.0
Thailand	101	40.5	100	41.6
Cambodia	88	41.8	125	39.2

Source: Extracted from the sustainable competitiveness index 2016 – SolAbility (2016) by the author

improved environment for all forms of life, conserve the use of energy and natural resources, and promote the use of renewable resources (Ministry of Energy, Technology, Science, Climate Change and Environment 2009).)

The future of ASEAN economic development and human well-being in member states depends on policies and actions that benefit both economic development and environmental performance. The OECD (2014) reviewed the most recent medium-term development plan for each ASEAN country. In addition, two green growth plans led by the Ministry of Planning were reviewed: Singapore Sustainable Development Blueprint (2009) and the Vietnam National Green Growth Strategy for the period 2011–2020 and results are summarized in Table 2. (Note by OECD (2014): There are some inconsistencies between the Singapore documents reviewed. While other documents in Singapore consider climate change mitigation as a key priority, Singapore’s Sustainable Development Blueprint includes no specific objectives or strategies for reducing greenhouse gas emissions.) Countries tend to focus on

**Table 2** Environmental priorities at the policy level

	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
Resilience to natural disasters/adaptation to climate change	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sustainable forest and land management	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Renewable energy	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Air pollution, water pollution, and waste	Water only	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Energy security	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Food security	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Sustainable fossil fuel and mineral extraction	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Green technology	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Energy efficiency	No	Marginal	Marginal	Yes	No	Yes	Yes	Yes	Yes
Climate change mitigation	No	Yes	No	Yes	No	No	No	No	Yes

Source: OECD (2014)

The medium-term development plan for Brunei Darussalam was not available online

A “no” indicates that the objective did not appear in the plan – although it may have been listed as a challenge (but with no details about how to address it) – or may appear in a stand-alone sectoral strategy

A “yes” indicates that the objective appeared in the plans and is therefore considered mainstreamed

climate change adaptation, forestry and land management, and a reduction in pollution. Less consideration is given to climate change mitigation.

Thus, a more proactive approach is required from the government side. Furthermore policy analysis by the OECD (2014) indicates that more policy measures are necessary to deal with environmental issues in ASEAN. Some Southeast Asian countries have already established institutions for the design and management of green growth strategies. However, within the new ASEAN Economic Community, increased coordination between sectors, between sub-national authorities, and across the region is required. Based on four strategic objectives (C1–C4) in the ASEAN Socio-Cultural Community Blueprint 2025 (ASEAN 2016a), nine areas of cooperation have been established, but these also require attention in terms of skills development and recognition:

1. Nature conservation and biodiversity
2. Transboundary haze pollution
3. Environmental education
4. Chemicals and waste
5. Environmentally sound technology
6. Environmentally sustainable cities
7. Coastal and marine environment
8. Water resources management
9. Climate change (ASEAN 2016a)

The emphasis on cooperation here reflects an understanding that there is a need for transboundary collaboration if environmental issues are to be addressed effectively. Some examples of environmental partnerships in the Greater Mekong region illustrate this approach. Intergovernmental partnership includes:

- (i) Developing national environmental policies and strategies in Cambodia, the Lao PDR, and Vietnam
- (ii) Supporting the application of sound environment management policies and tools – including the launch of Myanmar’s environmental impact assessment procedure and environmental quality guidelines – applying land use planning simulation modeling in Cambodia and the Lao PDR, and industrial pollution projection modeling in Cambodia and Myanmar
- (iii) Jointly developing a transboundary biodiversity landscape monitoring and evaluation framework
- (iv) Creating transboundary conservation plans for rare species
- (v) Promoting fuel efficient technologies, eco-driver training, and improved logistics measures – successfully tested in the Lao PDR and Vietnam and under way in Thailand (ADB 2017, p. 72)

These existing initiatives are good examples of the expansion of intergovernmental collaboration in the nine identified areas.

Thus, ASEAN partnerships that address environmental challenges are visible at the policy level: jointly adopted documents have started to affect labor market restructuring. However, more work should be done about the systematic development of human resources by formulating policies that stipulate required skills. For example, in order to deal with waste management, a number of actions are required. They include:

- Introducing controlled and sanitary waste management services and enhancing quality of work in the informal waste management sector
- Building and servicing biogas plants to provide eco-friendly and economical fuel for lighting and cooking, in place of kerosene
- Building and servicing composting plants to convert waste into natural fertilizers that can replace the costly chemical based or petroleum-based fertilizers that can pollute groundwater reserves (ILO 2014)

The development of skills and competencies that underpin effective job performance in these areas should be included in different types of training and should be a priority for designing the TVET curriculum targeted at waste management occupations.

It is not just those areas that are directly related to the environmental sector (typically air quality, nature conservation, environmental assessment, waste management, water quality, renewable energy, forestry, etc.), all industries should become greener. Traditional sectors, such as agriculture, contribute 24% of the direct greenhouse gas emission worldwide, industry contributes 21%, transport 14%, and buildings 6.4% (Intergovernmental Panel on Climate Change 2014). Therefore, measures to make these sectors greener will also impact on jobs and skills requirements. Considering that for seven out of ten ASEAN countries agriculture is the first priority for development (ILO and ADB 2014), particular attention should be given to the greening of this sector. Other priority sectors for growth are transport, construction, and infrastructure (ibid.). TVET that develops greener skills for these priority sectors, environmental industries, and strategic areas for ASEAN environmental cooperation is a crucial contributor when it comes to dealing with actual and potential skill gaps in the region. The process incorporating green skills into the TVET curriculum can be called the “greening of the TVET curriculum.”

## Green Skills Development

As outlined previously, the environmental sector (or green industries) and all other industries require the greening of skills, which should be addressed in TVET and industry-based training programs. Therefore, ASEAN’s commitment to establishing mechanisms to support labor mobility through mutual recognition of education qualifications and to improve TVET quality and accessibility must include greening initiatives. Regional policies, such as Guidelines on ASEAN Good Agricultural Practices (ASEAN GAP) (2006) and Guidelines on ASEAN Good Aquaculture

Practices (ASEAN GAqP) (2015), were established as acknowledged common standards with minor national differences. They are mainly aimed at preventing or minimizing environmental risks in agriculture and aquaculture production (The ASEAN Secretariat 2015).

These common standards should be reflected in training programs across all ASEAN countries. Such initiatives as Regional Model Competency Standards (RMCS), developed by ILO (2016) in consultation with employers, governments, and workers (specifically for agriculture and aquaculture), include green skills. Currently, the RMCS has incorporated both environmental and safety requirements for performance in each unit of competency. These requirements are made explicit in the introduction section of the standards (ILO 2016).

In terms of further developments, based on this example, competency standards for occupations in the nine areas of environmental cooperation (ASEAN 2016a) could also be developed and should include green skills. (Green skills – those skills related to reducing environmental impact and supporting economic restructuring with the purpose of attaining cleaner, more climate resilient, and efficient economies that preserve environmental sustainability and provide decent work conditions (Pavlova 2018).) Green skills should also be visible in the ASEAN Qualifications Reference Framework (ASEAN 2016b) and reflected in ASEAN Guiding Principles for Quality Assurance and Recognition of Competency Certification Systems adopted by the 24th ASEAN Labor Ministers Meeting (Bateman 2016).

Environmental education, as one of the areas for cooperation for ASEAN countries, should also address the development of generic green skills (see Pavlova 2018 for a more detailed discussion):

skills [that] are required in almost all occupations in order to understand and appreciate the issues and demands involved in greening economies. These generic skills facilitate the preparation of the future workforce to understand issues of green growth (including environmental, social and economic aspects), interpret environmental legislation, increase energy and resource efficiency, and enable the processes involved in greening the economy. (Pavlova 2018, p. 343)

In addition, personal qualities, attitudes, and behavior that can have a positive effect on green practices in workplaces should be introduced and developed through education.

This multidimensional approach for including green skills in training standards, which underpins the environmental collaboration among ASEAN countries, facilitates the effective realization of plans that are adopted.

This section analyzed issues of partnerships for green economic restructuring at the policy level of the ASEAN Economic Community and ASEAN Socio-Cultural Community and discussed their implications for skills development. The partnerships reflect a commitment between ten countries to catch up with the sustainable development agenda by strengthening intergovernmental policy measures related to green growth and sustainable development. Although the first steps in the harmonization of training standards that include green skills have been done in the region, more effort is required to address the issues related to green skills development in



order to support ASEAN environmental collaboration. The following section examines the issues and challenges for partnerships for greening in the specific context of Hong Kong.

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## Partnerships for Greening in Hong Kong

### Policy Initiatives

In the face of climate change and the rising recognition of the importance of sustainable development at a country level, governments are taking measures to transition toward a greener economy, which is “*an alternative to today’s dominant economic model*”; it promotes sustainability, social equity, financial stability, and prosperity (UNEP 2018). The Hong Kong government is not an exception (e.g., Lam, 2013). Many initiatives and programs have been launched in Hong Kong SAR to facilitate changes in the environmental industries (HKPC 2017), waste management (ENB 2013), and transportation sectors (EPD 2017). In the *Hong Kong Climate Report 2015*, the government set a target to reduce Hong Kong’s carbon intensity by 50–60% by 2020, compared to the level in 2005 (ENB 2015). In the Hong Kong’s Climate Action Plan 2030+, the government adjusted the target to reduce the carbon intensity even further by 65–70% by 2030. To achieve this, suggested strategies include filling in knowledge gaps, encouraging innovation, enhancing partnerships with private sectors, and raising community awareness (ENB 2015). The Chief Executive’s 2017 Policy Address referred to a need to develop green finance and green tourism (Lam-Cheng 2017). The financial and tourism sectors are two major industry sectors in Hong Kong, which contributed 17.6% and 5% to the GDP, respectively (CSD 2017), and so their greening can definitely contribute to transitioning the local economy to a greener model, which is “*low carbon, efficient and clean in production, but also inclusive in consumption and outcomes, based on sharing, circularity, collaboration, solidarity, resilience, opportunity, and interdependence,*” according to the definition developed by the United Nations Environment Programme (2018).

### Greening of the Hotel Industry

At the policy level, the Hong Kong government is committed to establishing favorable conditions for greening the economy. To examine the impact of this political environment on industries, this section presents some results of a study *Greening skills in Hong Kong: Effective Partnerships between vocational education, government and industry to support greening of economy* (2016–2018) that focused on greening several industries, including the hotel industry. Semi-structured interviews and surveys, as well as analysis of secondary sources, provided data for this study that is a rich qualitative account of greening the hotel industry in Hong Kong and the role of partnerships. Survey design and development of interview questions

were informed by an analysis of existing literature (e.g., Cedefop 2010; Per Capita 2010; OECD 2011; Strietska-Ilina et al. 2011; ADB 2012; Schmitz and Becker 2013; The Research Base 2014; Baumgarten and Kunz 2016) as well as previous research by the team members (e.g., Pavlova 2014, 2015, 2017; Maclean et al. 2017). A specific focus on partnerships (types of partnerships, levels, reasons for partnerships, and levels of satisfaction with results, barriers, and contributions of different partners, as well as types of engagement) in designing the survey was informed by research from Griffin and Curtin (2007), ETF (2013), and Smith et al. (2017).

The focus of the semi-structured interviews with four hotels in Hong Kong included the following themes:

- Environmentally friendly practices
- Types of skills required for green restructuring and staff training
- Different aspects of partnerships for greening
- Measures to improve collaboration for greening

In order to ensure the richness of collected data, hotel management staff who had high levels of awareness about greener practices were interviewed.

Overall, 21 surveys were distributed to hotels in Hong Kong and 2 to guesthouses. Four responses were received from hotels. Researchers followed up with phone calls to those hotels that did not respond. This follow-up strategy raised the response rate to 100%, and we were able to establish that the notion of greening is still relatively new for hotels in the Hong Kong context, as many stated they are not currently undertaking relevant practices (e.g., environmental friendly measures, greening skills development, and partnerships for greening) that would be of interest to this particular research study. *This is an important finding in itself as it highlights the need to improve greening policy implementation into hotel practice.*

### **Greening Practices**

In Hong Kong, the inclusion of sustainable business practices into the hotel's operation most often fell under the umbrella of corporate social responsibility (CSR) and focused on presenting a more socially responsible image of the company. In one hotel a CSR team had been established that included senior members from different departments, and it aimed to look at opportunities in relation to three pillars: diversity, education, and environment. One hotel did not have a CSR team, and the other two had well-established CSR strategies where community empowerment and issues of company's sustainability were among important concerns. Three of the interviewed hotels belong to two hotel groups that had launched corporate guidelines or an environmental sustainability strategy with a set of goals that stressed the promotion of environmental stewardship. For example, some targets include achieving a 2% energy consumption reduction with year-on-year targets, reducing water use per guest per night by 25% and reaching a 40% recycling diversion rate. Thus, these chain hotels followed the corporate policies established at their headquarters. However, only one interviewed hotel focused on more environmentally responsible purchasing practices. The other three reported an absence of guidelines

on sustainable procurement with the exception of seafood. To implement these guidelines, two of the interviewed hotels that belong to a hotel group set up a green team or green community to address CSR issues relevant to the environment. They meet regularly (quarterly/monthly) to brainstorm key environmental/sustainability issues within the hotel that can be addressed by different hotel departments. The director of engineering, for example, mainly dealt with issues related to energy consumption, and the head of the food and beverage department focused on waste management; however, the team overall focuses on cross-departmental solutions.

Neither of the hotels developed an overall greening plan for different operations with specific targets for one or several years. Current processes involve the identification of a single issue and then addressing it. One hotel stated that their focus for the coming year would be waste management; this is aligned with a government priority. Hotel A stated “To raise awareness of food wastage, continuous year-on-year campaign, associates are aware of the ‘icon’/‘mascot’ of food wastage. We are looking into solutions to further expand our food wastage recycling program.”

All four interviewed hotels have a range of environmental strategies in place, although economic return and cutting costs are the major drivers for such initiatives. The corporate environmental and sustainable management practices require a high level of buy-ins and engagement from board member/s or top management. Common green initiatives across hotel practices include asking guests to consider not having their sheets changed every day; recycling soap, paper, glass, coffee cups, used oil, and waste; installing LED light and motion sensors; supporting green community groups; and purchasing sustainable seafood. In addition, one interviewed hotel installed heat electronic pumps in guest rooms and the swimming pool to save energy and cut costs and also decided to observe Earth Hour. Another offered electric transportation options to its guests and established a huge vertical garden in the lobby, and one built an aquaponic system to grow herbs for catering services. Hotel B stated in the survey: “The company is 100% committed in recycling and reduction in use of utilities for all daily operation activities.”

## Challenges

The hotel industry faces a number of recurring challenges on the journey to greening. First of all, *limited budget* and *marketing concerns* are the biggest obstacles. To promote the green features of a hotel, it is important for hotel management to understand what kind of products and services consumers look for in a green hotel. However, this is not known. For instance, the corporate guidelines for some hotel chains discourage reuse, especially at the luxury hotels. Thus, corporate guidelines can reduce the flexibility of a hotel to develop greener solutions. Tight budgets make it hard to install motion sensors or other devices that help reduce energy or support community groups. Second, there is a need to establish a *dedicated green team* that oversees and supports all greening policies and practices within a hotel. The third challenge is *hygiene and food safety*. One hotel reported that they have been trying to replace bottled water with glass jars, but because of hygiene concerns, the top managers had not supported the measure. Another hotel stated that they do not donate food or keep it for another round at the buffet section due to hygiene concerns.

Fourth, a *lack of space to handle waste and extra manpower required* to facilitate operations can be factors that hinder the full incorporation of waste management measures. Another issue is a *lack of government support*, particularly in terms of funding and the difficulty in navigating through the myriad of funding sources and the means to apply for them. There is also a paucity of recycling companies, so it is difficult for hotels to find a partner. Several hotels experience difficulties with recycling soap. This is due to the high admin costs associated with running this operation (due to logistics difficulties) or because recycling companies have limited capacity. For these reasons, these activities have ceased in two hotels. The Hong Kong government also does not have any promotional strategies for the greening of hotels. The next challenge relates to the *limitation of hotel facilities*. If a hotel is located on several floors of another building, then the management of that building organizes waste management and air-conditioning regulations, so it is difficult for the hotel itself to initiate improvements. In addition, if the hotel is old, sometimes it is not possible to incorporate innovation solutions due to existing hardware limitations. *The distance between a hotel and collecting companies* can have a negative impact on a hotel's ability to recycle. Recycling companies would not travel far as this increased operational costs.

In addition to the *lack of regulations from the government, staff attitudes* can mean people resist change and do not want to leave the comfort zone of their usual practice. Furthermore, a *lack of training* from the hotel association, combined with limited training opportunities within the hotel (some hotels only have one person instead of a training team so, for example, it is not possible to provide staff training on how to organize a green banquet), is an additional challenge. *Induction training* for new staff usually *does not include any issues related to greening the workplace*, but might include some corporate values. One hotel organized a 30-minute orientation for staff to improve their environmental literacy. Two hotels have developed some green training materials for in-service training workshops, but the *nature and volume of these materials is very limited*. However, hotels use intranet, posters, and social media to announce green initiatives. A company's Facebook page tends to attract a larger audience, so there is a need to *use more engaging platforms*.

## Existing Partnerships for Greening

Key features of partnership interactions for greening outside a hotel can be analyzed in terms of components, relationships, and functions (Ranga and Etkowitz 2010). The following key features have been identified through the study:

Components (key external partners):

- Government departments/offices
- NGOs in Hong Kong
- Private companies
- Industry/business associations
- Professional associations
- Universities/TVET institutions

**Relationships:**

- Supply chain connections (value to local industry supply chain)
- Mobilization of social, physical, environmental, cultural, etc., capital
- Civic engagement (involvement in working parties, committees in communities)

**Functions:**

- Creation and development of new learning infrastructures/environments
- Leadership capacity building (within institutions to lead partnerships)
- Innovation and creativity in relation to community
- Skills development and transfer in the local community

Hotels in this study have established close links with government offices (e.g., Environmental Bureau, Environmental Protection Department – Glass Container Recycling Program for the Hotel Sector) and NGOs (e.g., Food Angel, Salvation Army, Foodlink) to handle food waste, collect, and recycle plastic and paper, and they work with private companies (e.g., On Kee [HK] Environmental Recycling Ltd., recycling companies at eco-park partially supported by the government) to recycle soap and recycle food waste into biodiesel or fish food. Informal links with other hotels to share good practices were also visible throughout this study. Partnerships with universities and other organizations for staff training: teams or individuals have been sent to undergo external short training for upskilling, for example, engineers attended workshops at Hong Kong Productivity Council (HKPC) and China Light and Power Co Ltd.; kitchen staff go to CityU scope, PolyU, or HKPC to gain a certificate for hygiene management. The importance of receiving external training is well acknowledged. Training exposes hotel staff to new ideas that can help drive innovation and familiarize them with the latest trends in the market. In addition to skills training, some staff enroll in master's degrees at the universities. Hotels also support NGOs and communities to promote greening and social development: Oxfam Trailwalker Hong Kong and Local community in Tai Kwok Chui (to collect unwanted toilet paper and plastic); and they work with the Hong Chi Association to provide volunteer services for children with intellectual disabilities.

Some hotels acknowledged that their representatives have been invited to present at educational institutions (both universities and TVET) and to engage in supporting university research at their hotel. Partnerships between VPET and the hotel industry are mainly limited to internship training places for students (usually for 3–6 months) (e.g., ERB, VTC, HKUSPACE, PolyU, Hong Kong Community College [PolyU HKCC]); students' visits to hotels, TVET teachers gaining industry experience, and the provision of feedback on student skills.

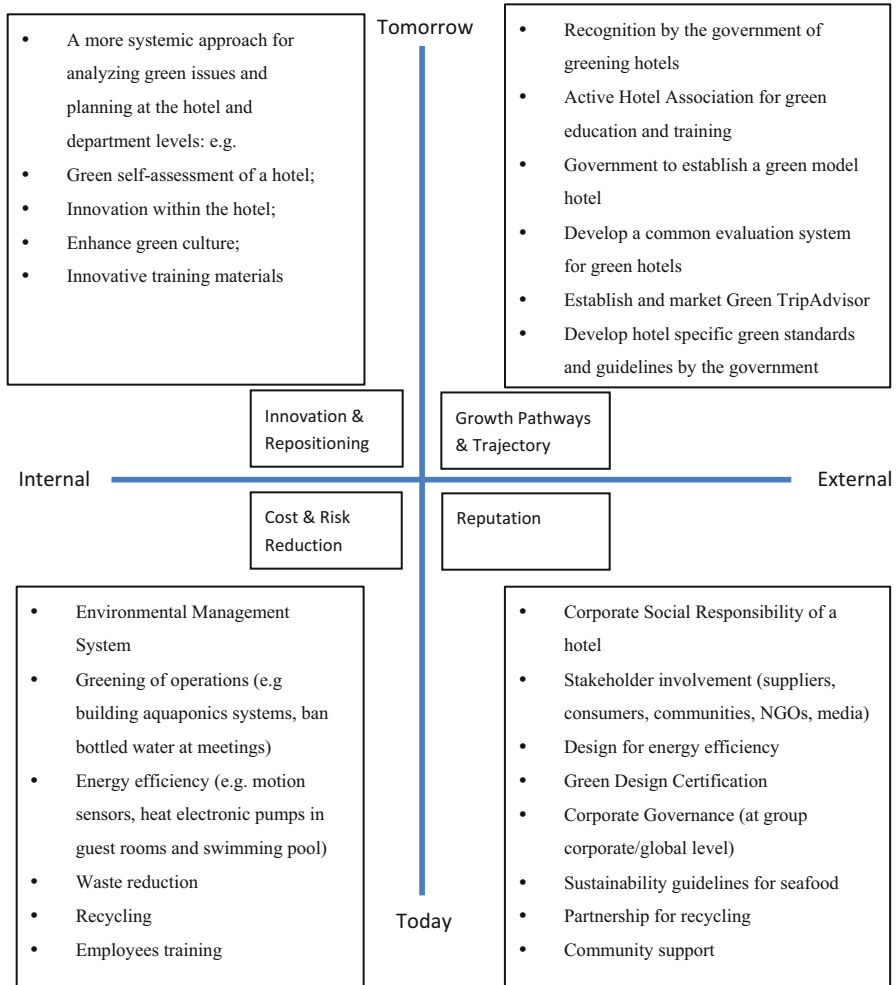
The most important perceived reasons for partnerships are community benefits, recommendations by the government, and environmental sustainability policy and practice in the hotel (all 33%). The second most important reasons include environmental sustainability policy and practice in the hotel (67%) and positive reputation (33%). Therefore, hotels' internal policies and practices, government recommendations, community benefits, and good reputation are the main reasons for green

collaboration that results in the “ability to deliver coordinated packages of services to individuals or organizations,” “achieve community’s recognition of hotel’s green initiatives,” “support innovation in staff learning in terms of green skills inclusion and greening in general,” and “build additional capabilities in hotel staff in terms of greening skills and knowledge.”

## Suggestions

Interviewees identified a number of conditions for effectively greening the hotel industry. They mainly agreed that both *customer push* and *governmental push* could play a significant role. The *establishment of a sustainability team* is the best means of pursuing a green agenda within a hotel. A *change in mind-set* for the public and employees has been identified as even more important than a particular set of skills. Positive and strong attitudes toward environmental protection and personal beliefs are powerful motivators for people and stimulate them to becoming proactive in implementing environmental friendly practices. A paradigm shift is imperative to drive talks into walks so that a lot of green initiatives implemented are well received and accepted by hotel staff and the public. For example, in terms of food waste recycling, it is extremely important not to contaminate waste with other products (e.g., napkins) because it reduces the amount of protein in waste, making it impossible to produce quality fish food from the waste. No particular skills are required from staff dealing with waste management but a positive environmental attitude is, so a person can behave in the appropriate manner. One hotel reported that only 50% of guests opt not to have their bed linen changed every day. At the time of the interviews, all participating hotels were identifying opportunities to raise environmental awareness in the community.

In conceptualizing current and future development for the greening of hotels in Hong Kong, a shareholder values framework designed by Hart and Milstein (2003) can be applied to present the findings of this study (Fig. 1) to ensure a multi-dimensional view. In Fig. 1, the vertical axis in the model reflects the company’s need to manage today’s business while simultaneously creating opportunities for tomorrow (short-term results vs. expectations for future growth). This model links strategies and practices to the creation of stakeholder value. The horizontal axis reflects the company’s need to grow and protect internal organizational skills and capabilities while simultaneously infusing the company with new perspectives and knowledge from the outside. Internally, hotels need to develop or acquire skills, competencies, and technologies that reposition the company for sustainable development and to keep pursuing environmental strategies such as pollution prevention and waste management to create shareholder value for existing business through cost and risk reduction. On the other hand, along the vertical axis, sustainability governance, stakeholder engagement, CSR initiatives, and transparency are external actions that hotels should look at in a bid to lower environmental impacts across the value chain and to enhance legitimacy and reputation. To improve hotels’ future performance, it is important to articulate clear directions for future growth and



**Fig. 1** Greening the hotel sector. (Source: Author)

supporting conditions through involvement of different stakeholders. This is where partnership with education (including TVET), government, civil society, and other industries plays a critical role in including shareholder value into a company’s operations and increasing hotels’ confidence in selected activities (Hart and Milstein 2003). Partnerships for innovation and green growth are essential for achieving a sustainable future. The quintuple helix model (Carayannis et al. 2012) identifies (1) academia/TVET (the education system), (2) industry (the economic system), (3) government (the political system), (4) society (media-based and culture-based public), and (5) the natural environment as the five entities responsible for *knowledge and innovation generation, dissemination, and usage*, which can be applied to the hotel industry context for the purpose of identifying ways partnerships can be

developed. (In this quintuple helix model, academia contributes by ensuring quality of knowledge through a process of approval by “hierarchically established peers”; industry contributes by producing applicable knowledge; and government contributes by assuring social accountability during the process of knowledge management. The interrelations between academia, industry, and government constitute a national innovation system of knowledge production and dissemination based on cooperation and interaction. In addition, society represents the “media-based and culture-based public” that plays an important role in knowledge interpretation and transfer. Every aspect of the national innovation system is under the influence of social reality, which in turn significantly depends on public media and culture. Finally, the natural environment is the outermost context of the quintuple helix model. The addition of this dimension highlights the challenges and constraints that link knowledge innovation with the environment itself (Pavlova 2018).) Industry, government, and society have already been important partners for hotels. However, it is argued here that TVET can also be a significant partner involved in *knowledge and innovation generation, dissemination, and usage* (despite the fact that currently TVET and the hotel industry do not have extensive partnership links). Based on the data collected from this study in the future, TVET can be an active partner for helping the hotel industry to address activities stated in the upper part of the framework and dealing with environmental issues identified by hotels, such as:

- Provide training for green upskill/develop training materials for hotels’ internal staff training, including video-based materials.
- Provide support for applied research, such as the development of green/sustainable procurement guidelines; green operation guidelines.
- Establish innovative recycling companies, e.g., recycle soap and coffee cups.
- Design and support the implementation of creative approaches toward working with the local community to recycle/collect plastic and paper and develop environmental awareness.
- Set up a pilot/demonstration project on green hotel operations.
- Develop publicity for “Green guest experience in Hong Kong.”

Thus, these possibilities for collaboration are related to a number of future actions included in Fig. 1 that require innovative solutions to advance the greening of hotels. Although the bottom part of the framework presents “today’s” practices that exist in those hotels that took part in the study, some activities still present a challenge for hotels, and not all of them currently exist in all hotels. All interviewed hotels have been focusing on the bottom part of the framework, by looking at short-term solutions and existing services. However, suggestions proposed during interviews about making the hotel industry greener are included in the upper part of Fig. 1. They are explained in some detail below.

### **Growth Pathway and Trajectory**

**Recognition by the government of greening hotels:** award schemes or a charter scheme on the green practices of hotels will help hotels to devote more attention



to greening. Private companies, such as CLP, has an award program – CLP GREENPLUS – for the hotel sector that awards companies for excellence in smarter and greener energy use. The government can implement similar charter or award schemes to reward different aspects of greening, for example, the Charter on External Lighting whereby participating companies commit to a reduction in external lighting and in turn receive certificates and media coverage.

**Active hotel association for green education and training:** to serve as a platform for sharing best green practices, given its strong network, and to develop training for green practices, such as learning how to sort waste or organize a green banquet.

**Government to establish a green model hotel:** the creation of a green model hotel can certainly “create noise amongst peers,” and the model hotel could provide strong evidence to showcase the benefits of implementing green practices. This hotel can be established through collaboration between hotel and university/TVET and will require strong government support in order to explore and incorporate green practices. It will serve as a best practice model to demonstrate to peers that greening is a positive initiative and to show how it can help reduce costs.

**Develop a common evaluation system for green hotels:** an evaluation system related to the performance of different environment aspects of hotels, with ranking of well-performing hotels, can be a motivation for the industry to go green. As the evaluation system and ranking will be accessed by the public, hotels would be more willing to put effort into greening in order to maintain or improve their public image.

**Establish and market a Green TripAdvisor** platform, like TripAdvisor, on green hotels so guests can share their opinions. Comments from guests are powerful indicators of business performance, so they drive internal performance. Such a platform is a good way to encourage the industry to adopt green practices. However, the platform should be well advertised and very familiar to the public.

**Government to develop hotel-specific green standards and guidelines:** although the majority of hotels are trying to develop a green corporate culture, they all acknowledge this might take a long time, but *clear government regulations* on different aspects of hotel work can bring hotels to greener practices quicker, as all members of a hotel board would need to comply and a top-down model for greening would be reinforced. Any standards, such as energy and water use, level of recycling, and guidelines on procurement, will convince board members to comply and to fully implement green initiatives. Environmental regulation is the most effective means to green the industry and is commonly seen as the strongest and fastest motivator to achieve that goal. Other suggestions include the creation of a catalog of environmental products for the hotel industry that contains a wide range of environmentally friendly energy- and water-saving products.

The above measures can introduce new perspectives and knowledge from outside the hotel industry, so it can be open to new perspectives. These can help formulate a clear vision of a future growth path and trajectory.

## Innovation and Repositioning

### A More Systemic Approach for Analyzing and Planning at the Hotel and Department Levels

The development of a systematic approach for analyzing, planning, and implementing green initiatives in the hotel industry starts with the formation of a managerial-level green team that supervises the management of initiatives as well as ensuring all related departments and teams are fulfilling their roles and responsibilities with respect to greening. Hotels can adopt an environmental management system as an overall strategy for ensuring green initiatives become a part of regular policy and practice in the hotel. An environmental management system is a cycle of planning, implementing reviews, and improving greening processes and actions. It ensures those actions “meet its environmental obligations and continually improve its environmental performance” (BEC 2008). A widely adopted example is ISO 14001 which is an “international standard which specifies the requirements of an environment management system” (BEC 2008). An environmental management system, combined with innovation and the education of staff, will form a systemic approach to the greening of hotels.

A systematic approach for analyzing and planning at the hotel and department levels includes many elements. Those that were discussed in interviews are referred to below:

#### 1. Understanding the Process of Greening in Hotels

**Green self-assessment for a hotel:** Conduct a review on the environmental impacts of operations and the effectiveness of current green practices. In order to examine the environmental impacts, hotels need to identify the environmental aspects of different processes in their operations, e.g., use of water and electricity and the disposal of food and other waste. Identifying environmental impacts helps with planning and designing specific green initiatives. Current green practices should also be reviewed in order to measure their effectiveness and identify how they can be improved to achieve better environmental performance.

#### 2. Planning for Greening

**Innovation within the hotel:** Adopt innovative methods and clean technology to green hotel operations. For example, one of the interviewed hotels in Hong Kong pioneered their own aquaponics system, which is a closed-loop farming system that combines fish farming and herb growing. Another innovation that is more common in the overseas hotel industry and that has not yet been implemented in Hong Kong, includes, for example, using green products for hotel rooms and facilities and adopting new technology (e.g., waste disposal tracking technology, energy management system)

#### 3. Implementing the Greening Plan

**Enhancing green culture and applying innovation:** Cultivate awareness among all levels of staff to facilitate the smooth implementation of green initiatives. Environmental awareness, understanding of environmental issues, and a

receptive-to-change mind-set among staff are equally important for the greening of the industry. A top-down approach in the corporate culture for the adoption of green measures is essential if all staff are to be engaged, regardless of level, so they comply with new policies and practices related to greening. This can also create opportunities for bottom-up approaches for innovation. The development of green culture requires the development of green skills (see above and Pavlova 2018).

**Innovative training materials:** Consolidate current and newly introduced practices on greening by creating more training courses for green initiatives. Apply innovative approaches for the development of training materials to be used in hotels. For example, video resources can increase the flexibility and consistency of training and cut costs related to inviting in external trainers.

#### 4. Monitoring Processes and Assessing Results

An evaluation of green initiatives is necessary to ascertain their effectiveness. External professional consultancy services could conduct environmental audits and report on environmental performance. Alternatively, green teams could perform this evaluation internally.

The above measures will support the development of skills, competencies, and innovation for repositioning hotels for future growth. The implementation of the “innovation and repositioning” part of the framework identifies internal processes required for the greening of hotels.

Considering the complex and multidimensional nature of greening hotels, hotel managers need to oversee all four dimensions instead of focusing on just one or two. There is a need to address current issues of waste management, energy saving, and the increased environmental efficiency of day-to-day operations, but this should not distract attention from the reorientation of portfolios toward new technologies and practices, new partnerships, and skills development approaches within and outside the company. Addressing these multiple challenges related to all four dimensions can provide opportunities for business growth. Furthermore, the identified strategies and practices can improve the overall performance of hotels.

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## Conclusions

This chapter analyzed greening initiatives at the regional, government, and industry levels to understand the current and desirable role of partnerships for pushing the greening of economies to a new level. Intergovernmental collaboration between ASEAN countries that deal with environmental issues and countries’ initiatives illustrates the ways challenges have been addressed individually and through coordinated efforts. Policies adopted at the regional and state levels to tackle issues of greening have been designed to stimulate change in different economic sectors. Therefore, there is a need to emphasize the development of human resources strategies that support these initiatives and address the needs of a changing labor market. A number of guidelines and competency standards have been developed at

both ASEAN and country levels in the Asia-Pacific region as a basis for curriculum design in TVET where skills related to environmental protection are included.

At the industry level, greening measures are also adopted driven by CSR policies and targets to decrease the cost of running operations. However, the industry (and in this chapter the case of the Hong Kong hotel industry has been discussed) feels that more support from the government is required and that stronger partnerships with different stakeholders can significantly improve the greening of this industry.

Conceptualization of current and future actions for greening hotels through a shareholders' value framework enables a clarification of strategies required for improvement in a systematic manner as well as identifying ways in which partnerships between TVET and the hotel industry can contribute to innovations for greening. It is a useful tool that allows hotels to focus attention on current and future actions that can bring green development for a company. Although this set of actions has been formulated in the context of Hong Kong, they can provide useful guidelines for the hotel industry throughout the Asia-Pacific region.

In terms of required skills, a *change in the mind-set* of the public and employees has been identified as a basic requirement to achieve greening change in the hotel industry. Positive and strong attitudes toward environmental protection and individual standing are even more important than a particular set of skills. Therefore, generic green skills that facilitate the understanding of issues of green growth (Pavlova 2018) should be included in TVET and workplace training programs. In addition, for the hotel green teams, training in specific skills is required to facilitate technical innovation.

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**Part II**

**Skills for Sustainable Human Development**

***Lesley Powell***



# Transformative Learning in English Further Education 12

Vicky Duckworth and Rob Smith

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## Abstract

This chapter draws on the *Further Education in England: Transforming Lives & Communities* project, commissioned by UCU. This research project aims to understand and provide evidence of how the further education (FE) sector is vital in transforming lives and communities in twenty-first-century Britain. The research provides learners, teachers, family members, and their communities with the opportunity to tell their stories, linking the distinctness of FE to the impact it has on individuals, society, and the economy.

The research provides evidence of how further education offers a “differential space” (Lefebvre H 1991) that can subvert the prescriptive, linear spaces of compulsory education and lead to critical spaces for transformative learning. The study proceeds from an understanding that educational practices are positioned as ideologically imbued, driven, and shaped by policy. Indeed, the model of curriculum can determine whether education is an emancipatory or oppressive process.

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While productivist approaches to vocational education and training support and perpetuate ideologies that legitimate and authenticate prescribed knowledge, reproducing inequality and injustice through the practices employed (Ade-Ojo G, Duckworth V. 2016; Duckworth V, Smith R 2017b) transformative teaching and learning shifts to a more holistic and dynamic approach. It seeks engagement with learners through a purposeful acknowledgment of their cultural background and biography and nurtures critical insight into education as a socially situated process. Transformative teaching and learning is orientated to affirming agency and as such has a ripple effect that impacts on learners' families and their communities.

This chapter draws on a range of theoretical perspectives to provide an appropriate and illuminating framework to explore the themes around transformative teaching and learning that have emerged from the evidence. Among these, hope, space, egalitarianism, and symbolic violence feature strongly. Learners' experience of symbolic violence (Bourdieu and Passeron 2013; Duckworth V 2013) was a key focus of the analysis. This symbolic violence consists of labeling individuals, reifying social division and the current (dis)order, and stymying creativity through the erasure of critical insights. It seeks to locate "failure" within the individual as a determining and essentialist aspect of their identity thereby thwarting the development of empowering learner agency. Transformative learning spaces move beyond the symbolic and institutional violence that often shapes learners' understandings of themselves within the educational context and into a transformative critical space, restoring participants' hope and enabling them to transcend the internal and external influences and violence that have shaped their learning journey to date.

The chapter suggests that in challenging inequalities in learners' lives and communities, adult education and vocational education and training should reflect a transformative pedagogy, providing a curriculum that is culturally relevant, learner-driven, and socially empowering (Ade-Ojo and Duckworth 2016; Duckworth and Smith 2017a).

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**Keywords**

Transformative teaching and learning · Further education · Social justice

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**Introduction**

Nationally and internationally, globalization and technological change have intensified economic competition, motivating governments to increase national growth, productivity, efficiency, and innovation. The discourse that supports and underpins this competitive economic environment is driven by a neoliberal approach to learning societies which privileges individual over collective learning. As part of this, the focus of education according to neoliberal discourse (Ade-Ojo and Duckworth 2015, 2016) is to provide a flexible, adaptable, and skilled workforce to make countries competitive in the globalized economy. Thus, education is

positioned as a commodity that, within existing social conditions, is more accessible to some groups than others. As such, education can be seen to support and entrench existing social, economic, and social inequalities.

An overview of the political climate in England and recent key policies is helpful in contextualizing the study. Since the 1980s research and debates surrounding class can be seen as being side-lined in political discourse. Indeed, traditional notions of class loyalty and solidarity, in many ways, were torn apart under Thatcherism. In 1997 New Labour came to power. Under this government, neoliberal approaches dominated and the notion of a classless society was seen and heard in their rhetoric of meritocracy and equal opportunities (Petras 2000). Central to the neoliberal vision, the opening up of health, education, and other public services to competitive marketization was underpinned by a rhetoric that foregrounded choice as empowerment (Ball 1993). Under this premise, individualism and self-improvement were promoted as ideas – in an echo of the eugenicist views that epistemologically underpin the concept of IQ (Gould 1996) – that “talent” is based on inherent ability rather than originating in privilege. As a principal organizing feature of society, marketization positions choice centrally: indeed, in neoliberal ideology, the agency of the individual is reduced and confined to exercising choice. However, there is overwhelming evidence that in economically unequal societies, choice is monopolized by those with enough resources/capitals and those who are at a structural disadvantage (e.g., those lacking economic capital) have fewer or no choices at all (Gewirtz et al. 1995; Whitty et al. 1998; Lauder et al. 1999; Archer and Leathwood 2003; Reay 2004; Ball et al. 2000; Ball 2010; Duckworth 2013; Duckworth and Smith 2017a). Viewed as a competitive ladder of opportunities/choices, the education system in England positions VET as a route for learners adjudged not to be “academic” which in this case means learners who at 16 fail to achieve a national benchmark of attainment. As such, VET can be viewed as an educational trajectory that offers a low level of choice and agency.

Almost two decades ago, New Labour’s *The Learning Age* document supporting Britain’s drive for business and commerce noted that: “Learning will be the key to a strong economy and an inclusive society” (DfEE 1998: 3). Four years later, another key government policy document, *Success for All*, stated how the government’s goals should be “social inclusion and economic prosperity” (DfES 2002: 9) – this exemplified New Labour’s Third Way and its discursive attempt to connect market capitalism with a social justice agenda. A more recent report, this time from a conservative-led coalition government: *Fixing the foundations: boosting Britain’s productivity* (BIS 2015) illustrates the resilience of market rhetoric and its continued adherence to a view of education as, primarily, an aspect of human capital development.

*Over the last century, productivity growth has gone hand in hand with rising human capital, as more people have become educated, and to a higher level. However, the UK suffers from several weaknesses in its skills base that have contributed to its longstanding productivity gap. . . Results from the OECD show that England and Northern Ireland are in the bottom four countries for literacy and numeracy skills among 16–24 year olds. (BIS 2015: 23)*

This neoliberal imaginary, featuring a league table of national economies, provides the backdrop for recent educational policy in England. The recent relaunch of apprenticeships provides a good illustration of the impact of this. The government has redesigned and re-launched apprenticeships as the primary vehicle for bridging a perceived gap between education and work for a large section of the nation's young people. This latest version of apprenticeships signals a move away from previous approaches to VET that were designed for delivery by colleges and other further education providers. The new apprenticeships instead take a more work-based learning approach with employers very much "in the driving seat" (BIS 2015: 23–26) as regards content, design, and the focus on relevant skills.

Globalization, competition, and rapid progress of technology have also contributed to a shift in the nature and patterns of working life and employment. The current plans for the UK remain ambitious: in 2009, the UK Commission for Employment and Skills (UKCES) stated:

*It is our ambition to be one of the top countries in the world – for jobs, for productivity and for skills. A World Class economy, built on World Class skills, supporting World Class jobs and businesses. We should aim to be in the top quartile of OECD countries in all three – jobs, productivity and skills – by 2020. This means being in the top eight countries of the world. Our future prosperity depends ultimately on employment and productivity: how many people are in work and how productive they are when they are in work. Skills are essential to both. If we are to become World Class, we must raise our game to match the productivity, skills and jobs of the best. (UKCES 2009: 6)*

The passage above provides strong evidence of the "disenchantment of politics by economics" that Davies (2014) sees as a quintessential ideological achievement of neoliberalism. Ethical scruples are pushed aside and political considerations are neutralized by the common-sense assertion of the importance of government policy that focuses on the three hegemonic pillars of a "World Class economy": jobs, productivity, and skills. What is striking is that each of the terms in itself remains unexamined. For example, simply increasing the number of jobs available might hold little value if these jobs are low paid and do not connect with or rely on education and training (as is the case in England in 2017 see Thompson et al. 2016); meanwhile, productivity as a decontextualized and dehumanized economic term that is often used in comparing the UK to other nations (see OECD 2017) but whose exact meaning remains so obscure it has assumed almost metaphysical properties; finally, 'skills' appears to be a term which attempts to fix a generalized label onto a dynamic and shifting quality of human potential as defined (multifariously) by employers in a massively wide range of contexts.

The "knowledge economy" concept that emerged during the New Labour period of British politics (1997–2010) has to some extent been replaced by a renewed focus on "skills." "Skills" appears to be a term whose meaning is strongly influenced by conceptions of social class. When connected to educational discourse, it operationalizes education as a conveyor belt for the production of a flexible, adaptable, and skilled workforce to make countries competitive in the

globalized economy. Neoliberal policy rhetoric promotes an instrumental model in which “employability” in the labor market provides the key to social inclusion. “Employability” – currently a trending education policy term – is part of a simplistic and reductive formula that conceptually connects education and training to a “readiness to work” (Boden and Nedeva 2010: 49–50). Employability has acquired a central role in policy, strategy, and the student curriculum that blurs over the complexity of the relationship between vocational qualifications, learners’ intentions, destinations, and actual employment opportunities in the jobs market and ignores the broader debate around the different purposes of education (see, e.g., Biesta 2010). One aspect of the transforming lives project involved exploring the ways in which vocational education could offer transformative opportunities that moved beyond “productivist” notions of the education/work relationship (see Dean’s account below).

The notion of aspiration also appears as a subtheme in the policy discourse on choice. Aspiration, like talent and motivation, is usually thought of as being immanent in individuals: a characteristic that can be shaped by choice. The individual can choose to have aspirations and can choose what aspirations to have. As such, an absence of aspiration or limited aspirations are blameworthy attributes. From a neoliberal perspective, that conceptualization of aspiration ignores geographic constraints and the differing levels of capital accruing to different levels of the social strata that the marketized landscape offers to individuals; the same perspective sees aspirations as the responsibility of the individual, once more refusing to engage with the social factors and forces that may shape people’s ability to aspire and what those aspirations are.

Despite the dominance of the neoliberal skills discourse in policy, and the policy documents that position further education as a key part of a national skills-delivery mechanism, there has been a reduction in government funding for colleges in the last decade. For example, as part of the Coalition Government’s “austerity” measures, in the period 2009–2014, courses for adults lost around 35% of funding (UCU 2015). A redirection of finance towards Apprenticeships is taking place within a longstanding “bums on seats” funding environment (Smith 2007: 43) that has been heavily criticized for leading to “spoon-feeding,” “gaming,” and a narrowed curriculum (O’Leary and Smith 2012; Smith and O’Leary 2013; Wolf 2011).

This research provides evidence that despite the instrumentalization of the curriculum in further education colleges, transformative learning is still taking place. Recognizing the power of education, and the enactment of the curriculum, to reproduce rather than challenge social inequality, offers a frame for understanding learners’ narrative accounts of their educational and personal journey. The *Further Education: transforming lives and communities* (<http://transforminglives.web.ucu.org.uk/>) research project sought to unfold learners’ narratives, the overarching aim being to recognize and understand their narratives against the backdrop of wider socio/economic/political and historical contexts (Goodson and Sikes 2001; Goodson 1992; Duckworth 2013; Duckworth and Smith 2017a: 17). The research cuts across the grain of the skills policy discourse, providing a picture of stubborn seedlings taking root in very stony ground.

## Theoretical Connections: Freire, Bloch, Lefebvre, and Bourdieu

This research was informed by a standpoint that connects critical theory to education theory and, specifically, critical pedagogy (Brookfield 2000; Darder et al. 2009; Duckworth 2013). Critical pedagogy draws primarily on the work and writing of Paulo Freire whose seminal book *Pedagogy of the Oppressed* expressed the need for a radical change to the traditional “front-end loading” approach to teaching and learning that he characterized as a “banking system of education” (Freire 1996). Freire’s work, founded on his educational experiences with indigenous people in Brazil, is important as it takes social inequality as a given and articulates an emancipatory and consciousness-raising role for education in the light of a socially inequitable context.

The research project drew on Freire’s work and on the tradition of critical reflective practice (Brookfield 1995) which utilizes the interrelationship between past, present, and future. The rekindling of hope, the re-alignment of perspective (called “perspective transformation” by Mezirow 1990), and a subsequent resurgence of agency are all features of transformative learning. The project sought to gather learners’ narratives to illustrate how further education in England provides experiences of transformative learning. Freire (1996) argued that critical educational practice is not a specific methodology to be applied without insight but rather one that emerges when tutors can practice teaching from a critical perspective and have the time to reflect on their pedagogy. Critical pedagogy shifts away from teacher-directed, top-down, commonly imposed, and standardized assessments that prescribe the same for all students, regardless of their ability, values, ethnicity, history, their community requirements, or their specific contexts. Instead it takes an egalitarian approach, whereby there is a sharing of power between the teacher and the learner in learning, the curriculum, and its contents and methods.

Critical pedagogy resonated within the research as it provided an explanatory picture for teachers’ approaches as they strove to provide educational environments in which transformative teaching and learning could take place. This meant challenging the “abstract space” that further education has become. Policy discourse that uses the notion of a “sector” reifies a generalized perception that colleges are somehow interchangeable and that the diverse contexts in which colleges are situated can be ignored. In this way, further education space is “produced” as “dominated space” (Lefebvre 1991) to be manipulated in the service of the neoliberal aims of producing human capital for industry.

Critical pedagogy necessarily involves engaging fully with local context – while maintaining a wider perspective. It utilizes Freirean “culture circles” (Freire 1996) – discussion groups in which educators and learners come together in dialectic engagement for consciousness raising, liberation, empowerment, and transformation. Education for liberation provides a forum open to the empowerment of learners, teachers, and the community, while also providing opportunities for the development of those skills and competencies without which empowerment would be impossible. Such emancipatory practices encourage autonomy and critical thinking, opening up

spaces where learners and communities can ask questions, analyze, and subsequently work through meaningful strategies to enhance their situation.

The research identified how transformative learning is a product of critical pedagogy. A key aspect of transformative learning is its focus on learners developing a critique of hegemony and inequality. Freirean “conscientization” allows people to understand that their educational disadvantage is not of their own making, but often of social and cultural forces beyond their control. In this study, hope is an integral aspect of the transformative learning environment. Rather than simply being an articulation of a daydream, this hope is connected to the realignment of perspective that learners experience regarding their position within wider society and how their prior educational experiences may have been inflected by these structural forces. In this sense, the work of Ernst Bloch can be seen as useful in illuminating how hope is fundamental in settings in which transformative learning takes place:

*Desire, hope, anticipation, orientation towards the future: the central Blochian concepts all involve a potentially precarious relationship to the now.* (Ni Dhuill 2013: 157)

Bloch positions hope centrally as a key motive force in history through which the subject acts on reality. For him hope is “indestructibly grounded in the human drive for happiness and. . . has always been too clearly the motor of history” (Bloch 1986: 443). In terms of transformative vocational learning, the “now” is located in the classroom and is part of the “differential space” (Lefebvre 1991) offered in further education settings in which teachers help learners re-orientate themselves as active agents able to shape their own narratives rather than having (e.g., skills) narratives imposed on them. First in this comes an acknowledgment that learners’ educational histories may have damaged their hope; followed by an acknowledgment that a spark of hope remained – enough at least to encourage them to walk through the front door of a local college (or other institution) and back into a classroom. From there, supported within an affirmative learning environment, learners began a sometimes daunting but ultimately rewarding journey in which they (re)constructed a positive learning identity and reconnected this and educational experience to a personal future. This future sometimes took the form of a vocational course and sometimes the form of a job or specific career trajectory.

In this way, hope can be seen to connect past to present and then link both to a specific future through the enactment of renewed agency. Viewed through this lens, critical pedagogy becomes an articulation of Bloch’s theories as pedagogy that is fine-tuned as mediating action between learners and the future. Bloch’s work focuses on “the darkness of the lived moment” as containing within it the potential for positive transformation. Bloch’s theories reach beyond the entrepreneurial tropes of the neoliberal imaginary by extending and connecting the individual to the collective, not just in a primarily competitive relationship but in a relationship of solidarity and egalitarianism. Bloch’s resurrection of hope becomes necessary in a neo-liberal landscape in which alternatives are rubbished and ridiculed and while, despite the 2008/9 financial crisis, the Thatcherite dictum that *There Is No Alternative* continues to resound.

Lefebvre's triadic conceptualization of space as "conceived space," "perceived space," and "lived space" (Lefebvre 1991) provided an important final theoretical strand to make sense of the data. Conceived space here links to the abstract space of further education as reified by policymakers. Lefebvre sees abstract space as:

an apparent subject, an impersonal pseudo-subject. . . and – hidden within it, concealed by its illusory transparency – the real subject, namely state (political) power. . . (Here), lived experience is crushed, vanquished by what is 'conceived of'. (Lefebvre 1991: 49–51)

VET and further education can both be viewed as "abstract spaces" generalized, objectified, and instrumentalized by policy makers. Against this abstract space, in a striking echo of Bloch's potential contained in "the darkness of the lived moment," Lefebvre counterposes "differential space":

abstract space carries within itself the seeds of a new kind of space. I shall call that new space 'differential space', because, inasmuch as abstract space tends towards homogeneity, towards the elimination of existing differences or peculiarities, a new space cannot be born (produced) unless it accentuates differences. (Lefebvre 1991: 52)

In this way, Lefebvre theorizes the potential re-appropriation by ordinary people of abstract space. This theorization facilitates an understanding of how the version of further education envisaged in the neo-liberal imaginary of policy makers contains within it transformative learning environments.

The research focused on the learners and their educational journeys as experiential illustrations of the impact of social inequality and education's role in either reifying or challenging this. Bourdieu's concept of cultural capital was useful in exposing the transmission of wealth and power and incorporating ideas about how those in a position of power, who Puwar (2004) describes as "insiders," reproduce and maintain their domination. Bourdieu's fields of social, cultural, and economic power overlap and feed into each other, singly and together offering a valuable framework for understanding the historical formation and reproduction of the research group in this study. His concept of symbolic violence emerged as a powerful tool for explaining how transformative learning works often in contrast to earlier educational experiences.

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## Findings

Data from the project provided a range of evidence about the different constituents of transformative learning environments. One key element relates to the way in which the curriculum relates to the learners' biographies. For most learners, this was as simple as being accepted for who they were:

*My self-esteem and confidence wasn't what it was when I was eighteen. (Now) I'm comfortable in my own skin. And that's something to do with equality. And people at Northern*



*College accepting you for you. . . And just that right to speak without being interrupted. I found that, like, so powerful. And being really listened to as well.*

This theme of acceptance and affirmation was echoed by others, sometimes it was expressed in terms of the relationship that was formed with the college staff. Anita, a learner who went from dead-end jobs to a social work qualification, expressed this in these terms:

*My tutors are the ones that have got me here. They've got me this far. I don't know where I would have been without Judith and Margaret. . . They didn't push me, they encouraged me. They never once doubted me. They encouraged and they made me grow. Through that, I've been able to inspire my kids.*

Here another aspect of transformative learning is evident: that is the intergenerational ripple effect. Anita's renewed hope and agency has had the knock-on effect of providing an environment in which her children feel motivated and able to connect their educational achievements to their *becoming-biographies*. It is revealing to contrast this with the assumptions about learner agency within the neoliberal skills discourse. To return to the image used in the *Building the Foundations* policy document (BIS 2015):

*Professional and technical education provision. . . needs to be refocussed to deliver the higher level skills that employers need. Strong institutions are needed to support this ambition. . . . The government will. . . invite some colleges to become prestigious Institutes of Technology to deliver high-standard provision at levels 3, 4 and 5. . . Institutes of Technology will be sponsored by employers, registered with professional bodies and aligned with apprenticeship standards. The government will empower National Colleges, Catapults, and elite professional institutions to design each route, alongside employers and professional bodies. (BIS 2015: 25–26)*

This passage comes from a section of the document entitled *Putting employers in the driving seat*. The overview here is of policy that aims to change not just course content but also the structures and cultures of colleges better to meet employers' needs. Notable by its absence is any mention of learners' needs, hopes, or requirements. The inference here is that employers' needs are the priority and that the curriculum as it stands is failing to meet to them.

In curricular terms, this position is in direct opposition to the kind of differential space that characterizes the transformative teaching and learning environment. Transformative learning necessitates a curriculum in which the learner takes a central position, certainly at the start of a course and then, as autonomy and confidence grows, less pervasively. The research evidence on this is encapsulated well by one of the teacher participants. In one research conversation, Jez talked about his passion for teaching Level 1 and Level 2 Business students. The learning environment Jez sought to establish in the classroom reversed the low expectations that many of his students brought with them from their prior educational experiences. A principal technique Jez used was to foster autonomy. Interestingly, he uses the same metaphor as the *Building the Foundations* document.



*I don't see it as me and them. . . . We are all one. . . . we work together, so when they are driving their own bus, initially, I'm driving it. I'm showing them where the gear stick is, I'm showing them where the steering wheel is. But as their confidence builds, as they get more familiar with. . . the expectations. . . I place on them, they take over the reins, and they start driving the bus. So they dictate which way they want the course to go on, what units they want to do within the course. . . that's a huge step for some of the under-privileged learners that I come across – to be given that power.*

The egalitarian approach here is not about the teacher ceding authority in the classroom. But rather, in her/him using that authority to establish a particular environment in which a traditional uni-directional, transmission-orientated power dynamic is replaced by one which is more differentiated and collective and which requires learners to take on a role of responsibility in making decisions about the curriculum. Whether or not this might meet the “needs of employers” appears to be beside the point as this curriculum interweaves curriculum content with personal development. Jez was, however, convinced that without his approach, many of the learners would not have succeeded on the course to start with.

Another participant, Dean, offered an insight into how a transformative teaching and learning environment could meet an employer's needs while also acting as a catalyst for personal and professional development. In Dean's case, his employer liaised closely with the college to ensure a construction curriculum that was appropriate. But the employer relied absolutely on the expertise and the affirmative approaches adopted by the college teaching staff. For Dean then, attending college meant overcoming the significant barrier of a lack of self-confidence.

*Given the opportunity to further myself, that's a no brainer. But then coming to college, that first day, I was like: I'm not sure I can do this. . . . It's changed me. I can do things. I am capable. It's changed me and like things are possible. The first day I started I had no computer skills. . . . Now I feel like I've got a bit of respect. It's definitely life-changing. . . . Even with the kids, I went to parents' evening. . . . I ended up chatting (to the teacher) more about me than about (my daughter). . . . I've been promoted to be site manager. It's been an amazing turnaround.*

Simon, the managing director of a construction company and Dean's employer talked about the importance of “growing” his own talent and revealed a holistic approach to this kind of education that demonstrated a full commitment to his employees, many of whom he has seen flourish as a result of returning to study. Simon saw construction as a vocation and a career with opportunities for personal growth and the development of skills and knowledge.

*I've built a five year course – when people say an apprenticeship, (normally) it's two years. I've been absolutely saddened by the attitude of the industry where it is encouraged and rewarded to collect as many apprentices as you can, massive intake then after two years, you take an eighteen year old and you say: I'm sorry there's no future with us. . . . The driving force for us is, you pass and do your apprenticeship with us and you are guaranteed a career. That's part of the deal. . . you work hard for me, you work hard for the business and we will look after you and we will guarantee you a framework.*

Within Simon's contribution, there is an explicit criticism of other employers' existing attitudes to state-funded VET – an attitude that seems to exploit it as a form of state-subsidized labor that can be jettisoned once the funding is used up. It is possible that that is a default position for employers towards VET initiatives under existing marketized arrangements. Simon's approach is very different and, through the transformative experiences on offer at the college, seeks to connect the success of his company with the personal development of the employees. In his case, there is space alongside the learner and the teacher on the "driving seat" and his is an enabling rather than a dominant role.

Transformative pedagogies are a response and an antidote to the symbolic violence experienced by many learners in their compulsory education. The power of symbolic capital and what is valued and why in different fields offered an insightful avenue of enquiry into the experiences of the learners in this study. It allowed for a further understanding of the symbolic violence the learners were subjected to and its impact on their lives. Indeed, drawing on the learners' narratives, it was possible to identify features of symbolic violence that were embedded in their everyday life. This allowed for an exploration of the different forms of violence that can co-exist and indeed support one another, each interacting with and amplifying each other.

The relationship of symbolic violence to learning and the impact it had on participants' sense of themselves as effective and successful learners emerged strongly from the data. The symbolic violence that the learners had experienced was often hidden because it triggered feelings of shame in the individual. Adam provided a powerful example. Adam was a 16 year old who was excluded from his local school and explained how one reason for this was that he had anger management problems:

*In school I was getting angry quite a lot. I was punching walls... I used to think I was dumb all the time in school. I had no hopes at all...*

The knock-on effects for Adam's family and home life were significant. His mother described how she received phone calls every day and sometimes had to leave work in order to pick her son up from school. Adam's sense of being "dumb" and ignored was, in his mind, connected to teachers' labeling as coming from a particular estate with a "reputation": this created negative expectations that meant his identity as a learner was severely compromised:

*I was in a lesson and I was there with my hand up asking for help and there was another person with their hand up asking for help. I'm the naughty one and he was a good lad and I was quite naughty. So (the teacher) went straight to him and then another person put their hand up and then another person even though I had my hand up. And he kept going round and round until after nine people then he come to me. And that was why I was getting angry... Everyone just looks at you and they think Oh yeah... They judge a book by its cover and you shouldn't do that.*

In Adam's story symbolic violence is observed as an outcome of the way the teacher relates to and interacts with the learner. As with Anita – who talked about

being put “in a box” – symbolic violence takes the form of an ongoing assessment of “ability” that shapes social interactions between teacher and learner. At this point, it is necessary to revisit Bourdieu’s original conceptualization of symbolic violence.

Bourdieu and Passeron (2013: 3–68) write about the symbolic system that education draws on to inculcate and impose meanings on learners. They see education as imposing a standard culture whose values reflect the social structure and the power relations that underpin it. In other words, education perpetuates inequality and a stratification of individuals in a way that serves to replicate existing social inequalities.

Bourdieu and Passeron argue that there is a “twofold arbitrariness” in pedagogic action (ibid. 5–6). The first arbitrary is the power underpinning pedagogic authority; the second is the “cultural arbitrary” that the pedagogy seeks to impose. Pedagogic action can only take place with pedagogic authority which he sees as:

a power to exert symbolic violence which manifests itself in the form of a right to impose legitimately (which) reinforces the arbitrary power which establishes it and which it conceals. (Bourdieu and Passeron 2013: 13)

Pedagogic action for Bourdieu and Passeron constitutes symbolic violence because it entails the imposition of arbitrary meanings and cultural values on learners. But while Bourdieu and Passeron dismiss the possibility of a critical pedagogy which foregoes symbolic violence, seeing no pedagogic action as “culturally free” (ibid. 17), their model is very transmissive. It adopts a view of educational experiences as experiences in which learners are recipients rather than co-constructors of meaning. Bourdieu and Passeron see education as affirming the cultural background of some children while delegitimizing that of others. In this sense, pedagogic action imposes a recognition of the legitimacy of the dominant culture on members of dominated groups, classes, and individuals, but it also imposes on them by the inculcation of exclusion, a recognition of the illegitimacy of their own culture.

So how is it possible to theorize transformative teaching and learning in the light of Bourdieu and Passeron’s thinking on symbolic violence and the “twofold arbitrariness of pedagogic action”? One way is to see transformative teaching and learning environments as directly addressing the twofold arbitrariness of pedagogic action at the heart of the notion of symbolic violence. The first arbitrary: the power underpinning the pedagogic authority is addressed through the egalitarian relations that the teacher strives to establish. The second aspect: the “cultural arbitrary” that pedagogic action seeks to impose is addressed through the inclusion and (even) centrality of learners’ biographical experiences in the curriculum. Evidence from learners and teachers in the research repeatedly returns to these characteristics, and learners’ narratives in particular repeatedly contrast transformative learning environments with prior educational experiences in which they felt judged and labeled in a disabling way.

## Conclusions

The research findings underscore how the neo-liberal assumption that individuals are free to determine their own pathways is severely tested by evidence about the impact of structural and historical inequalities: gender, race, class, and other markers of identity that clearly shaped the learners' educational journeys. This research shows educational institutions are not neutral in the value placed on the accumulation of capital and its transmission, and teachers also play a role in this. One way in which this happens is that learners from disadvantaged backgrounds are not considered to have the right attributes to progress (Archer and Leathwood 2003; Burke 2006). Indeed, many of the participants in this study were faced with exclusion underlining how choice for the "excluded poor/dispossessed working class is, mostly, a myth" (Byrne 2005: 141).

However, this evidence of symbolic violence was in each case counterbalanced by the research participants' narratives of transformative learning in further education settings. It would be a gross generalization to claim that all or even most further education teachers typically "set right" the mistakes created by school teachers. But the instrumentalism of policy discourse about VET has not extinguished the potential for further education to offer transformative learning experiences. There is research evidence that suggests that teachers isolated within managerialist institutions "spoon-feed" learners to achieve targets and ensure the flow of funding (e.g., Literacy Study Group 2008). However, the project evidence so far indicates that transformative teaching and learning experiences do exist. The "second chance" educational opportunities offered by further education by definition follow on from prior educational experiences, and the evidence from this project is that further education can offer a "differential" rather than a "dominated" space. Despite the instrumentalism of the neoliberal skills discourse and the inhibiting effect that this has on teaching and learning in colleges, transformative learning still happens – though there is little detailed evidence about its extent.

A vital ingredient of the transformative learning environment is its orientation towards nurturing hope in learners. Hope and the idea that education might relate positively to one's agency, future life experience, and socio-economic position is undermined by symbolic violence as theorized by Bourdieu and Passeron. In Bloch's terms, transformative learning environments act on and catalyze learners' hope. They identify the points of entry and potential movement in learners' lives in the world, the "openness of the object-based background" within "the darkness of the Now," and help learners identify a way forward, the potential of an "outflow" (Bloch 1986: 289).

The project research uncovered the stories of learners who were able to change the way they interpreted their experience (Duckworth and Smith 2018) as a stage in the revitalization of their agency as learners; this then led to transformation. The learners' narratives revealed how making sense of their structural positioning as adult learners in a society based on inequality of opportunity and choice enabled them to challenge the prescriptions of symbolic violence and move their lives forward.

With the seeming demise of neoliberal policies and the gloomy prospects they offer: of ongoing austerity; of the never-ending spiral of increased productivity in a world of finite natural resources; of performativity as a mediation of this; of the obliteration of truth in the name of market expedience; and of the subjugation of human beings to economic ends; – in this context, what is needed is a shift in the understanding of policy makers away from the determinist and instrumental vision of education that objectifies learners in the service of the neoliberal project of despair. Instead, an acknowledgment of the importance of further education as a “differential space” for critical reflection, renewal, and hope is necessary. This would enable further education practitioners to move away from competence-based models and the spoon-feeding approach necessitated by current funding arrangements to holistic approaches (see Morrish et al. 2002; Feeley 2007) informed by dialogic care (Duckworth 2013, 2014) that can provide more of the transformative learning opportunities found in this research and for the resurrection of hope.

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# Analyzing PIAAC Through the Capability Approach

# 13

Aurora Lopez-Fogues and Rosario Scandurra

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## Abstract

The purpose of this chapter is to evidence the shortcomings of large-scale assessments and the new shift toward capability-oriented indicators. Focusing on the international data on adult skills (PIAAC) and its impact in forging VET (vocational education and training) policies, we assume that current VET systems are confronted with many challenges that arise from the interaction of two sources. On one hand, VET policy focuses mainly on employability which is insufficient to grasp wider benefits that education entails – as postulated by many

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educational (i.e., Nussbaum, *Creating capabilities: The human development approach*. Harvard University Press, Cambridge, MA, 2011; Boni and Walker, *Universities and global human development: Theoretical and empirical insights for social change*. Routledge, London, 2016) and a considerable smaller education and work scholars (i.e., McGrath and Powell, *Int J Educ Dev* 50:12–19, 2016; Egdell and McQuaid, *Soc Policy Adm* 50:1–18, 2016). On the other hand, the underpinnings of the objectives and designs of VET should adapt to the socioeconomic consequences of the Great Recession. The chapter focuses on the PIAAC and most concretely to the Spanish case as an example of how the Great Recession becomes an open license to fast- and short-term strategies that favors employment regardless of its quality and long-term consequences and values education and youth role in society in relation to their contribution to boost the economy. The chapter recognizes the urge for seeking fast solutions that shift the unemployment rates but alerts to the overlooked aspects with some of those measures in relation to VET. In fact, this chapter is a call to policy-makers and academics toward the importance of rethinking education on the basis of new information basis of judgment that are human-centered.

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**Keywords**

Skills · Capability Approach · OECD · Education · PIAAC · Spain

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## Introduction

The importance of international large-scale assessments for education policy and research has emerged in the last decades. Processes of international assessment are embedded in the broader context of the so-called globalization of educational data (Mundy et al. 2016), expressing the need of a numerical-based expertise. These have fostered comparative analysis and evaluation among countries and have been embraced by main international organizations. Large-scale international comparative surveys are designed to offer quantity-based measures that help policy to foster skills seeking to improve national evaluation. Broadly defined, those represent surveys of knowledge, skills, and behaviors that help to better understand how those are related to educational, economic, and social outcomes (Kirsch et al. 2013). There are different examples such as the OECD Survey of Adult Skills, Programme for International Student Assessment (PISA), the Progress in International Reading Literacy Study (PIRLS), or the Trends in International Mathematics and Science Study (TIMSS), among others. The Program for the International Assessment of Adult Competencies (PIAAC) is part of the OECD Survey of Adult Skills and is considered the largest and most innovative international assessment of adults' skills (Kirsch and Lennon 2017). This is the first international large-scale computer-based assessment of adult population skills in 33 countries. Moreover, PIAAC has large sample size and include three domains of adults' skills.

The conceptualization of each assessment and the decisions about which skills domains and which target group should be assessed are temporal and strategic.

Like all concepts in the social sciences, the act of constructing measures implies a selection of dimensions (in Ancient Greek *κατηγορία*) (in Latin “category”.) which should be operationalized and thus leads to a simplification of the object of study. This means a transformation of some qualities into a metric which is not just a technical process but an important feature of social life (Desrosières 2008; Hacking 1999). This process is generally called commensuration and has been largely examined by different historians, statisticians, sociologist, and philosophers (Espeland and Stevens 1998). However, the selection of what counts as relevant information and how the information is processed is a crucial topic that rarely has been noted in the educational large sets through a Capability Approach. A main point in Amartya Sen’s Capability Approach is the concept of informational basis of judgment (IBJ).

The informational basis of judgment identifies the information on which the judgment is directly dependent – and no less important – asserts that the truth or falsehood of any other type of information cannot directly influence the correctness of the judgment. The informational basis of judgment of justice thus determines the factual territory over which considerations of justice would directly apply. (Sen 1990: 111)

For instance, the skills domains that PIAAC assesses and identifies as competences are part of a non-deliberatively discussed, but unanimously taken for granted, as foundational for maintaining competitiveness in a global knowledge economy, increasing the flexibility and responsiveness of labor markets, stimulating workforce participation, and dealing with issues of population aging (Schleicher 2008). While its main focus is to collect information about skills, PIAAC also collects data on educational, socioeconomic background and demographic of the respondents, as well as information on their labor market situation and participation in both formal and informal training.

Having noted the strategic importance of large-scale assessments such as a PIAAC where foundational skills are assessed, the interest in using this particular one and taking Spain as country of reference is the following. The global economic crisis and its large impact beyond economic spheres have proven that there is no simple way of fixing problems through economic stimuli. Particularly, Spain is a paradigmatic example. It has been well reported how the implications of the 2008 global crisis in Spain have had negative effects on employment, social equity, labor conditions, and health. With indicators scoring among the highest of the EU in terms of corruption, youth unemployment, and early school leaving (OECD 2017), the country’s best bet has been to embrace the EU and OECD slogan of “more skills for better jobs” (OECD 2013a).

The unequal impact of the crisis that considerably affected the workers with lower skills (Felgueroso 2016) has increased the awareness for training needs. There is a hope that better skills can lead to improvements of Spain’s economy, and this brings back to the traditional equation of skills, jobs, and growth that the human capital advisors have been claiming for decades. In terms of education, it puts vocational education and training into a new light, while for the education policy agenda, it gives greater relevance to the outputs of large-scale and comparative analyses.

The revival of a longtime neglected path of education, VET, has been noted by the European Commission as well as by the Spanish legislative attempts to influence the economy through modifications of the educational system.

Member States and other stakeholders (have to) put into practice the reforms needed to exploit the potential of VET for growth [...] Skills are a key driver for growth, employment and competitiveness: they lay the foundation for productivity and innovation. (European Commission 2012: 1–4)

The main difference of the Spanish educational system with others lies in the particularly low number of students in VET. This inevitably affects the employability and competitiveness of our economy, limiting the life choices of many young people. (LOMCE 2013, sec. XIII)

In this quote, one can read how the concept of development, understood primarily in economic terms, is the main reason for fostering VET. Additionally, the particularity of Spain is that despite an estimated increase of 4 years of schooling in the period 1980–2010 (De la Fuente and Domenech 2014), and tripling the percentage of higher education graduates during this period (Felgueroso 2016), the share of participants in adult learning in Spain remains below the OECD average. Additionally, Spain has the third lowest average number of years of schooling in the OECD, just ahead of Portugal and Mexico (De la Fuente and Domenech 2014).

The challenge of this chapter is to use PIAAC, a large-scale assessment designed under a human capital framework, to explore the potentialities of it in another framework: the Capability Approach (CA). While data is increasingly being centralized in VET systems within the human capital framework, the CA offers a human-centered approach that shifts the focus of importance from economics to human development.

While vocational education and training is and needs to be linked to broader social functions, this chapter looks at the value of the skills beyond its direct economic return. To do that, the chapter departs from a large body of literature that reveals the benefits of the Capability Approach as far as it allows for a paradigm shift from a focus on economic growth and national income to a focus on human well-being (Robeyns 2005; Walker and Unterhalter 2007; Tikly and Barrett 2011). Concretely, the chapter sets on the emerging group of authors that recognize the importance of the Capability Approach for VET. As Powell and McGrath (2014) have argued, the value of a human-centered approach in the study of VET implies a shift from the “productivist” approaches that have traditionally dominated VET policy. McGrath (2012) on his research about VET argues about the urge of leaving aside income generation and economic growth indicators that see VET as a means to achieving those, for imagining VET through the capabilities lenses where the concept of development is broader and economic growth is seen as necessary but not as a unique paradigm. Powell (2013) in her review about the VET institutions asks the core question about how the informational sets to evaluate VET are chosen. Following that line of research, this chapter looks at the Spanish data of the Program of International Assessment of Adult Competencies (PIAAC) and poses questions

about how it will change if the capability lenses would have been included in the design of the PIAAC's survey.

Focusing on the Spanish case, and more concretely on the PIAAC indicators of political participation and social participation, this chapter expands classic VET and skills development evaluations. The analysis through a capability perspective aims to explore the relationships between unemployment and training participation and VET qualifications. It explores how having a VET qualification affects a broad range of issues such as income, political participation, and personal factors. The chapter uses seemingly unrelated regression methods to test for this set of effects and compares the data and results of Spain with the 16 OECD countries from which good quality data are available. By doing so, we intend to contribute to the use of comparative international data beyond a mere competitive scheme based on rankings and consider a plurality of VET outcomes. Therefore, we contribute to the design of a more effective and socially fairer educational policies. The chapter ends with a current picture and evaluation of the genuine opportunities that VET students in Spain have to contribute to the economy in terms of skills such as effective work, as well as to societal aspects by being a first-generation immigrant student, breaking gender work stereotypes, or being socially and politically active.

In conclusion, this chapter focuses on two questions:

- What does a capability perspective add to the design of PIAAC?
- What does PIAAC tell us about the implications of education in the building of a society?

The structure is as follows, the first section introduces the Capability Approach and its added value as a normative framework for a large-scale assessment. The second explains the selection of data and the methods used for the data analysis. The third presents the evidence using some concepts of the Capability Approach. Finally, a fourth section concludes with recommendations for further analysis.

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## **How Can the Capability Approach Contribute to the PIAAC?**

The CA, developed by Amartya Sen and Martha Nussbaum, assesses well-being in terms of people's ability to function and whether they are provided with the real opportunities – the capabilities – to choose the lives they have reason to value. This implies that an evaluation cannot be done merely in terms of outcomes, understood as the beings and doings of a person – such as working, studying, or being politically active. But rather, such evaluation will require looking at the capability space. The vector of capabilities or capability space are the combinations of valuable outcomes (*functionings*) that a person holds the possibility of achieving (Sen 1993: 31) – such as having the conditions for freedom of speech, having the conditions to attend education, having the opportunity for accessing a decent job, etc. So, capabilities are opportunities or freedoms to achieve what an individual reflectively considers

valuable. Capabilities focuses on “what people are actually able to do and be and contrasts with other approaches to evaluation in which the emphasis tends to be on what people possess or do not possess, have done, or how they feel” (Brunner and Watson 2015: 5). As expressed by Powell and McGrath (2014), the Capability Approach provides a normative framework alternate to the output and efficiency measures usually centered on *functionings* (be these resources, qualifications, or abilities) as conventional VET evaluations do. The authors argue that these measures (2014: 133) do “not give us enough information on individual well-being as individuals might achieve the same functioning (for example a FET qualification) but have significantly different abilities to convert these into a functioning (for example employment).”

The most interesting aspect of this approach is putting to the forefront the individual and her/his desires alongside the context that shape the previous ones. The CA is a normative framework that differs from human capital approaches that measure skills or personal attributes without further digging into the aspect of context or personal diversity as pillar of social justice. The social justice principle that guides any CA design is equality of capabilities.

The information sets that guide current educational assessment are part of political strategies targeting at unemployment, poverty alleviation, and economic growth (McGrath 2012). This entails that the results obtained from a large-scale assessment as PIAAC will target education reforms for pursuing better results which are believed to lead to economic growth. Within the remits of this chapter, the CA aims to move from a human capital-centered approach to a human-centered one. As such, this chapter analyzes the PIAAC data to establish to what extent a person is able to construct his or her “capability space” and in what terms have his or her individual and social context influenced the preferences and choices taken. As noted by Unterhalter (2017: 2) “the precision claimed for measurement may actually obscure the importance of what is not measured. There is thus a tension between what is easily measurable, but may not be significant, and what is of major importance, but cannot be measured.” This requires a broader informational base than traditional performance measurements, which are solely based on level of education, background, or economic context, and we are aware of the limitation that a quantitative analysis has in that aspect.

Difficulties in engaging in indicators have raised a number of discussions about the processes and selection of variables and information (Fukuda-Parr et al. 2014). As Unterhalter (2017) in her article about the limits of what is measurable points out, the discussions about measurement in education “have become part of a discourse of regulation linked to new public management, rather than a process to enhance democratic participation and review of decision-making” (Unterhalter 2017: 4).

In spite of this deficiency, the benefits of using the CA are present as it explores and links arguments of skills with issues of equity and sustainable development. The CA helps to formulate important questions at the individual level, in terms of how preferences are being formed, as well as at the policy level, in terms of what kind of development we are seeking to foster. Reformulating Sen’s famous question addressed in his Tanner Lecture of 1979 “Equality of What?” (1982), the role that

the CA can play in this chapter as rethinking PIAAC is to ask “skills for what?” and at the same time present a social justice basis in which a developed society as one where individuals enjoy a broad space of capabilities as an alternative to the current human capital discourse that has inspired PIAAC.

There is a general consensus that without the right skills, people are left at the margins of society, technological progress does not translate into economic growth, and countries cannot compete globally (Barro and Sala-i-Martin 1995; Hanushek and Wößmann 2008). Regardless, a society is composed of citizens which are not merely workers producing economic outputs. CA provides a people-centered approach which considers the capability/opportunity space of everyone in relation to personal, social, and environmental aspects. Understanding sustainable development as something more holistic than economic growth, the CA stresses the importance of freedom of choice and the need to cultivate an active society that reassures the opportunity of each member to lead a meaningful life. From this, besides the concept of functioning and capability, two other concepts are key: the conversion factors and the aspect of agency.

The concept of conversion factors are aspects that enable, influence, and constrain the beings and doings of an individual (Robeyns 2003). Sen (2009: 255) identifies four factors that affect one’s choices and conversion of capabilities: personal heterogeneities (age, gender, disability, proneness to illness), physical environment (environmental conditions, including climatic circumstances, such as temperature ranges, or flooding), social climate (social conditions, public healthcare, community resources, policies and practices, public educational arrangements), and relational perspectives (patterns of behavior in a community that can affect one’s choices and capabilities). Everyone may vary greatly in their needs for resources or abilities to achieve their valued capabilities (Nussbaum 2000: 68). Therefore, the approach takes each human being as an end and rests on the idea of ethical individualism, which takes every individual as a subject of their own lives and “primary objects of moral concern” (Brighouse and Swift 2003: 258).

Agency is a key concept that intertwines with the aspect of freedom as well as with other capabilities such as the capability for voice (Bonvin 2012). As Sen remarks, people need to be understood as “active participants in change rather than passive and docile recipients of instruction or of dispensed assistance” (1999: 281). Thus, an agent is an individual who is willing to have a shared responsibility for building a process that ensures everyone’s capabilities to decide, to self-determine, and to bring about change in the world (Crocker 2008). Concretely, capabilities can be generated through individual efforts and collective processes, and, similarly, agency can be individual as well as collective (Ibrahim 2011). Here, the collective agency means individuals responsible for the development and empowerment of their own community and country (Crocker 2008). These two aspects of conversion factors as well as collective agency force us to see the individual with the duty of being a builder of the context where he or she belongs.

Consequently, the four concepts outlined briefly above are capability, as space of valuable opportunities; *functionings*, as valuable outcomes; conversion factors, as individual, social, and environmental conditions that influence in the ability of an

individual to transform resources into valuable outcomes; and agent, as someone who is leading change. These require an intersectional data approach which goes beyond the analysis of numeracy or literacy skills. Henceforth, the contribution of the CA is to expose the need to have a social justice framework since the moment of the design of the survey. It is relevant to know what the skills of people are but to act upon those one needs to consider data outcomes as the result of choices and then investigate the relation of those with their aspirations and contexts.

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## What Is PIAAC? Data, Methods, and Shortcomings

PIAAC is a large-scale assessment that seeks to test adult skills. The antecedents of this program were the International Adult Literacy Survey (IALS) (1994–1998) and the Adult Literacy and Life Skills Survey (ALL) (2004–2006). Global assessments of this kind are becoming more and more influential in international policy-making and are an important tool in the reform of education and training systems (Grek 2010; Meyer and Benavot 2013). Moreover, they are rapidly establishing themselves as a tool of governance that can influence the decisions of the actors involved (Desrosières 2002; Espeland and Sauder 2007; Grek 2009). In this chapter, we consider PIAAC as a source of valuable information for comparative analyses but do not repeat discussions concerning the reliability of adult skills measurement (Further information on measurement can be found in Gebhardt and Adams (2007), Goldstein (2004), and Svend (2011).). For a broader discussion on this topic, we refer the reader to Goldstein (2015) and OECD (2013b).

For the purposes of this analysis, we limited the sample to the population aged between 25 and 55 years. We restricted the analysis, therefore, to central age groups, to have the best estimate of the social outcomes of the active population. Older cohorts were excluded because they are likely to have experienced very different socialization process through the school system and they are likely to be out of the labor market. Younger cohorts were excluded because they are still attaining their highest education level. A robustness analysis confirmed the relevance of this sample restriction (In the Annex, “[Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 25–65 years](#)” and “[Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 15–65 years](#)” show the results for the population between 15–65 years and 25–65 years. The results are very similar except the effect of age is lower, and it has a less accentuated logarithm shape when younger and older cohorts are included.). We use the first wave of PIAAC to ensure comparability between Spain and the rest of the OECD. In fact, the field work of the two waves of PIAAC was made between 2012 and 2014; this has an effect in terms of labor market participation and other aspects of the interviewees. Australia was excluded from the analysis owing to the public unavailability of data, while data on Russia were omitted for reasons of data quality and the absence of certain crucial variables used in the model.

The final analytic sample consisted of approximately 75,000 individuals with full availability of data. Discrepancy between the sample sizes is given by the different



number of missing values among the dependent variables. Political efficacy was the dependent variable with higher missing values which account for 1.8% of OECD and Spain samples. The objective of the model was to disentangle the effect of education, parental background, migration status, labor market status, and adult skills on different social goals or outcomes.

We use ordinary least squares regressions, although given the nature of the outcome variables, ordered logistic regression could be considered more appropriate. However, we prefer OLS vs. ordered logistic regression for two reasons. First, the former regression model needs more sample size compared to OLS; and, second, there were small cells between categorical predictors and dependent variables which represent a shortcoming in using such method. Finally, by comparing the results of one set of predicted values versus another, we obtained similar results using OLS and ordered logistic.

Following the PIAAC framework, foundational skills assessed in this survey are a core set that is assumed to be essential for “an individual to function in the knowledge economy” leaving aside concepts such aspirations, choices, or agency that we noted above as central from a capability perspective.

PIAAC is presented as having the major advantage of gathering the key skills to “function in society, to achieve one’s goals and to develop one’s knowledge and potential” (OECD 2012). Moreover, these skills are considered relevant for acquiring higher-order skills and to facilitate the retraining of individuals. In keeping with this objective, PIAAC adopts a “competence” approach – where competence is defined as the ability to apply knowledge and skills across environments and in interactive contexts that involve understanding, reflection, and judgment (OECD 2012) – and explores whether people are able to implement their knowledge in multiple contexts.

The skills domains assessed in PIAAC are literacy, numeracy, and problem-solving in technology-rich environments. The first two domains are evaluated using items distributed across three main task characteristics (medium, context, and aspect) and differentiated between paper and computer-based questions. PIAAC uses item-response techniques (IRT) to generate ten plausible values of each domain examined. The resulting scores do not allow an interpretation at an individual level, because the derived scores are not the individual results of the tests. The proxies of adult skills are strongly correlated, with an individual-level correlation between numeracy and literacy (problem-solving) of 0.85 (0.76). In the data analysis, we use literacy and numeracy, because the domain of problem-solving was not implemented in all the countries in PIAAC.

Additionally, PIAAC offers data on a few items of social outcomes. In the models presented in this chapter, we have included three out of the four existing proxies. Apart from the items included in our models, political efficacy, social trust, and cultural participation, there is also general health status. These are subjective self-reported measures coded in a 5-point Likert scale with positive cardinality. The items collect information whether:

- The respondents believe in having no influence on government (political efficacy)
- Whether they trust few people (social trust)



- Or their involvement in cultural and voluntary work for nonprofit organization (cultural participation)

Almost six out of ten respondents reported of not being involved in cultural activity for nonprofit organization (see “[Descriptive Statistics of the Social Outcomes](#)”). While those are not considered as skills or competences per se, they are presented in PIAAC as relevant for enhancing society’s well-being. Following the human capital logic that more education leads to higher returns (Hanushek et al. 2015), PIAAC expands classic market outcomes such as productivity or earnings to nonmarket outcomes such as civic participation or health.

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## **An Analysis Using the Capability Approach**

The Capability Approach, as a response to the limitations of assessments that measure education in an uncritical, linear (cause-consequence) and homogenous perspective, has been extensively discussed and used in the literature (Walker and Unterhalter 2007). Using CA, this chapter extends the evidence by inquiring other social aspects and that are strictly linked with skills. The human capital approach lacks attention to other social goals and attaches a mere instrumental value of education measured on the base of individual and collective advantages such as employment or income returns (Oreopoulos and Salvanes 2011). However, its logic still defines evaluation instruments and, hence, policies (or vice versa). The main findings on the relationship between education in its different forms (i.e., years of attainment, skills, and adult lifelong learning) and the four different social outcomes measured in PIAAC are “that for EU average estimations proficiency in literacy, numeracy and problem-solving in technology-rich environments and participation in adult lifelong learning programs are positively and significantly associated with the probability of reporting high social trust, believed to have some impact on the political process, participating in volunteer activities and reporting good health” (EC 2014: 8). Hence, more years of education have a positive impact as citizens become more politically or socially engaged and healthier. While those results can be taken as good news, the data about the impact on a plurality of social goals and their distribution is limited. Thus, in terms of analyzing issues of equity and social justice, a study on adults’ skills should include questions addressing aspects concerning choices (not only nonmarket outcomes). Consequently, attending to the limitations of the data available, the capability lenses do not take numeracy and literacy as a simple limited outcome, but look to other social goals of adult skills.

Despite the constraints of analyzing a survey, conceived under a given framework, this chapter analyzes three social goals reported in PIAAC of adult skills using capability lenses (the same model is reported in the annex in “[Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 25–65 years](#)” and “[Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 15–65 years](#)” for different age-cohorts. For a matter of readability, throughout the text, we present the results comparing Spain with the OECD (Spain excluded).

All the tables are available upon request to the authors.). Table 1 summarizes the results: the coefficients refer to Spain, and a dummy variable is included allowing comparing with the OECD average (Spain excluded). The size of the estimated OEDCs indicates the extent of divergence in the outcome variables between OECD and Spain.

**Table 1** Determinants of social goals. Reference is Spain. PIAAC 2012, Population aged 25–55 years

	(1)	(2)	(3)	(4)	(5)
Variables	Social trust	Political efficacy	Cultural engagement	Numeracy	Literacy
Age	−0.0795** (0.0376)	−0.0270 (0.0391)	0.0993** (0.0385)	2.667 (1.968)	2.030 (1.802)
Age <sup>2</sup>	0.00889*** (0.00335)	0.00442 (0.00353)	−0.00453 (0.00348)	−0.369** (0.175)	−0.367** (0.158)
Female	0.0758*** (0.0185)	0.0649*** (0.0234)	0.0629*** (0.0173)	−14.53*** (0.841)	−3.795*** (0.770)
Immigrant	0.0608* (0.0331)	−0.0405 (0.0301)	−0.0165 (0.0265)	−26.85*** (1.795)	−27.81*** (1.508)
Hi. Parental Ed.	0.147*** (0.0161)	0.0940*** (0.0135)	0.130*** (0.0128)	8.589*** (0.689)	9.235*** (0.605)
Ed. Upp. Sec. Gen	0.128*** (0.0418)	0.0484* (0.0275)	0.0124 (0.0301)	8.936*** (1.490)	10.97*** (1.334)
Ed. Upp. Sec. Voc	−0.0681* (0.0350)	−0.0193 (0.0251)	0.0291 (0.0295)	16.78*** (1.343)	10.75*** (1.224)
Ed. tertiary	0.228*** (0.0353)	0.223*** (0.0302)	0.112*** (0.0342)	36.65*** (1.417)	32.22*** (1.232)
Numeracy	0.00186*** (0.000256)	0.00166*** (0.000253)	0.00101*** (0.000217)		
Not employed	0.00188 (0.0326)	−0.0326 (0.0275)	−0.0119 (0.0346)	−8.849*** (1.171)	−4.669*** (1.082)
Skilled	0.276*** (0.0407)	0.169*** (0.0476)	0.199*** (0.0413)	33.02*** (1.672)	28.32*** (1.574)
White collar	0.130*** (0.0447)	0.0318 (0.0359)	0.0998** (0.0390)	20.61*** (1.660)	18.09*** (1.581)
Blue collar	0.0195 (0.0448)	0.00782 (0.0393)	0.0281 (0.0390)	11.61*** (1.934)	8.105*** (1.712)
OECD	0.330*** (0.0281)	−0.134*** (0.0284)	0.232*** (0.0215)	3.158*** (1.068)	7.820*** (1.020)
Constant	1.486*** (0.127)	1.570*** (0.118)	0.353*** (0.120)	217.4*** (5.614)	223.0*** (5.280)
R <sup>2</sup>	0.0684	0.0493	0.0467	0.306	0.317
Observations	74,991	75,221	75,308	75,336	75,336

Standard errors in parentheses

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

As pointed out by different national and international reports, Spain scores below the OECD average in numeracy and literacy results (MEDC 2013). As the literature has pointed out, in Spain there is a high share of lower educated adults particularly in older cohorts, and this correlates with lower level of skills (Gustafsson 2016). Nevertheless, younger cohorts also report lower level of skills compared to OECD members (Valiente and Scandurra 2015). In Spain, poor parental education background and lower access to education qualification play an important role in adults' skills formation and labor market access (Calero and Choi 2017). These are similar results to Italy another South-European country assessed in PIAAC. Nevertheless, postsecondary education access in younger cohorts in Spain is similar to that of OECD partners.

Looking at the individual conversion factors such as age, gender, and immigrant status, the results show some interesting insights. Older cohorts tend to have lower social trust but higher cultural engagement. Gender differences are presented, while women have lower level of skills, they have higher level of social trust, political efficacy, and cultural engagement. The results show that women, in the same circumstances as men, perceive higher social trust and belief in political efficacy and cultural engagement than men. There was insufficient information about why women scored higher in these areas, therefore it is not possible to conclude that the difference is due to higher education attainment of women in Spain in the considered age group (as the human capital logic tells us) or if it is the result of lower expectations and hence adapted preferences.

Other adscriptive conditions, such as being a migrant, have negative associations with numeracy and literacy (Isphording 2014; OECD 2000), although no significant difference is shown in terms of social outcomes. Important differences are presented in terms of parental education, as individuals with a poor educational background tend to have lower level in all outcome variables considered. This is particularly interesting considering that parental background is recalled from the time respondents were 15, showing long-term effects after 10–40 years. Parental education is one of the most important drivers in the acquisition of numeracy and literacy, and it has a strong association with individual education attainment in all OECD countries in the PIAAC study (Scandurra and Calero 2017).

As higher education attainment is associated with higher levels of social outcomes, having a tertiary degree between 0.112 and 0.228 in the social outcomes assessed in PIAAC. However, breaking that logic again, the attainment of a vocational education and training has a nonsignificant effect on social outcomes. While the attainment of VET has a positive effect ranging between 10.7 and 16.8 points advantage, respectively, in literacy and numeracy, however its educational purpose is requires a critique. This leads to questioning the type of skills being fostered in VET and broader social goals connected to such types of education. In every social goal assessed in PIAAC, there are big differences in terms of educational attainment. This means that educational attainment is highly correlated with adult skills and social outcomes. Compared to a lower secondary education, having attained tertiary education entails approximately 0.2 standard deviations for social trust and political efficacy and 0.11 for cultural engagement. Similar effects are reported when

comparing employed versus unemployed population or skilled versus elementary jobs. These differences are large and statistically significant. The statistical fit of the model (R-squared) is low for the three outcome variables social trust, political efficacy, and cultural engagement, accounting between 5% and 7% variation of those items.

Other social factors impede the consecution of similar outcomes based on gender, migration, and parental background. This difference might also relate to social, economic, and cultural cleavage that the education and training system partially fails to reduce. Crocker (2008) highlights that for a well-functioning society, “individuals and collectives (need to) have the freedom to make choices for themselves” (p. 163). Thus, these aspects should be present in the survey for a deeper analysis of adult skills formation and their social goals to help drawing policy measures and assessing the aspect of choice and individual preferences formation.

A relevant point to recall for interpreting the data is the period of data collection of PIAAC. The chapter uses first wave PIAAC data, which were collected in 2012. Therefore, it compares 16 of the OECD countries that participated in PIAAC within the same wave. We excluded countries of the second wave, for the time lag between the survey waves. The period of the assessment is very relevant because it was when the economic crisis was at its most harsh, and this had implications in terms of labor market participation and a plurality of social goals. Specifically, for Spain, during this period job losses were concentrated in low-educated low-skills workers, which before the Great Recession were attracted by a booming labor market particularly rich in low-skills occupation (e.g., real-estate; construction). This has implied a high rate of early school leavers and lower participation in VET students. (According to the data of the Ministry of Education the number of enrolments in VET in Spain has increased around by 40% since the 2009–2010 school year. Further information can be found at the Ministry web: <https://www.mecd.gob.es/dms/mecd/servicios-al-ciudadano-mecd/estadisticas/educacion/no-universitaria/alumnado/FPI/Nota-14-15.pdf>.) Those low-educated workers were the first to lose their job and found it increasingly difficult to get back into employment as the economic crisis affected them the hardest the labor market. At the same time, different political events took place, as the political 15 M movement in Spain spread a wave of pacific protests in the biggest Spanish cities. In this period, Spain experienced a dramatic economic downturn which is persisting as the labor market is relentlessly recovering the pre-Great Recession level. Overall, this has generated a human toll, as Stiglitz (2008) put it, which Spanish population is still paying nowadays.

Additionally, this period was a period of social change and increasing political involvement, with strong political discontent and mass protests. Some examples of this are the civil movements such as *Los Indignados* (the outraged) along with the *Plataforma de Afectados por las Hipotecas* (PAH). (This is a civic and social movement which defended at-risk or evicted people and support people who had financial difficulties to pay their mortgage.) Those were born as organized forms of social and economic discontent during the Great Recession. Their support was intense and, although it is hard to come with estimates of such support, a fifth of

Spanish population (seven million) participated in some way, and it had an approval of four out of five of the population (Barnett 2011). These expressed the level of mass protest of the Spaniards against the society they were living in. The demand for another type of society, where people could be heard, can be seen, using Bonvin (2012), as an expression of their suppressed capability of voicing or demanding fair opportunities, spaces, and outcomes.

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## Some Conclusions and Further Thoughts

Capabilities has been applied internationally to elaborate policy recommendations (Bonvin and Farvaque 2004) and even to conceptualize indicators (the Human Development Index). It is clear from the literature that there is a growing interest in operationalizing the Capability Approach but also that at the policy level, the paradigms have a slower path for being changed. This chapter did not aim to be a prescription on how to employ capabilities for large-scale assessment surveys. However, it tried to present its basic features as well as potential contributions for the design as well as analysis of measurement surveys such as PIAAC.

The use of the Spanish case helps to illustrate how the human capital paradigm falls short of assessing the drivers and the outcomes of skills in a much broader extent. The Capability Approach offers a normative framework that puts the people at the center and shifts from economic outputs to human value ones. In the analysis, we have seen the limitations to apply the Capability Approach to a survey that has been done under a different framework due to the lack of information on some core aspects that the CA requires in terms of outcomes. The focus on the processes seeks for further methods to collect data that enable to collect individual plans to lead a valuable life. This implies to change the informational basis of judgment and take people as ends. In research, it is a change from objects to subjects of the study.

The consequences of applying a human-centered approach in the design of PIAAC are not necessarily focused on the type of skills assessed, but rather on the reason for choosing it. An adult skills assessment with a CA framework could provide a new Informational Basis of Judgment which still interrogate what skills are being acquired and also would seek to identify the variables that influenced the individual ability to transform resources into choices (conversion factors), the array of valuable options at hand (the capability space), the autonomy to lead a decision (agency), and the value that the individual gives to the final outcome (functioning). If these key aspects would be incorporated into an adult skills study, its potential will be far richer providing additional and informative tools, switching its practical use from a country comparison on education and labor skills to a tool that present and underline the different processes of skills formation. This could be broader educational debates by mobilizing and articulating all public policy spheres.

## Appendix

### Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 25–65 years

	(1)	(2)	(3)	(4)	(5)
Variables	Social trust	Political efficacy	Cultural engagement	Numeracy	Literacy
Age	0.00301 (0.0231)	−0.00623 (0.0200)	0.0717*** (0.0205)	1.346 (1.091)	0.437 (1.035)
Age <sup>2</sup>	0.000976 (0.00173)	0.00237 (0.00153)	−0.00196 (0.00165)	−0.247*** (0.0820)	−0.223*** (0.0773)
Female	0.0722*** (0.0178)	0.0691*** (0.0207)	0.0456*** (0.0166)	−14.51*** (0.720)	−3.361*** (0.673)
Immigrant	0.0491* (0.0287)	−0.0523* (0.0270)	−0.0260 (0.0238)	−26.77*** (1.738)	−27.47*** (1.450)
Hi. Parental Ed.	0.148*** (0.0147)	0.0914*** (0.0135)	0.126*** (0.0114)	8.421*** (0.594)	9.108*** (0.507)
Ed. Upp. Sec. Gen	0.115*** (0.0373)	0.0344 (0.0239)	0.0376 (0.0268)	9.929*** (1.309)	11.52*** (1.162)
Ed. Upp. Sec. Voc	−0.0611** (0.0298)	−0.0252 (0.0205)	0.0343 (0.0251)	17.13*** (1.141)	10.81*** (1.028)
Ed. tertiary	0.241*** (0.0303)	0.233*** (0.0265)	0.152*** (0.0301)	36.43*** (1.173)	31.92*** (1.066)
Numeracy	0.00161*** (0.000231)	0.00155*** (0.000233)	0.00106*** (0.000184)		
Not employed	−0.0446 (0.0276)	−0.0449** (0.0208)	−0.0196 (0.0281)	−7.647*** (0.991)	−4.727*** (0.998)
Skilled	0.267*** (0.0375)	0.188*** (0.0379)	0.220*** (0.0381)	32.70*** (1.375)	27.74*** (1.245)
White collar	0.134*** (0.0413)	0.0465 (0.0307)	0.120*** (0.0344)	20.06*** (1.406)	17.22*** (1.230)
Blue collar	0.00666 (0.0426)	0.00973 (0.0328)	0.0370 (0.0364)	10.98*** (1.566)	7.903*** (1.329)
OECD	0.309*** (0.0272)	−0.133*** (0.0249)	0.235*** (0.0206)	5.696*** (1.041)	10.10*** (0.992)
Constant	1.387*** (0.102)	1.542*** (0.0927)	0.383*** (0.0811)	218.7*** (3.898)	225.4*** (3.727)
R <sup>2</sup>	0.0665	0.0518	0.0515	0.307	0.319
Observations	97,382	97,670	97,788	97,820	97,820

Standard errors in parentheses

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

### Determinants of Social Goals. Reference Is Spain. PIAAC 2012, Population Aged 15–65 years

	(1)	(2)	(3)	(4)	(5)
Variables	Social trust	Political efficacy	Cultural engagement	Numeracy	Literacy
Age	−0.0587*** (0.0166)	−0.0426*** (0.0133)	−0.0871*** (0.0153)	0.174 (0.753)	−1.038 (0.725)
Age <sup>2</sup>	0.00533*** (0.00134)	0.00504*** (0.00114)	0.00960*** (0.00130)	−0.163*** (0.0609)	−0.118** (0.0588)
Female	0.0607*** (0.0176)	0.0420** (0.0194)	0.0285* (0.0168)	−14.27*** (0.743)	−3.430*** (0.690)
Immigrant	0.0720*** (0.0244)	−0.0673*** (0.0258)	−0.00874 (0.0231)	−25.29*** (1.719)	−25.75*** (1.421)
Hi. Parental Ed.	0.146*** (0.0138)	0.0978*** (0.0129)	0.142*** (0.0114)	9.240*** (0.582)	9.626*** (0.498)
Ed. Upp. Sec. Gen	0.107*** (0.0343)	0.0364* (0.0216)	0.00575 (0.0234)	12.28*** (1.202)	13.06*** (1.093)
Ed. Upp. Sec. Voc	−0.0866*** (0.0286)	−0.0415** (0.0199)	−0.0236 (0.0238)	16.79*** (1.096)	10.35*** (1.003)
Ed. tertiary	0.212*** (0.0274)	0.224*** (0.0230)	0.104*** (0.0261)	36.29*** (1.102)	31.71*** (0.960)
Numeracy	0.00178*** (0.000211)	0.00165*** (0.000219)	0.00107*** (0.000183)		
Not employed	−0.0158 (0.0224)	−0.0379** (0.0184)	−0.00837 (0.0225)	−5.043*** (0.855)	−2.230** (0.888)
Skilled	0.237*** (0.0381)	0.148*** (0.0360)	0.181*** (0.0367)	30.20*** (1.583)	25.74*** (1.365)
White collar	0.116*** (0.0361)	0.00971 (0.0283)	0.0894*** (0.0308)	18.14*** (1.479)	15.77*** (1.212)
Blue collar	−0.0251 (0.0414)	−0.0297 (0.0329)	−0.00776 (0.0321)	9.003*** (1.538)	6.243*** (1.341)
OECD	0.324*** (0.0258)	−0.125*** (0.0240)	0.256*** (0.0205)	5.677*** (0.985)	10.41*** (0.949)
Constant	1.570*** (0.0825)	1.664*** (0.0718)	0.898*** (0.0790)	221.9*** (2.299)	229.8*** (2.384)
R <sup>2</sup>	0.0617	0.0495	0.0463	0.285	0.300
Observations	8260	8279	8287	8290	8290

Standard errors in parentheses

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

## Descriptive Statistics

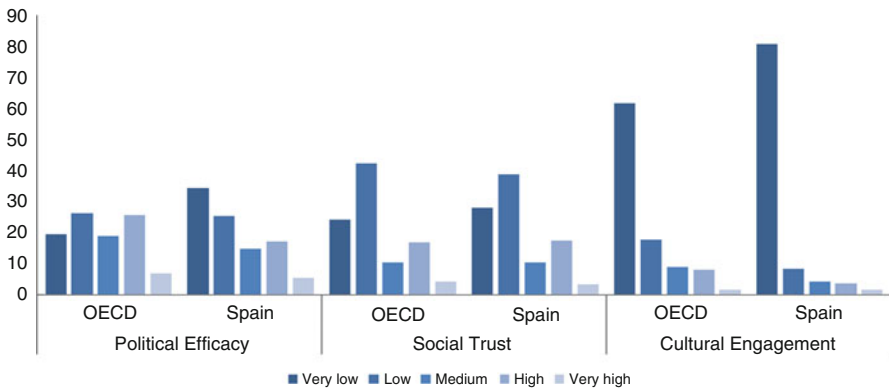
	OECD	Spain
<b>Age</b>		
25–29	15.77	13.60
30–34	15.77	16.30
35–39	16.61	18.54
40–44	17.17	18.44
45–49	17.71	17.94
50–54	16.97	15.19
Missing	0.00	0.00
<b>Female</b>		
Male	47.01	48.86
Female	52.99	51.14
Missing	0.00	0.00
<b>Immigration status</b>		
Native or 2nd generation immigrants or one foreign-born parent	85.50	85.70
1st generation immigrants	14.50	14.30
Missing	0.00	0.00
<b>Highest level of education attainment</b>		
Secondary or below	18.20	43.64
Upper secondary gen	14.36	17.38
Upper secondary voc	24.44	2.47
Tertiary	41.73	35.22
Missing	1.27	1.29
<b>Highest of mother or father's level of education</b>		
Neither parent has attained upper secondary	29.28	69.80
At least one parent has attained secondary and postsecondary, non-tertiary	38.76	13.98
At least one parent has attained tertiary	25.02	12.01
Missing	6.93	4.21
<b>Employment status</b>		
Not employed	80.19	67.99
Employed	18.55	30.68
Missing	1.26	1.34
<b>Occupational classification of respondent's job (ISCO), last</b>		
Skilled occupations	41.82	26.79
Semiskilled white-collar occupations	23.90	28.38
Semiskilled blue-collar occupations	17.40	19.02
Elementary occupations	6.63	14.13
Missing	10.24	11.68
<b>About yourself – political efficacy – no influence on the government</b>		
Strongly agree	19.68	34.51
Agree	26.37	25.66

(continued)



	OECD	Spain
Neither agree nor disagree	19.19	15.09
Disagree	25.99	17.28
Strongly disagree	6.89	5.65
Missing	1.88	1.82
<b>About yourself – social trust – trust only few people</b>		
Strongly agree	24.50	28.30
Agree	42.23	38.65
Neither agree nor disagree	10.50	10.52
Disagree	16.93	17.66
Strongly disagree	4.37	3.53
Missing	1.46	1.34
<b>About yourself – cultural engagement – voluntary work for non-profit organization</b>		
Never	61.72	80.75
Less than once a month	17.97	8.38
Less than once a week but at least once a month	9.20	4.31
At least once a week but not every day	8.21	3.71
Every day	1.63	1.64
Missing	1.28	1.21

### Descriptive Statistics of the Social Outcomes



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# Skills Development and TVET Policies in South Africa: The Human Capabilities Approach

# 14

Siphelo Ngcwangu

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## Abstract

Human development in various forms is central to addressing South Africa's socioeconomic challenges and building an inclusive society. In the earlier phases of the democratic era in South Africa, TVET and skills development policies have been shaped by a reliance on human capital theory assumptions which present the relationship of education, skills, and the labor market in a linear way. This was in the context of macroeconomic policies that were geared toward prioritizing the interests of global capital in addressing developmental goals. Skills development and TVET policies are still largely geared toward driving competitiveness, growing the economy, and meeting the skills needs of capitalist employers. What we see is a growing paradox in the whole skills issue, whereby a so-called surplus labor of unemployed people exists, many of whom have different kinds of skills but are regularly told that they are “unemployable” as their skills cannot be deployed within the current economic configuration. Developmental objectives such as reducing unemployment and increasing access to the labor market have also not made the desired impact. This chapter shows that the capabilities perspective can enrich the discourse of skills development and TVET in South Africa by inserting an approach of human freedom and social justice, which is often

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overlooked in policy analysis given the dominance of human capital theory assumptions about the relationship between skills and development. This chapter problematizes the binaries of *productivism* and *developmentalism* that have come to shape TVET and skills development discourses by arguing for a better understanding of the conceptual questions that shape our approach to these questions. It does so by engaging with different approaches to Amartya Sen's work which derive from a broad range of theoretical traditions. The chapter concludes with a discussion of four limitations of the capabilities approach: (1) influence of the changing character of work; (2) under theorization of power; (3) instrumentalist representation of the notion of *functionings*; and (4) lack of attention to ways in which VET can reproduce class inequalities.

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**Keywords**

Capability approach · Technical and Vocational Education and Training (TVET) reforms · Education and work · Inequalities · Work restructuring

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## Introduction

Technical and Vocational Education and Training (TVET) has recently occupied a prominent position in the international development agenda driven by institutions such as the World Bank and the International Labour Organization (ILO) as well as in developing countries such as India, South Africa, and Bangladesh. TVET in South Africa is widely seen as a tier of education that has the potential of contributing to skills training at the intermediary skill level and being a catalyst to growing the country's economy while providing better employment opportunities for the youth. The Department of Higher Education and Training's (DHET) White Paper on post school education and training (Republic of South Africa 2013) envisages an integrated post school system in which articulation between the various levels of the higher education and the training system in South Africa are encouraged. The White Paper also aims to expand the numbers of students enrolled in TVET which is quantitatively smaller than the university system which is more popular among the South African youth as a post school education option.

The literature on vocational education straddles a tension between two kinds of outcomes, one is the *productivist* orientation that emphasizes direct links between education and the labor market and the other is *developmentalist* (Anderson 2009; McGrath 2012b), which seeks to address the role that education is to play in social and community development challenges. According to Anderson (2009, cited in McGrath 2012b: 3), productivism is premised on two key assumptions:

1. Training leads to productivity, leads to economic growth (training for growth).
2. Skills lead to employability, lead to jobs (skills for work).

The developmentalist logic, on the other hand, argues for a greater role in poverty reduction, human rights, and human capabilities, all of which relate more to

inclusion rather than the market-led approaches of the World Bank (Powell 2014). This chapter problematizes these binaries by arguing for a better understanding of the conceptual questions that shape our approach to TVET and skills development. There is a significant body of TVET and skills development literatures which have pointed out the limitations and reductionism of neoliberal and human capital theory assumptions (Tikly 2013; Powell 2013, 2014; Wedekind 2014; Ngcwangu 2015).

This chapter seeks to engage with these discourses and problematizes both the productivist (in section “[Reforms of Skills Development and TVET Sectors in South Africa](#)” of this chapter) and the capabilities perspectives (see section “[Engaging Capabilities Perspectives](#)” below). It argues that the capabilities perspectives provide a useful insight into questions of learning within TVET by providing a humanizing discourse. However, one of the limitations of capabilities within TVET is its inability to account for political economy questions such as the nature of changes to labor processes, power, and reproduction of class inequalities. The chapter addresses the following points: (1) the reform of skills development and TVET sector in South Africa; (2) the capabilities perspectives; and (3) limitations of the capabilities perspective. Engaging with these aspects allows the chapter to unpack systematically the challenges facing TVET in South Africa and the limitations of the capabilities approach in addressing these challenges.

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## Reforms of Skills Development and TVET Sectors in South Africa

Powell (2013) argued that skills development research in South Africa needs to move toward a more theoretical direction given that previous scholarship has tended to be more quantitative and did not foster the development of a strong research community. Most attempts at theorizing the skills question in South Africa have either prioritized the need for a skills system that responds to market requirements and employer “needs” (Bhorat 2004, 2005, 2008; Bhorat et al. 2013). Others have taken a more critical perspective based on the argument that the economy is in crisis resulting in growing unemployment especially among the youth, meaning that skills and TVET policies should prioritize a wider range of social concerns such as poverty, inequality, community development, and social redress (Powell 2012, 2016; Vally and Motala 2014). These conceptualizations have grown in complexity given that the mandate of public policies on the post school education sector has largely been dominated by employer requirements in the corporate sector. This is, however, not only a South African problem but also an international one. McGrath (2012a) notes the weakness of TVET theory in general and laments the way in which productivist theories have dominated.

South Africa has been experiencing a process of “de-industrialization” since around the mid to late 1990s. International development institutions such as the World Bank and the Organisation for Economic Co-operation and Development (OECD) have made many proposals suggesting that developing countries must enhance VET in order to address problems of development. These institutions often overlook the complexities arising from capitalist restructuring of the economy as well as the nature of changes in the labor market.

The transition from apartheid to democracy in South Africa resulted in bureaucratic changes to the skills system and the related policies of the state. This era saw the institutional establishment of the Sector Education and Training Authorities (SETAs), the National Skills Fund (NSF), and the National Skills Authority (NSA) as platforms for stakeholder engagement on skills development. The National Skills Development Strategy (NSDS) is one of the policies introduced by the post-apartheid government, it is intended to provide a strategic framework and objectives of how the state, business, and labor can work together to enhance skills development in South Africa.

In a review of the first phase (1 April 2001 and 31 March 2005) of the NSDS, Kraak (2008) highlights numerous challenges such as limitations of data; lack of articulation between SETAs, TVET colleges, and universities; and lack of political will and capacity to make substantial changes to broader skills development policies. There have been a number of iterations to public policy on South African skills development since the ushering in of the democratic government. Here again the South African context echoes the international experience with TVET literature in the UK speaking of transformation fatigue and the TVET sector in India having a similar experience (Bathmaker and Thomas 2009). In South Africa, these different iterations have all been underpinned by a need for redress, employment creation, and equity. Some examples include the Accelerated and Shared Growth Initiative of South Africa (ASGISA) and the Joint Initiative on Priority Skills Acquisition (JIPSA) initiatives, which were seen as cornerstones to accelerating skills development and economic growth in South Africa. The focus on ASGISA and JIPSA was indicative of the assumptions that have underpinned skills development in South Africa which are the same assumptions that underpin TVET.

The Department of Higher Education and Training (DHET) launched a *White Paper on Post School Education and Training* (PSET), which identifies the youth unemployment problem as the main challenge to be addressed through building an integrated post-school education and training system. The *White Paper* proposes increasing access to TVET colleges as part of addressing the problem of high numbers of youth unemployment:

Government expects that TVET colleges will become the cornerstone of the country's skills development system. Headcount enrolments increased from 345,566 in 2010 to an estimated 550,000 in 2013; enrolments are expected to increase to one million by 2015 and 2.5 million by 2030. (Republic of South Africa 2013: 13)

The DHET aims to exponentially increase the number of TVET enrolments by 2030 to around four million. The possibility of such targets being reached is debated continuously by policy makers as access and interest in TVET is informed by a range of factors, including culture and attitudes to education. Many young South Africans are geared more to university education as it is perceived as a direct route to middle class occupations and careers. TVET policy in South Africa and other countries is increasingly confined to "responsiveness" to employer requirements and the promotion of "employability" (Ngcwangu 2015).



According to Wedekind (2014: 60), both the concepts of responsiveness and employability can be linked to human capital theory (HCT, that is, the investment in education and training that raises productivity, leads to economic growth, and improves individual life chances), which dominates discussions about education and development. The philosophical basis of human capital theory draws from some economists' emphasis on the returns to education and the prospects of improved salary earnings in the labor market due to the levels of education attained. However, these economists tend to reduce the value of education merely to its relevance in the economy rather than as being a good in itself. Education reduced only to its economic purpose results in a lack of attention to the ways in which it reproduces and maintains inequality.

Powell and McGrath (2014) argue that by emphasizing the quality of life and well-being of individuals, the capability approach offers a normative framework alternative that challenges what they call the "dominant consensus" which emphasizes the output and efficiency measures usually applied to social evaluation, particularly of vocational education programs in three ways. First is that it challenges the focus on narrow employability which, in turn, are underpinned by productivist assumptions of the relationship between education and work. Second is that it puts the wellbeing of the learner at the center of concern. Third, while recognizing the limitations and enablement of structure, it recognizes the agency and voice of TVET learners. The next section of the paper discusses six critical themes that emerge from capabilities perspectives that are critical in shaping our understanding of capabilities and how it is being applied to the study of VET.

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## Engaging Capabilities Perspectives

As understood by Sen (1999), human capabilities have to be judged and aligned with substantive freedoms enjoyed in order to lead a kind of life that can be valued. "In this sense poverty must be seen as the deprivation of basic capabilities rather than merely a lowness of incomes" (Sen 1999: 87). Vocational Education and Training (VET) scholars (Powell 2012, 2013; Tikly 2013; McGrath 2012a, b; Bryson 2015) use the capabilities approach to argue that education can provide a basis of learning for life, rather than learning for work by expanding the basis of education which then enhances the entire human capability of those in vocational education and training. Powell (2013), borrowing from Sen, maintains that a distinction between "capabilities" (opportunities), what a person can do, and "functionings" (doing), what a person actually does, is necessary in order to understand the life that a person actually lives and a person's well-being. By this, we see in the capabilities perspective a humanizing discourse which seeks to transcend a narrow functionalist approach to VET. While there are many perspectives that emerge out of the capabilities literature, this chapter now examines six critical themes which emerge from the capabilities approach literature that are useful in locating the South African case within the international context of discourses over the application of capabilities within TVET.

The *first theme* considers agency as central to the capabilities perspective. It is a view that places agency at the center of education and human development. By so doing, the capabilities perspective seeks to transcend the aspects of vocational education and training research which are structuralistic and quantitative. The capabilities approach is also closely aligned to a social justice perspective which aims to put the needs of people first. “By putting the needs of people first – rather than the needs of the economy – the capability approach brings to the forefront of VET and skills development discourse the importance of social justice, human rights, and poverty alleviation” (Powell 2013: 2).

The *second theme* considers the centrality of individual capabilities, collective capabilities, and collective intentions. These approaches seek to interpret Sen’s commitment aspect of the self in collective intentionality terms, to explain his view of “identification with” social groups, and then use social identity theory’s distinction between relational and categorical social group identities to explain a general relationship between individual and collective capabilities (Davis 2015). Other contributions such as Ibrahim (2006) use the capabilities approach to highlight the importance of collectivities by using examples of self-help to demonstrate how the poor can act together to expand and exercise new “collective capabilities”. This is a response to critics of the capabilities approach being too individualistic. As she says,

The expansion of collective capabilities not only requires the use of agency freedom (i.e. individuals pursuing goals other than their own), but also involves the participation in a collectivity. The main differences between individual and collective capabilities are therefore the process through which these capabilities come about and their potential of benefiting the collectivity at large. (Ibrahim 2006: 404)

The link between vocational qualifications and the labor market is tenuous, as qualifications do not always necessarily match with available jobs despite human capital theory assumptions that TVET provides stronger pathways into the labor market. Two perspectives emerge within the capabilities literature to address this dimension of TVET; *One* is Powell’s (2016) attempt to transcend the “black box” of the relationship between VET and work, instead Powell focuses on the relationship between VET and unemployment given that in the South African context, the demand for skilled and semiskilled occupations are in decline. Powell suggests that VET’s focus could be more on building the solidarity economy in the face of the decline of formal labor markets particularly in the private sector (Powell 2016: 4).

The *third theme* from Wheelehan et al. (2015) proposes the use of vocational streams and productive capabilities, which focus on the broad-ranging knowledge, skills, and attributes that individuals need for a number of occupations within an industry.

Productive capabilities are premised on the development of the person in the broad context of their vocational stream rather than on training them for specific tasks and roles. The starting point is ‘what kind of worker’ is required to support innovative workplaces. The findings from our research and the literature more broadly are that work is changing

rapidly: rather than focus on the tasks and roles defined for current practices within work, workers need adaptive capacities to adapt to change and emerging practices. (Wheelahan et al. 2015: 34)

These two perspectives problematize human capital theory assumptions about linear relations between education, work, and the labor market. Both Powell (2016) and Wheelan and Buchanan (2016) draw on capabilities to show the importance of the individual to be trained not only for individual tasks but for broader vocational streams and considerations of training for a solidarity economy given the declining demand for skilled and semiskilled work in the case of South Africa.

The *fourth theme* is a more polemical strand of literature on capabilities which is concerned with the extent of Marxian influence in Sen's capability approach and the effect of this influence to elucidate the central issue of freedom. On one hand is a view that shows convergence between Sen and Marx's perspectives. Qizilbash (2016: 1209) explores specific claims made by Sen which are prefigured in the works of Marx and John Stuart Mills. These are arguments where Marx himself uses concepts such as "capacity" in his own writings and the concern that development should free human beings from the shackles that restrict them, or give them opportunity to flourish. On the other hand is a view that points out divergences and flaws in Sen's attempts to use Marx's ideas to inform his theory of justice. Fraser (2016) argues that Sen resorts to a methodological individualist approach of choice that Marx rejects. His search for positional objectivity is undermined by the power of capitalist ideology and ruling class interest (Fraser 2016: 1194). In essence, these tensions illustrate the complexities of understanding the Marxian influence on Sen's ideas of capabilities.

At the core of Fraser's critique is a concern that many left intellectuals have of development about the prospects of attaining social justice in conditions of capitalism and whether that is not in and of itself reformist. This is found in the distinction between "abolishing rather than persevering capitalism" which according to Fraser (ibid.) is treated as eclectic within Sen's work. It is within these vicissitudes of polemical and pragmatic ideas that the capabilities approach has been engaged and also how further attempts at theorizing the role of VET in development is being conceptualized.

The *fifth theme* are those scholars who have emphasized the intersection of gender, youth, and VET from a capabilities perspective. Fogues and Cin (2018) combine gender and capabilities literatures to tease out the hegemony and traditional notions that place women and men in different positions in society, determine the extent to which social, political, and economic opportunities that are available to both genders qualify the freedom they can have (Fogues and Cin 2018: 13). The importance of the gender dimension of capabilities research is that it engages with aspects of human society that critically shape marginalization and a range of other injustices. In the South African context, the gender dimension to social injustice was captured within the liberation movement under the notion of "triple oppression" which relates to the gender-class and race aspects of apartheid and colonialism. In this way, the capabilities literature engages with an important

feature of South African society, which cannot be isolated from the general study of VET in the country.

The dominance of the idea that VET can be a solution to youth unemployment is dominant among many governments and is closely linked to economic orthodoxy which places the market at the center of all development in society and seeks to minimize the role of the state in development. Fogues (2014) shows in the case of Spain that the employability discourse came to be deployed in state policies as part of the responses to the financial crisis of 2008, which resulted in huge job losses in the construction sector. VET subsequently returned to the national agenda under the prism of the human capital discourse. As in many other countries, the Spanish government placed much hope in VET's role in reducing unemployment. However, Fogues cautions against an overoptimistic belief in VET as a solution to youth unemployment and states "The idea that more VET will translate into employment or the higher productivity of a country, calls for reassessment. Attention needs to be paid to the pillars and values sustaining the educational system and hence the focus on which skills are developed and for what purposes. A CA to education represents the students and their values as ends in themselves, not as means for economic growth" (Fogues 2014: 10). The value of the capabilities approach is that it seeks to transcend the prescriptions of human capital theory as they were expressed through the employability discourse in Spain.

The *sixth theme* unpacks the dilemmas of the "recognition and redistribution" within theories of distributive justice. In analyzing how welfare systems facilitate cultural justice more effectively, Yamamori (2004) draws on Nancy Fraser and Amartya Sen's works. Yamamori sees Fraser's (1997) notion of "redistribution and recognition" dilemma as contradictory. At the core of this dilemma was the challenge since the 1960s and 1970s of bringing the politics of recognition (identity, race, gender, sexuality, and ethnicity) into battles over the redistribution of wealth and power. Central to Nancy Fraser's critique of theories of distributive justice is that they ignore the issues of recognition. Robeyn (2003) contends that Fraser's critique is not justified in relation to Sen's capabilities approach by "incorrectly assuming that Sen's capability approach cannot accommodate issues of recognition, Fraser has not appreciated that the capability approach can actually meet all the requirements she holds a theory of social justice should meet" (Robeyn 2003: 21). At the core of arguments against Fraser is the view that Sen's theory of capabilities can be used to accommodate both recognition and redistribution.

This synthesis of some thematic areas in the capabilities tradition points to central themes that scholars have picked up on and are relevant in making theoretical sense of the challenges of applying VET within the South African context. Questions of youth development, distributive justice, collective capabilities, individual capabilities, agency, and the centrality of identity are all crucial to discussions of VET in South Africa. The post school education policies in the post-apartheid era in South Africa (as shown in section "[Reforms of Skills Development and TVET Sectors in South Africa](#)" above) seek to address these themes in various way. What follows is a discussion of limitations of the capabilities approach in which I identify four critical issues.

## Limitations of the Capabilities Approach

There are aspects of the capabilities approach that do not adequately address important aspects of political economy that shape the formal labor market and inform the preexisting social relations. A simple definition of political economy is that it relates to the influence of unequal power on the distribution and defining of scarce resources. While inequality, class, race, and social distribution are central to political economy, the overarching frame of defining political economy rests on the questions of power and ideology (Balwanz 2014). The major limitation of the capabilities approach is its inability to account for the concrete realities of the capitalist labor market, in particular the changing dynamic of work itself. I have identified four limitations which I will discuss briefly below.

*Firstly*, one of the most mythical and often speculative issues within VET is the domain of work. It is important because most VET research is oriented toward strengthening links with the formal labor market and structuring the learning within VET toward these forms of employment. The essential relationship between worker and employee is regulated by the power of who decides about production, the skill content of work, and even the time it takes to produce. Technology, for an example, has a great impact on the content of skill in production and declines in the industrial workforce. Hlatshwayo (2017: 24) in his insightful study of Arcelor Mittal (formerly Iscor) (As part of the apartheid state's policy Iscor which was a state owned company was privatized in 1989. Its unbundling occurred in 2001 as a result iron ore mining was taken over by Kumba Resources. In 2006, the company was taken over by Arcelor Mittal Group.) in Vanderbijlpark, south of Johannesburg, describes how the impact of the privatization of the company coupled with the introduction of Lean Production techniques (This is a production technique underpinned by a philosophy of elimination of waste, workforce reduction, and cost reduction; it is associated with a range of industrial strategies linked to what is called "Post Fordism".) has resulted in a huge number of job losses. His findings show that between 1989 and 2015 about 46,642 jobs were lost in its plants throughout the country. Close to 10,000 jobs were lost between 1989 and 2015 at the Vanderbijlpark plant alone.

A crucial point that Hlatshwayo makes is that formal education was used as a tool for exclusion of many workers in the process of the restructuring of the company. As he states:

Lean production and technological changes led to the development of criteria for excluding many workers by management and it entailed a level of formal education being used as a tool for this purpose. This had less to do with workers' skills and 'trainability'. In fact, those workers who remained at the plant spoke about how new machines and computers did what is regarded as 'appropriating diagnostic and cognitive skills from workers in the production process.' (Hlatshwayo 2014: 131)

These changes in industrial production affect, in particular, the vocational areas that are prioritized within VET research such as apprenticeships and artisanal trades. Elsewhere in this volume, Powell and McGrath (2019) state that VET in South Africa was historically orientated to industrialization since the early period

of the twentieth century. This had made the goal of VET more directed toward employability and close connection to the world of work. However, the world of work has changed significantly; as a result those historically strong links between VET and work are more fluid as capital finds different ways to produce which don't require labor interventions that we have become traditionally accustomed to.

A *second* limitation of the capabilities perspective in VET is that it undertheorizes the question of power. Power is reproduced through class formation given the capitalist structures of modern societies. In his notion of "sites of class compromise," Wright (2000) identifies three spheres within which class struggles occur and class compromises are forged:

- (1) The sphere of exchange concerns the labour market, and various other kinds of commodity markets; (2) The sphere of production concerns what goes on inside firms once workers are hired and capital invested. Conflicts over the labour process and technology are the characteristic examples; (3) The sphere of politics – Class conflict and class compromise also occur within the state over the formation and implementation of state policies. (Wright 2000: 964)

These spheres of class compromise are the spheres in which VET and skills development regimes take shape. Within capabilities, the discussion over power and class does not pay sufficient attention to the importance of unequal power relations. The "opportunities" aspect of capabilities which Sen (1999) refers to does not explain how power influences the access to those opportunities, given the preexisting social relations. The employability agenda within VET has tended to overlook the various ways in which social structures contribute and perpetuate class reproduction. The proponents of the employability discourse have tended to overlook the structure in which VET occurs, as a result disarticulating the notion of opportunities from class and structure.

The *third* limitation is related to the notion of functionings (doings). The discourse of employability is strongly influenced by the notion of *functionings* as achievements. The usefulness of the functionings perspective is that it explains the centrality of the individual and their actual potential to better their lives. Emirbayer and Mische (1998) argue that human behavior is shaped by both internal and external attributes within society and that internally behavior is shaped by consciousness. On external causes of behavior, their theory explains how human interactions with the surrounding social world shape their behavior. Within the capabilities perspective, the danger is that the *functionings* are presented in an instrumentalist way that does not sufficiently speak to structures that shape the achievements or struggles for self-sustainability, for example, of VET graduates and young people generally in the society.

There are powerful social forces that are restructuring the very basis of our lives, thereby impacting on the functionings portrayed in capabilities. The labor market in the current phase of capitalist development is showing signs of a deepening crisis of employment, insecurity, and fragmentation which is characterized by a growing *precariat*, a stratum of workers who are precariously employed as casualization and informalization of labor is increasing. The term *precariat* as used by Standing

(2011) which is based on a combination of *proletariat* and *precariousness* that defines those whose position in the labor market has been reshaped by the changing capitalist structure in the economy. For capabilities to speak to such complexities, it must go beyond a mere moralistic approach to an approach that seeks to understand actually existing capitalism as it necessarily is.

The *fourth* limitation of capabilities in relation to VET and the employability discourse is its inability to recognize that VET in many ways can reproduce class inequalities as opposed to overcoming them. According to a Statistics South Africa report on poverty trends, “Poverty levels in South Africa rose in 2015. When applying the upper-bound poverty line (R992 per month, approximately \$69 US dollars) more than one out of every two South Africans were poor in 2015, with the poverty headcount increasing to 55.5% from a series low of 53.2% in 2011. This translates into over 30.4 million South Africans living in poverty in 2015” (StatsSA 2017: 14). These staggeringly high levels of poverty as well as inequalities frame the structural context in which VET must be understood in the context of South Africa and many other developing countries.

The framing of VET and skills policy (see section “[Reforms of Skills Development and TVET Sectors in South Africa](#)”) is underpinned by the assumption that VET will contribute to addressing the triple challenges of poverty, unemployment, and inequality. Powell and Mcgrath (2019: 2) argue that “the employability agenda functions as a form of structural violence by locking youth into a cycle of poverty and then reinforcing this structural violence by persistently and stubbornly insisting on preparing learners for a formal labour market that simply has not and probably will never employ the majority of them.” The capabilities approach tends to adopt a more instrumental approach to the crisis rather than appreciating the structural nature of the causes of high levels of poverty and unemployment. As Bonvin argues, “It is not only a matter of redistribution or of developing employability, but of acting simultaneously on all components impacting on the conversion rate. In the case of labour market policies, for instance, this requires a combination of redistributive, supply-side and demand-side policies” (Bonvin 2018). The four limitations I have outlined point to a need for a deeper focus on questions of political economy that are based on power, class conflict, and inequality of distribution of resources in order for the capabilities perspective to make a stronger contribution to our study of VET.

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## Conclusion

This chapter has sought to locate the question of skills development and VET within a context of the contestations within the literature on capabilities. While acknowledging the value of the capability approach, the chapter has argued that it falls short of addressing the ways in which VET reproduces and maintains inequality in that it has ignored the political-economic context of TVET. What has been shown in the chapter are the combinations of pragmatic and polemical considerations in conceptualizing the role of VET in development. The structural changes in the global economy presently have had an impact on the availability of employment in



the formal labor market resulting in a decline in skilled and semiskilled occupations. The VET literature tends to ignore this dimension and lacks an appreciation of this in the political economic context.

In the South African context, the sense that structural change is crucial to build a more equitable post school sector has been acknowledged within DHET policies since 2009. However, this recognition does not necessarily translate to a capabilities perspective, which emphasizes the importance of human well-being within human development policies or programs. In engaging with the capabilities perspectives, I have sought to show its limitations and also its strengths within TVET and skills development sectors. Powell and McGrath (2014) expose the weaknesses of output- and efficiency-based evaluation systems. For TVET to truly contribute to development, there needs to be a stronger appreciation of the wider role that TVET and skills development can play without being necessarily confined to dominant market logics and human capital theory assumptions.

The limitations of the capabilities perspective and the employability discourse is the tendency to overlook political economy questions that are related to changing labor processes, power, and the reproduction of class inequalities. The deepening capitalist crisis is showing that the historically close relationship between VET and the world of work through structured pathways to employment is undergoing fundamental shifts. These factors should be taken into consideration in the further development of the capabilities literature in order to connect to wider societal questions that circumscribe the conditions in which VET developed.

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# Vocational Education and Training Beyond Human Capital: A Capability Approach

# 15

Jean-Michel Bonvin

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## Abstract

The chapter shows how a capability approach to vocational education and training (VET) marks a clear departure from human capital theories. After a brief presentation of the capability approach (CA), it analyzes in greater detail the two notions of “capability for education” and “capability for voice” and what they entail for VET. Specific emphasis is placed on the issues of timing (giving enough time to learn) and voice (taking account of the trainees’ aspirations and viewpoints) and on the necessity to consider VET as having both adaptive and transformative objectives (creating not only efficient workers and rational consumers but also active citizens able to form their own aspirations and to push them within public debates), as well as intrinsic and instrumental value. This also requires going beyond the all too frequent focus on the supply side of VET (equipping trainees for the market) and integrating also the demand side (equipping the market for trainees, i.e., asking firms and employers to take due account of the trainees’ needs and aspirations). The chapter is based on the findings of four

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successive EU projects: CAPRIGHT (2007–2010), WorkAble (2009–2012), SocIEtY (2013–2015), and the ongoing Re-InVEST (2015–2019).

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**Keywords**

Capabilities · Human capital · Capability for education · Capability for voice · Capacity to aspire · Educational justice · Access to education

Vocational education and training (VET) is mainly conceived in productivist terms, stating that (a) the increase in skills necessarily results in increased productivity and enhanced economic growth and (b) developing skills or employability leads to creating jobs. This is very much in line with human capital theories, where the increase in skills is envisaged as the key to both unemployment and economic growth. This agenda is often accompanied by the necessity to increase flexibility on the labor markets, so that markets are allowed to define their own terms for professional inclusion and thus to clear the problem of unemployment and poor economic growth. In this view, such a focus on VET has the ability to generate a new virtuous circle between economic efficiency and social justice or the concern for egalitarianism. While Keynesian economics insisted on demand-side measures to support the creation of jobs (investment programs) and the purchasing power of citizens (via cash benefits for those unable to work), the new conception insists on employability and productivity as the drivers of economic prosperity: if skills are increased, this results in more employable and more competitive workers, which in turn will boost the competitiveness of firms and of the national economy, allowing them to create jobs and integrate a higher number of workers paying contributions and ensuring the financial sustainability of the welfare state. Thus, the driver of economic success is no more the demand-side intervention of the State, especially during economic crises, but the increase in skills and employability. Human capital development is presented as the solution to unemployment and sluggish economic growth in the context of globalized knowledge economies. This can be seen in the European employment strategy calling for the development of so-called flexicurity (Bonvin et al. 2011) or in the Social Investment Package adopted in 2013, where social policies are to be complemented (or substituted in some cases) by educational policies. In other words, the objective is not to protect people from the market but to equip them for the inclusion in the market (what Streeck has termed “supply-side egalitarianism” in his 1999 presidential address to the Society of Advanced Socio-economics). Thereby, human capital theories are envisaged as the solution against social exclusion and for social cohesion.

However, this conception entails a specific conception of VET that is mostly instrumental to economic purposes. This is one of the main reasons why this conception has raised sharp criticism, as it was accused of “reducing people and the environment to the status of human and natural resources for economic exploitation” (Anderson 2009: 44). This coincides with a specific view of what training and work should be, which has been accused to be too individualistic (with its emphasis placed on individual employability), too short-term (focusing on immediate

outcomes rather than lifelong processes), and too much insisting on paid employment (thus excluding other human activities and producing gender inequities), on the role of public institutions and providers in matters of education and training (McGrath 2012). This chapter proposes an alternative conception to VET, which emphasizes its potential contribution to the development of human capabilities. It draws on the results of four successive EU projects, namely, the CAPRIGHT project (FP6 2007–2010), the WorkAble project (FP7 2009–2012), the SoCietY project (FP7 2013–2015), and the ongoing Re-InVEST project (H2020 2015–2019). The first section “[Distinguishing Human Capital and Human Capabilities Approaches to Education and VET](#)” distinguishes between human capital and human capabilities approaches to education. The second section entitled “[The Capability Approach in a Nutshell](#)” briefly presents the capability approach and its main components. The two following sections successively introduce the concepts of “capability for education” (section “[Capability for Education and Its Implications for VET](#)”) and “capability for voice” (section “[Capability for Voice and What It Entails for VET](#)”) and identify what they entail for VET policies, insisting on the necessity to integrate the demand-side when talking of employability (McQuaid and Lindsay 2005) and to take more account of the key issues of time and voice. The final section, entitled “[Conclusion: VET as the Real Freedom to Access “Second Chance Education”](#)” concludes and places a specific emphasis on the notion of VET as “second chance education” and what its implementation implies if the capability perspective is taken seriously.

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## **Distinguishing Human Capital and Human Capability Approaches to Education and VET**

To grasp the differences between human capital and human capabilities, reference is mainly made to three contributions dealing with this issue within the field of capability studies, namely, Amartya Sen, Ingrid Robeyns, and Melanie Walker (see also Walker and Unterhalter 2007; Rajapakse 2016). Sen carefully distinguishes between the accumulation of human capital and the expansion of human capability (Sen 1997, 1999). While the former aims at enhancing productivity or production possibilities, the latter focuses on the ability to lead a life one has reason to value, thereby implying that valuable lives may include aspects beyond mere participation to productive activities. In his words, human capital is defined mainly with regard to its indirect value, that is, the (mostly economic) objectives it allows reaching, while human capabilities also relate directly to the notion of valuable life (learning to read, to communicate, being able to choose in an informed way or to form one’s preferences in a more autonomous way, etc.). In this latter perspective, the benefits of education do not boil down to “its role as human capital in commodity production” (Sen 1997:1959). Yet, in Sen’s view, the two perspectives are not incompatible but complementary. Indeed, the capability approach includes the human capital view and takes a broader view on the issue of education and VET and their contribution for human development. Sen also emphasizes a second difference between both conceptions, which relates to the way they envisage the relation between economic

growth and human development: while the human capital approach considers human beings as means for the purpose of enhancing economic growth, the capability perspective reverses the relationship and sees in economic growth an important means for pursuing human flourishing. Both components are considered as important, but not in the same way. This is not to invalidate the perspective of human capital but to insist that economic growth is not an end per se but needs to serve the purpose of human capabilities enhancement. “This is because human beings are not merely means of production (even though they excel in that capacity), but also the end of the exercise” (Sen 1997:1960). Finally, Sen points out that education does not aim exclusively at economic development but also at social change: for instance, female education reduces gender imbalances, basic education improves the quality of public debates, etc. In sum, there are other instrumental roles to education than the enhancement of economic productivity.

Drawing on Drèze and Sen’s insights (2002: 38–40), Robeyns (2006) aptly summarizes these points by insisting on three main dimensions. First, education has an intrinsic role and not only instrumental aims: one may learn for the sake of knowledge, even though that may not bring further advantage to oneself. Second, education has a range of instrumental roles that include other functions than the mere augmentation of economic productivity. Third, education may have an impact at individual level (increasing one’s competitiveness on the market but also enhancing one’s ability to participate in a public debate, opening one’s mind to other ways of living, thus opening opportunities to break with cultural or social norms) but also at collective level (opening possibilities for the creation of new markets but also taking part in social change toward a more cohesive or fair society, etc.). In her view, human capital approaches do not allow taking seriously these three dimensions, in so far as they focus on the instrumental value of education and on its economic returns, both at personal (esp. increased productivity, higher wages) and collective level (increased competitiveness, contribution to GDP growth). Thus, the human capital perspective favors a view of education as an investment that delivers high individual and collective economic returns, which calls for targeting education and VET expenses on those people who are able to deliver the highest returns. This may, for instance, imply that “money spent on education – if it is conceptualised as an economic investment – is better spent on boys/men than on girls/women” (Robeyns 2006: 74) in contexts characterized by a traditional gender division of labor within a family: in such a perspective, what would indeed be the point of educating young girls if these are to privilege, at a later stage of their life, educational tasks within the family over economic achievements on the labor market? This mainly takes place because the intrinsic value of education as well as its noneconomic instrumental values at personal and collective level are not sufficiently recognized within human capital theories. By contrast, the capability approach gives all these dimensions their due place and takes proper account of the intrinsic value of education and its noneconomic contributions to individual and collective human and social development (see also Cockerill 2014).

Walker (2012) pushes the comparison between the two approaches one step further. She insists that both conceptions rely on varying anthropologies, i.e., diverse

conceptions of what human agency and human flourishing mean. On the one hand, human capital theories envision human beings as economic producers and citizen-consumers, mainly concerned with the maximization of their own utility calculated along a cost-benefit line. This anthropological view, it is claimed, holds for all human beings, which also implies that education policies are mainly a matter of setting up the right financial incentives for people to behave in the expected way. At the micro level, then, people are expected to privilege education that will increase their competitiveness and productivity; at the macro level, educational investment should be made in favor of people who promise to deliver the highest economic returns. Education is here envisaged as “adaptive,” in so far as it provides the competencies required by the labor market. By contrast, the capability approach insists on the existence of irreducible human diversity: people’s reasons to value do not coincide with maximizing utility but include other possible motives beyond economic accumulation or enrichment, such as participation in society and democratic debate, willingness to increase cohesion or to contribute to the creation of more equitable societies, or other forms of altruistic behavior. In this case, education as a process is also conceived in a different way: it is not something one receives passively (i.e., knowledge that one has to learn and that has been selected beforehand according to the labor market requirements); it is considered as an active process whereby people do not only acquire competencies or knowledge but learn to become learners by themselves, as well as active citizens participating not only in the labor market but in politics and society. Such education is not simply adaptive but potentially transformative as it allows questioning taken-for-granted views and perspectives. While the human capital approach aims at creating productive workers and efficient consumers, the latter aims at fostering reflective citizenship, which would also apply to the labor market (going in the direction of calling into question the subordinate position of workers within the employment relationship). Walker suggests that education should aim “to form the kind of human beings who can contribute to shaping the kind of society which values human capabilities, who want to contribute to capacity building and a society and public culture, which can sustain capabilities for all” (Walker 2012: 392). In short human capital theories aim at adapting people to the requirements of the labor market, with a view to reducing unemployment rates and allowing everyone to contribute to overall economic growth. The capability approach, on the other hand, views education in a much more encompassing manner, as a way to contribute to the creation of citizens able to act for a more capability-friendly economy and society. In one case, educated people are receivers in so far as they acquire competencies that are useful for economic competitiveness and growth; in the other, they are certainly receivers, but they are also “doers and judges” (Sen 1985) in so far as they are active participants in the educational process – Walker advocates the use of participatory and discussion-based pedagogic methods – and able to voice their own views about what should count as appropriate education.

Table 1 briefly synthesizes the main differences between both approaches as emphasized above.

**Table 1** Human capital vs. capabilities approaches

Approaches	Human capital	Capabilities
Role of education	Instrumental role	Intrinsic and instrumental
Types of instrumental roles	Economic (personal and collective)	Economic and social (personal and collective)
Underlying anthropology	Homo economicus	Human diversity
Link to the labor market and society	Adaptive: Creating workers and consumers	Transformative: Creating citizens able to discuss and question prevailing norms and practices
Relationships between human beings and the economy	Human beings as means to economic growth	Human beings as the ends of economic growth

Source: Own elaboration from Sen (1997, 1999), Robeyns (2006) and Walker (2012)

It is important to emphasize that all three authors referred to in this initial section do not sustain that human capital theories should be discarded altogether. Rather, they should be supplemented by other approaches to education in order to leave more space to other functions and roles of education and VET. This perspective is also endorsed by Chiappero-Martinetti and Sabadash (2014), when they advise integrating human capital theories and the capability approach (CA) conceptually and methodologically. The next sections go further in explaining what a CA approach to VET entails. After a brief presentation of the CA, they will develop along the two key notions of “capability for education” and “capability for voice.”

## The Capability Approach in a Nutshell

The capability approach is a normative framework developed by the economist and philosopher Amartya Sen in order to rethink the meaning of human development. Rather than economic growth (which is at the core of human capital theories), human development is defined as the expansion of the real freedom one (i.e., each and every member of a given society) has to lead a life she/he has reason to value. This is the very definition of the notion of “capability,” which sets the yardstick to assess the quality of public action in all domains. In other words, an appropriate public action should aim at developing not only the citizens’ economic capacity but their real freedom to lead a valuable life. The approach is based on two main distinctions: on the one hand between commodities and capabilities and on the other hand between capabilities and functionings (Sen 1999; Bonvin and Farvaque 2008; Bonvin 2012). The former emphasizes that the possession of commodities or material resources is not enough to enjoy the real capability to lead a valuable life. For instance, a disabled person will certainly have fewer capabilities than an able-bodied one even though both have control over the same amount of resources, in terms of available income from a job or a welfare transfer. This takes place because they do not have the same ability to convert these resources into capabilities or real freedoms to lead a valuable life. This differential in what Chiappero-Martinetti and Sabadash (2014) call the



conversion rate requires correction, either via an increased amount of resources for the most vulnerable people or via a direct intervention on the parameters that impact on the conversion process. Following Robeyns (2005), there are three types of such parameters: the individual ones, relating to personal features, capacities, aspirations, etc.; the social ones, which point to the sociocultural context (social norms, institutions, etc.) and what it permits different groups of people to be and to do; and the environmental ones, which designate all geographical, climatic, infrastructure, etc. parameters. For the sake of simplicity, we consider here that the conversion rate of each and every person depends on the amount of resources she has command over, his/her individual capacities or features, and the socioeconomic, geographic, etc. context in which she/he lives. Thus, equalizing capabilities in such a perspective (or more realistically reducing inequalities in capabilities or allowing all people to reach a minimal threshold of capabilities) requires equalizing the conversion rate via appropriate action on the whole configuration of resources and individual and contextual conversion factors. It is not only a matter of redistribution or of developing employability but of acting simultaneously on all components impacting on the conversion rate. In the case of labor market policies, for instance, this requires a combination of redistributive, supply-side, and demand-side policies.

The second distinction emphasizes the difference between capabilities and functionings. Sen defines functionings as actual beings and doings, that is, what people actually are and what they do, whereas the capability set encompasses all potential functionings that people may reach, that is, what they could be or what they could do. In the capability perspective, the objective of human development calls for the enhancement of capabilities or real opportunities to lead a life one have reason to value; by contrast, insisting on functionings would miss the “freedom” component of the capability approach, i.e., it would impose on people one vision of the “good life” and of what they should be or do rather than leaving them free to make their own choice about this. For instance, unemployed people should not be forced into specific functionings such as accepting any job or following activation measures against their will; rather, their capability set should be expanded, leaving them free afterwards to make their own choice among available opportunities. Of course, the boundary between capabilities and functionings is not so straightforward when it comes to implementing public action: one could for instance imagine that constraining people to follow a training session at time  $t$  might well increase their capabilities at time  $t + 1$ . Such issues are complex and do not allow for clear-cut solutions. All the same, the principle that capabilities should be given priority over functionings remains an important feature of the capability approach. Crucially, the expansion of human development as freedom (Sen 1999) also necessitates that people’s voice and aspirations are taken seriously both in the design and implementation of public action, i.e., they should be actors of these processes and not simply receivers. This calls for a participative – and non-paternalistic – view and practice of public action, in which the beneficiaries’ capability for voice is duly taken into account (Bonvin 2012). This accounts for the very strong emphasis on democracy within the capability approach (Sen 2009).

We now come to see how this approach can be implemented in the field of vocational education and training. We thus draw the implications of the two distinctions briefly summarized above in this field.

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## **“Capability for Education” and Its Implications for VET**

Capability for education or VET can be defined as the real freedom to choose a vocational training program or curriculum one has reason to value. In Sen’s perspective, this requires taking as a departure point real and concrete individuals. These may be characterized by different socioeconomic backgrounds or statuses, a great variety of previous – negative or positive – schooling experiences, as well as a diversity of conditions with regard to health, family situations, social integration, material well-being, etc. Thus, in terms of capability for education, some people enjoy a wide range of positive conversion factors that will allow them to pursue an educational path they have reason to value, while others are affected by negative conversion factors that impede them to develop and implement valuable educational trajectories. In the latter case, these parameters (e.g., bad health, precarious standard of living, isolation, etc.) act as obstruction factors impeding the conversion of the formal right to education into a real freedom to pursue the educational path one has reason to value. These differences result in very unequal degrees of capability for education. Empirical analysis (e.g., Otto et al. 2015, 2017) allows observing the persisting existence of such differences despite all of the efforts deployed in the direction of human capital development in OECD countries. We contend that the CA allows, on the one hand, grasping more adequately the mechanisms underlying such inequality vis-à-vis capability for education (going beyond the views emphasizing the lack of motivation of potential learners and blaming them for that suboptimal outcome) and, on the other, suggesting avenues toward equalizing capability for education for all.

The CA suggests that, when interpreting capability for education in terms of individual conversion factors, other dimensions than motivation should be included. In the WorkAble and the SoCIetY projects, three main aspects were emphasized in this specific regard:

- The desire to be trained or to follow an educational path may be significantly reduced by previous negative schooling experiences as was illustrated notably by the Swiss case study (Bonvin et al. 2013; Rosenstein et al. 2015). In many such cases, school was perceived very negatively; as a consequence, training programs proposed to vulnerable job-seekers are often assimilated to these previous negative experiences and thus perceived unfavorably. This, however, did not mean that these people were not motivated to learn, rather that they did not want to learn in this “classical” way.
- The capacity to be trained or to follow vocational training programs may also be impeded by weak levels of literacy and numeracy, or by a poor knowledge of the local or national language(s). The WorkAble project thus emphasized the

difficulties faced by migrant people when it comes to completing a vocational curriculum (Kjeldsen and Ley 2015).

- The availability for training is unequally distributed among the diverse categories of population, so that lone mothers, for example, cannot be available for training programs if their participation into such measures coincides with losing the income they get from a job in the labor market. Thus, the lack of an adequate replacement income for trainees may translate into unavailability to train, even though there is a high appetite and capacity for vocational education and training.

However, both the WorkAble and SocIEtY projects emphasized that these dimensions do not depend exclusively on individual factors but on the way these combine with the issue of resources and contextual conversion factors. Indeed, empirical research shows that the people who have no willingness whatsoever to learn are very few and that the desire to train seems rather to be impeded by certain institutional characteristics of the educational system. These include, for instance, early selection procedures, which tend to produce strong negative reactions against the schooling system, where the weakest or most disadvantaged categories of pupils feel discriminated by their teachers and by the representatives of the educational system at large (Bonvin et al. 2013). Such negative experiences are then reported onto all educational programs; this explains to a large extent why some vulnerable adults are reluctant to participate in all kinds of formal education leading to apprenticeship or academic diplomas. In their view, those are linked to school and all the bad experiences connected with it, and many of them prefer to get a bad job poorly remunerated than to restart what is perceived as the revival of a negative past. Hence, one of the main findings of the WorkAble project (Otto et al. 2015) is that to stimulate the desire to train three main actions are required: first, to delay selection procedures later in the curriculum so that, in the first place, such negative experiences, connected with the necessity to perform better than others at an early stage of one's schooling career, are not allowed to take place; second, to valorize informal learning, i.e., training taking place in informal arenas and along less standardized rules, which may include participative pedagogy or on-the-job training based on learning by doing; third, awarding formally recognized qualifications on the basis of prior field experience acquired (i.e., experience accreditation schemes as can be found in Belgium, France, or Switzerland). When designing VET programs, these three aspects should be given due attention, i.e., such programs should not be based on early selection, on an exclusive focus on formal learning, and they should be open to alternative formula allowing the validation of field experience.

In the same way, the capacity to learn should not be interpreted as a matter of individual assets or deficiencies that would exclude all possibilities to train for certain vulnerable people. As a matter of fact, empirical research showed that alternative pedagogical modes could be developed with a view to setting up more progressive or step-by-step ways of learning for the people needing more time to acquire knowledge and skills. Beyond this issue related to the pace of training, this requires that less "prestigious" skills or qualifications also enjoy adequate

recognition in the context of knowledge economies: not only high academic or technical qualifications but also less exceptional skills and professional know-how, which are necessary for the smooth functioning of the economy, should be recognized as valuable. Empirical research indeed showed that most people are willing and able to learn, but not all of them in the same way and with the same ambitions; thus, VET systems should be designed in a way to attach value and social recognition to all these forms of training. Moreover, the WorkAble and SocIEtY projects also emphasized that education should not focus only on the acquisition of skills that are defined as necessary to participate in the labor market (Kjeldsen and Ley 2015). Rather, it should also include the capacity to form one's opinion or preferences autonomously and not being simply forced into compliance with dominant social norms. In such a perspective, following Nussbaum (2010), education should aim to create not only productive workers – however important that aim is – but democratic citizens able to decide autonomously on their way and trajectory of life and to participate in the public debate upon what the good society should be. This calls for the rehabilitation of the humanities within education, which means that vocational education and training should not focus exclusively on professional skills but also include more general democratic skills that are equally important for the good and smooth functioning of the economy and the workplace. Both of course are not incompatible and should rather be conceived as necessary complements one to the other.

These two first dimensions – desire to train and capacity to learn – relate to what Appadurai calls the “capacity to aspire” (Appadurai 2004) or to project oneself in the future. Educational systems should be devised in a way to restore such capability to aspire when it has been severely diminished by negative schooling experiences or previous life trajectories marked by cumulative disadvantages. Developing this capacity to aspire enables individuals to imagine a different future that would be better than their actual living conditions (Baillergeau and Duyvendak 2017; Borghi 2017). This implies that educational systems should aim at deconstructing adaptive preferences whereby vulnerable people get resigned to their poor living conditions. One objective of vocational education and training should then be to restore the desire to train and develop the capacity to learn. This is also a key rationale for teaching humanities alongside professional skills.

Finally, availability to train heavily depends on institutional conditions. This is illustrated by the Swiss case study in the WorkAble project (Rosenstein et al. 2015). This focused on a specific program in canton Vaud that was developed in the 2000s and targeted at vulnerable young adults without training. Empirical observation showed that 70% of young people on welfare in this region had no certified qualifications. At the same time, for them, starting a training program meant losing their entitlement to welfare benefits, which made it impossible to envisage such an alternative in most cases. Thus, the canton introduced a system of training grants in order to secure the entitlement of people starting an apprenticeship to receive an amount equal to the one they perceived when on welfare. In other words, the institutional device was transformed in order to make training an option as valuable and sustainable (in financial terms) as being on welfare. In more general terms,

income support features as a necessary condition to guarantee the equal right to second chance education to all categories of potential beneficiaries. In its absence, only those who can financially afford losing one's revenue or cash transfer will be able to follow training programs. This applies not only to vulnerable youth (as in the Swiss case investigated) but more generally to all disadvantaged people. Also, this requires that childcare support is available at a bearable cost to all people or families who would need it in order to restart a training program. In all such cases, institutional support is needed to promote and "materialize" availability to train.

Thus, capability for education depends on the whole configuration of resources and individual and contextual conversion factors: it is not only a matter of individual motivation or capacity but of how educational systems are designed and what resources are devoted to this end. In other words, developing individual competencies, aspirations, and availability goes hand in hand with the presence of sufficient resources and appropriate social and institutional conditions. In the CA perspective, these should aim at making all people able to choose their educational paths, whatever their sex, nationality, social origin, age, etc. This calls for revising educational and VET systems according to issues of equity (equal access), appropriateness (designing curricula that can integrate and attach proper value and recognition to all desires and capacities to train), and non-fragmentation (multiplying the existence of bridges between curricula, also at later stages, in order to implement in an equitable and appropriate way the objective of lifelong training, allowing for instance trials and errors). More widely, this requires (a) a view of vocational education and training as a public good, whose quality and accessibility are guaranteed to all members of a given society; (b) that no one is discriminated against for whatever reason; and (c) that education is considered both as an end in itself and as a means toward professional and social integration and citizenship. All these factors follow from the notion of "capability for education" when the issue of conversion is taken seriously.

A key issue related to VET is the respective role of the market and the State in the implementation of vocational education and training as a public good. Empirical analysis conducted in the SocIETy project showed many different situations in this respect: while some countries insist on academic education and leave limited space to vocational training (e.g., France and Sweden), others place strong emphasis on dual apprenticeship. Among the latter, two situations can be distinguished: one relying on market mechanisms in order to create sufficient and adequate apprenticeship places (mainly Switzerland and Germany – Dahmen et al. 2017; Bonvin and Dahmen 2017) and the other giving more importance to the intervention of the State (e.g., Austria and Italy). The comparison of these cases show contrasted results: on the one hand, the reliance on market mechanisms seems important to guarantee that the content of training is adjusted to labor market requirements (this increases the likelihood of professional integration); however it is more problematic in terms of access to apprenticeship as the entry into vocational training depends on the employers' willingness to hire. On the other hand, increased State intervention via the introduction of youth guarantee programs certainly facilitates access but sometimes makes such access mandatory, thus interpreting youth guarantee programs in

workfarist terms (Atzmüller and Knecht 2017 for the case of Austria). The evidence collected in the SocIEtY project does not allow any definitive conclusion as to the superiority of the market or the State in terms of “capability for education.” It rather shows that both have their pitfalls and assets and that an adequate combination would probably be the most appropriate solution.

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## Capability for Voice and What It Entails for VET

Capability for voice is the real freedom to express one’s wishes, expectations, desires, etc. and make them count when decisions concerning oneself are made (Bonvin 2012). Appadurai (2013) links it with the issue of the capacity to aspire: “Analyses and researches have widely recognized that a durable and more equitable development asks to reinforce and exercise the capability of the poor for voice. However, what has not been adequately recognized is that for ‘voice’ to be regularly and effectively exercised by the poor, in conditions of radical inequalities in power and dignity, requires permanent enhancements of their collective capacity to aspire” (Appadurai 2013: 213). Thus, there is an interdependent relationship between capacity to aspire and capability for voice; in other words, the exercise of voice is crucial to the expansion of capabilities, provided however that it relies on an adequate degree of capability to aspire, i.e., to build one’s own projects or preferences for the future and to pursue them. At the core of the WorkAble project lies the postulate that the individuals’ capacity to aspire also depends on the exercise of capability for voice, in so far as voice allows questioning prevailing norms and preferences that all too often may have a deleterious impact on poor people’s capacity to aspire. Thus, a key issue is the ability of people to form their own preferences and aspirations rather than endorse those of others, in line with social norms or expectations. To sum up, the development of capabilities requires the ability to construct one’s preferences (capacity to aspire), to voice them and make them count (capability for voice). The educational system has a crucial role to play in this respect. The issue, then, is to assess to what extent the vocational educational and training system recognizes and promotes the voices and aspirations of the trainees (see Powell 2012 for an examination of this issue in the case of South African students).

This encompasses two complementary issues: first, to what extent are trainees allowed to voice their concerns and aspirations, and to what extent are these seriously taken into account when designing and implementing VET programs? Second, does vocational education and training genuinely prepare trainees to voice their concerns and defend them efficiently at a later stage in their life, i.e., in the labor market and in society at large? The former issue relates to the place of voice and aspirations within vocational education, while the latter concerns voice and capacity to aspire as the objectives or ends of education and VET.

The WorkAble and the SocIEtY projects show that in most instances vocational education for vulnerable people is envisaged as a part of activation strategies, where entitlement to cash benefits or any other kind of financial help is conditioned upon

the acceptance of deploying one's best efforts to find an apprenticeship place (Otto et al. 2015, 2017). In such a context, the frequent use of notions like "autonomy," "project," or "contract" seems to imply that beneficiaries' voice and aspirations are taken seriously, i.e., that they are the true authors of their professional project and benefit from the help of local welfare agents to this purpose. However, empirical research unveils a more contrasted reality, as the Swiss case illustrates (Bonvin et al. 2013). Oftentimes, "autonomy" is used by local agents in charge of activating people as a criterion to select those vulnerable people that are the most apt to become autonomous, i.e., to find an apprenticeship after completing a preparatory period and, thus, become independent from welfare support. This suggests that "autonomy" is not considered as the final objective of the program but as a selection criterion at the entry. Hence, the logic of welfare intervention tends to reproduce that of the labor market, which also selects the most competent people and excludes the others.

Beyond this issue of selection at the entry, there is also that of the place and recognition left to the voices and aspirations of vulnerable people within the program. In certain countries (like Switzerland or Austria), the people who have successfully passed the selection stage are entitled to receive significant individualized support to help them become autonomous. Oftentimes, this support is divided into two stages: first a preparatory one where people learn the necessary skills and behaviors in third-sector associations (which get subsidies for this) and second the vocational education phase taking place in "normal" firms, when people are considered sufficiently prepared for this purpose. As the Swiss case illustrates, there is the possibility to negotiate many aspects at the preparatory stage of the program: while finding an apprenticeship is the indisputable objective to be pursued, the pace at which to reach this objective, the kind of preparatory training to be provided, etc. are tailor-made and adjusted to the vulnerable people's needs and, to some extent, to their aspirations. Their voice is taken into account and has some impact on the content of the preparatory programs. Regarding aspirations, however, the situation is often more complex, as local agents insist on the realistic and realizable character of the vulnerable youngsters' project; in their view, this implies the necessity to "cool down" their aspirations when they are too high (Goffman 1953). After completing the preparatory stage, some young people are hired as apprentices by employers on the private labor market. Thus, the preparatory stage also translates into a selection mechanism, insofar that those vulnerable people who fail to comply with the expectations of the labor market actors are not accepted into the next phase of professional integration. In many cases investigated in the WorkAble and SocIEtY projects, welfare local agents took very seriously their role as labor market intermediaries, insisting on sending only the very best among the vulnerable people to potential employers, also with a view to defending the image of efficiency of the welfare agency.

During their apprenticeship or vocational education program, vulnerable people can still receive support with regard to schooling, personal, social, and professional matters; however the kind of support received varies greatly along the topic concerned: while the content of support related to personal, social, and schooling matters can in most instances be discussed and negotiated with the trainee, the



professional issues require him/her to adapt to labor market demands and to the employer's expectations. Indeed, whereas the personal coach acts as an advocate of vulnerable people with regard to personal, school, and social issues, she/he strives to convince them to comply with the employer's expectations when it comes to professional matters. This illustrates a divide that could be observed in nearly all case studies investigated during the WorkAble project: voice and aspirations can be taken into account when it comes to personal or social problems or even, though to a lesser extent, to schooling issues, but both the rhetoric and the practices focus on adaptability when labor market requirements or conflicts with employers are concerned. This entails that, within vocational education and training, there are dimensions for which capability for voice and capacity to aspire are legitimate and others for which notions like "cooling down" or being "realistic" prevail. Not all voices and aspirations are legitimate and recognized within vocational education and training programs but only those that comply with the employers' expectations that seem not to be negotiable in most cases observed (Otto et al. 2015, especially pp. 200–355 where all case studies of the WorkAble project are presented). Under such circumstances, the objective of adaptability takes precedence over that of "capability" or real freedom to have a job one has reason to value. In other words, in most cases, the objective of VET is to instill the "correct" adaptive preferences (teach people how to behave, what objectives are realistic, etc.) rather than allow them to construct their own aspirations and be able to voice and pursue them efficiently.

This tension can be observed in the ambivalent use of certain terms within the programs targeted at vulnerable people. For instance, the notion of "project" has a very different meaning whether it is used by local agents to designate a short-term precise commitment toward the future professional career (the so-called "realistic and realizable" project) or by the beneficiaries who refer to a fuzzier notion that comes closer to a declaration of intention (like a life project). The gap between these two notions points to the importance of leaving enough time in order to translate an aspiration or vague project into a "realistic and realizable" project. However, this time is most often not given to the vulnerable people, and the notion of "project" is used as a criterion to select the most apt vulnerable people and help them into vocational education and training.

In short, the issues of voice and aspirations within VET programs for vulnerable people are affected by two main ambivalences. First, definitional ambivalences concerning notions like "autonomy" or "project" imply that these notions are oftentimes used to select the best beneficiaries, those that are the most able to comply with official expectations. Then, voice and aspirations are allowed to flourish only when they fit in the institutional framework or when they are in line with labor market requirements. This entails a view of vocational education as mostly instrumental to the development of productivity and competitiveness. Second, while there is some margin for maneuver and interpretation with regard to the preparatory stage and to personal and social issues, such is not the case with the part of vocational education and training that is provided at the workplace. As a matter of fact, VET for vulnerable people most often aims at preparing them to comply with the employers'



expectations; as such, its adaptive function (creating efficient producers) prevails over its transformative potential (creating citizens able to express their voice and make it count, even in the workplace). The limited place and recognition granted to voice and aspirations within vocational education systems for vulnerable people also negatively impacts on the objectives of developing the trainees' capacity to aspire and capability for voice. It somehow seems that the economy needs efficient workers and producers, and not active citizens, and that VET systems as they are have endorsed this view to a large extent.

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### **Conclusion: VET as the Real Freedom to Access "Second-Chance Education"**

This chapter has set up to show the implications of the capability approach for vocational education and training, with a specific focus on vulnerable people. After a brief outline of the CA, it has presented in more detail two specific notions – “capability for education” and “capability for voice” – and drawn their implications in the field of VET. As such, it has unveiled what is at stake when moving from a human capital approach to education and VET to a capability perspective on these issues. In particular, such a move requires considering the following key aspects:

- (a) Take proper account of human diversity with regard to capacities, willingness, and availability to train and adapt the content and rhythm of education accordingly. That calls for designing tailor-made educational paths, with a specific emphasis placed on an appropriate timing and on recognition of the trainees' voice and aspirations.
- (b) Recognize that VET can pursue a multiplicity of objectives beyond fostering economic productivity, that it has both an intrinsic and instrumental value (Robeyns), and that it should aim at being adaptive and transformative at once (Walker). Most importantly, it should be acknowledged that VET should not only create efficient producers and rational consumers but also active citizens able to form their own aspirations and preferences and to make them count within public debates.
- (c) Guarantee access to vocational education and training to all those who consider it as valuable, whatever their age, sex, prior education, etc. This requires going beyond selective market mechanisms and their tendency to exclude the most vulnerable. This also entails that the logic of State intervention should not replicate the market mechanisms but aim at implementing education as a public good effectively accessible to everyone. Guaranteed access to VET should however not coincide with a duty to train, as can sometimes be observed in activation strategies.
- (d) Ensure that trainees are at the same time receivers and actors of VET, i.e., that they receive adequate knowledge and are encouraged to put into practice their theoretical and practical skills. A variety of pedagogical methodologies is advisable in this respect.
- (e) Make sure that such principles are also implemented at the workplace and within firms where on-the-job training is provided.

These dimensions pave the way toward the implementation of a requiring conception of educational justice, where the necessary development of human capital is complemented by the enhancement of human capabilities, thus calling for a combination of the empowering and emancipating conceptions of vocational education and training. The empirical findings of the WorkAble and the SocIEtY projects have shown that educational measures inspired by the CA perspective may boost the trainees' willingness and motivation to train. As such, the CA perspective on VET may be the most promising avenue toward reconciling educational justice and economic efficiency.

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# Enabling Vocational Lecturer Capacities Toward Sustainable Human Development: Toward Radical Revisioning

# 16

Kathija Yassim, Neville Rudman, and Lucky Maluleke

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## Abstract

This chapter provides an overview of a curriculum development journey of the AdvDip (TVT), a program designed to prepare South African TVET lecturers as progressive pedagogues. It responds to Akoojee's (2016) call for "radical revisioning" that truly transforms the TVET system. In considering contextual realities linked to poverty, inequality, and human development, a humanizing pedagogy (Freire 1993) and the capability approach (Sen 1980) is used as these are deemed to be responsive alternatives to the standard educational and economic frameworks. The chapter begins with an exploration of the current TVET landscape against the background of prevailing contextual realities; then the

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curriculum journey is described through an overview of events that resulted in the choices made toward a suite of modules that aim to cultivate a progressive pedagogue. Finally, the chapter ends with an overview of Africanization and decolonization imperatives integrated into the curriculum design so as to ensure the inclusion of indigenous perspectives. It is hoped that through the enactment of a humanizing pedagogy and a capability approach, TVET lecturers develop the kind of transformative teaching and learning praxis that position them as agents of hope and change and of those who are able to promote social justice, equality, and human well-being.

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**Keywords**

TVET lecturer development · Humanizing pedagogy · Capabilities approach · Curriculum transformation · Vocational pedagogy and decolonization

An education is truly “fitted for freedom” only if it is such, so as to produce free citizens, citizens who are free not because of wealth or birth, but because they can call their minds their own . . . It is relatively easy to construct a gentleman’s education for a homogenous elite. It is far more difficult to prepare people of highly diverse backgrounds for complex world citizenship. Curricula [development] aiming at these ideals fit no general mould. (Nussbaum 1998, pp. 293 & 295)

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**Introduction**

In educational settings where the contextual realities of poverty, inequality, and human development must be considered, a humanizing pedagogy (Freire 1993) and the capability approach (Sen 1980) have emerged as responsive alternatives to standard educational and economic frameworks. This is true for South Africa where national policy proposals have reinforced the crucial role of education in social and economic development, providing the necessary rationale for radical revisioning. However, Akoojee’s (2016, p. 1) recent assessment of the TVET strategy in relation to key constructs of development theory concludes that “while the developmental rhetoric contained in the White Paper (DHET 2013) is plausible, creative tinkering of the system is unlikely to lead to the radical re-visioning necessary for a truly transformative TVET system.” Hence, in an effort to reconceptualize policy for TVET lecturer development, and to get closer to the radical revisioning advocated for by Akoojee (2016), this chapter describes a TVET curriculum development journey as one effort toward such an ideal.

For more than two decades, a number of South African educational institutions have grappled with the creation and implementation of renewed curricula informed by a social justice agenda. More recently, the #FeesMustFall movement (2015/2016) demanded an Africanized and decolonized curriculum as a national imperative for all Higher Education Institutions in South Africa. In addressing these and other imperatives, the Faculty of Education at the Nelson Mandela University chose to

embark on an 18-month revisioning journey that culminated in the adoption of a humanizing pedagogy (Freire 1993) as its underlying philosophical ideology. This is appropriate given South Africa's colonial and apartheid history where "reconciliation processes are needed to heal the effects of trauma (since) an array of conflicting differences, power relations and embedded interests, fears and anxieties intersect with educational processes" (Keet et al. 2009, p. 109). In addition, the faculty's revisioning journey sought to build community and address a dehumanizing apartheid legacy, acknowledging its continued presence in education in South Africa today. Zinn and Rodgers (2012, p. 76) confirm that a dehumanizing legacy has been "adopted wittingly and unwittingly into relationships within educational arenas which mirror and depict hierarchies of power, cultures of compliance, fear, as well as a suppression and loss of voice." Through an intensive process of "mutual humanization" (Freire 2005, p. 46), the faculty's vision, mission, and curriculum framework were crafted and implemented in all aspects of faculty life.

Therefore, when the authors of this chapter were tasked with the development of the Advanced Diploma Technical and Vocational Training [AdvDip(TVT)], our approach was to consciously strive to break with historical precedents where vocational education and training programs were formulated "within an outmoded and inadequate development paradigm aimed at providing workers for the economy" (McGrath 2012, p. 625). Our aim was to not only ensure a humanizing approach to the design of a curriculum but to develop progressive TVET lecturers who place the well-being and aspirations of TVET students at the heart of teaching and learning. In this regard, the AdvDip(TVT) at the Nelson Mandela University was developed at the intersection of two complementary theoretical frameworks, namely, a humanizing pedagogy (Freire 1993) and a capability approach (Sen 1980).

This chapter is a description of that journey. It begins with an exploration of the current TVET landscape and the contextual realities that provide a justification for the choice of the theoretical frameworks. Next an overview of events on how choices were made toward a suite of modules that make up a program aimed at the cultivation of a progressive vocational pedagogue is shared. Finally, the chapter concludes with an overview of Africanization and decolonization imperatives that are being addressed to ensure the inclusion of indigenous and other knowledge forms in the curriculum.

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## The Current TVET Landscape

In South Africa, as is the case internationally, there is – at a macrolevel – a strong belief that the vocational sector stands in service of the economy to such an extent that it completely ignores the needs of individuals in the sector. It was therefore imperative that we gain an understanding of the unique challenges that emerged from the TVET context. Consequently, we regard an understanding of the broader TVET landscape as a foundational principle to emerge from our work, because this insight provides an integral and vital perspective of the unique landscape in which

teaching and learning must take place to empower lecturers to prepare students adequately for a variety of vocational occupations.

It seems even today, South African strategies for post-school education and training (PSET) continue to give emphasis to the significance of TVET that meets the skills needs of the labor market (McGrath et al. 2010; Allais 2012; Powell 2014; Maluleke and Harley 2016). At the center of these strategies lies the notion of improving the employment opportunities for students in the formal labor market (McGrath et al. 2010), which is assumed to be necessary for economic growth, development, and global competitiveness. However, this human capital (Schultz 1961) discourse is under increasing attack as unemployment levels continue to rise (Weir-Smith and Ahmed 2013). Simultaneously, the world is witnessing increased levels of education among graduates never seen in history (Brown et al. 2001; Vally and Motala 2014), and yet, many remain unemployed.

Internationally, TVET is associated with globalization, intermediary skills, “human capital” (McGrath 2005; Schultz 1961), and employability paradigms (Gazier 1998; Hillage and Pollard 1998) aimed at a focus on the relevance of skills to market demands or the lack thereof. The skills mismatch debate has been going on for decades (Wedekind and Mutereko 2016), but there is inadequate evidence to claim that there is a direct relationship between education and employment. Gamble (2013) and Wedekind and Mutereko (2016) argue that there is no clear-cut relationship between employer needs and the curriculum because unemployment is a macroeconomic issue that cannot be addressed in the classroom. Therefore, the argument that continuous training is not a solution to economic problems holds some truth (Baatjes et al. 2014).

Based on the notions of human capital development, curriculum and pedagogy in TVET institutions are linked increasingly to the requirements of industry and national economic interests (Baatjes et al. 2014). TVET educators are encouraged to adopt a largely instrumentalist view of curricula, intended to provide students with specific job skills, knowledge, behaviors, values, and attitudes essential for an employable, skilled, and socialized workforce. This human capital orientation to TVET has silenced alternative views that argue for education’s role in developing various forms of critical citizenship and social and environmental justice in a democratic society (Baatjes et al. 2014).

In grappling with a “culture of silence” (as described by Freire 2005, p. x), we were drawn toward a broader purpose of education that considered critical consciousness and the development of the human being as a foundational principle. Thus, a humanistic philosophical orientation and a capability approach appealed to the transformative and responsive curriculum development work in which we wanted to engage with when developing the AdvDip(TVT). In this regard, the tenets of a humanizing pedagogy (Salazar 2013) align well with the two core normative claims of a capability approach, namely, the freedom to achieve well-being is of primary moral importance and that human beings should be afforded real opportunities to do and be what they have reason to value (Robeyns 2016, p. 1).

It appears that of the few institutions that offer formal academic programs for the preparation of lecturers for TVET colleges in South Africa, most have chosen the

dominant human capital and instrumentalist approaches (Baatjes et al. 2014). In contrast, the Nelson Mandela University in South Africa has embraced a transformative pedagogy also known as a humanizing pedagogy rooted in the Freirean tradition together with a capability approach for the development of our AdvDip (TVT). The intent is that the political nature of such teaching would situate TVET lecturers as agents of transformative change who understand contextual realities and embrace social justice, freedom, and democracy by placing human well-being at the forefront of curriculum and pedagogy.

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## Contextual Realities

Statistics South Africa (2017) reveals that 20.2% of South Africans live below the food poverty line, translating into roughly 23 million people. The Gini coefficient for South Africa is calculated to be approximately 0.65 in 2011, showing among the highest levels of inequality in the world. This means that the share of national consumption between the richest and poorest remains wide. Black South Africans earned on average only about one-fifth as much as their white counterparts in 2016 (Statistics South Africa 2017) with unemployment being the main driver of poverty, while years of schooling contribute as the second most significant driver of poverty. The major contributor to the poverty situation of the youth, aged 15–24, in South Africa was educational attainment. In other words, their poverty was a consequence of not being in school. We see a further exacerbation of poverty where no one else in the household is either employed or employable. The growing problem of youth unemployment in South Africa is, therefore, a major concern.

The unemployment rate in South Africa increased to 27.7% in the first quarter of 2017 (Statistics South Africa 2017). It is the highest jobless rate in our country since 2004 as unemployment rose faster than employment and more people joined the labor force. According to recent estimates, more than 5.9 million South Africans, often poorly skilled, leave the school system every year in search of jobs in local employment markets, which are not expanding fast enough to create jobs. Many of these job seekers lack the requisite skills employers want. Without employment-related skills, school leavers cannot benefit from even the minimal employment opportunities that may be available to them. It is within this context that attention shifts to the TVET sector as economic guardians since it is thought to be a major source of intermediate skills development that could address mass youth unemployment and its highly racialized distribution (Table 1).

From the table it is clear that the vast majority of students (about 92.5%) enrolled in the sector are Black African (DHET 2015) who represent the historically disadvantaged and who continue to struggle with the kind of socioeconomic challenges described above. Therefore, central to lecturer preparation is a consideration of the kind of student who accesses TVET.

For this reason, throughout the development of our program's contextual realities and how they impact the lives of TVET students and their education became another foundational principle. This emancipatory approach to education that places the



**Table 1** Number of students enrolled in TVET colleges by qualification category and population group, 2015 (DHET 2015, p.32)

Qualification category	African	Colored	Indian/ Asian	White	Other <sup>1</sup>	Reconciliation	Total
Report 191	479,160	27,920	2080	7899	262	2143	519,464
Report 550/NSC	895	88	5	8	0	0	996
NC(V)	156,429	7597	263	606	44	520	165,459
Occupational qualifications	13,935	4016	269	1483	56	774	20,533
Other <sup>2</sup>	0	0	0	0	0	31,428	31,428
<b>Total</b>	<b>650,419</b>	<b>39,621</b>	<b>2617</b>	<b>9996</b>	<b>362</b>	<b>34,865</b>	<b>737,880</b>

Note 1: Report 191 refers to the NATED programs, N1–N6. It is a part-qualification

Note 2: NSC refers to the old National Senior Certificate (which is equivalent to Grade 12)

Note 3: NC(V) refers to the National Certificate (Vocational) Levels 2–4

Note 4: “Occupational qualifications” refer to qualifications associated with a trade, occupation, or profession resulting from work-based learning and consisting of knowledge unit standards, practical unit standards, and work experience unit standards

Note 5: “Other<sup>2</sup>” in colleges refers to all other skills development programs

Note 6: The Department of Higher Education and Training uses the racial descriptors: “African,” “Colored,” “White,” and “Indian/Asian” for planning, monitoring, and funding purposes. The Department places on record that these racial descriptors, which characterized apartheid policies and practices in the past, are being used to provide historical context and comparisons as well as to describe the effects of present policy and practice

Note 7: “Reconciliation” refers to numbers created to balance the totals

Note 8: “Other<sup>1</sup>” refers to population groups other than the groups mentioned

vocational aspirations of TVET students at the heart of teaching and learning adheres to the call made by Brown et al. (2011, p. 27) for, “an alternative orientation to vocational education especially where poverty, inequality and unemployment must be viewed in the context of a deeply rooted neo-liberal economic system.” Thus, a humanizing pedagogy at the intersection of the capability approach was considered appropriate for the development of the AdvDip(TVT) because both frameworks offer an approach to education that is centered on human agency, thereby debunking the widespread deficit notions of TVET students in particular and the TVET sector in general.

In the section that follows, the complementary nature of the frameworks is explicated on as a theoretical orientation to curriculum development, before a more practical overview is provided of how these theoretical ideas were used in program development.

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## The Intersection of a Humanizing Pedagogy and a Capability Approach

A humanizing pedagogy defines the purpose of education as “the liberation of oppressed populations” (Freire 1993, p. 13), because it seeks to interrogate the pedagogical interrelationships between culture, economics, ideology, and power

critically. In doing so, it advocates for an approach to teaching and learning that deeply nurtures the development of critical consciousness. Since critique is a central concept in a humanizing pedagogical approach, it serves as a powerful lens of analysis from which social inequalities and oppressive structures can be unveiled, deliberated on, and transformed. A humanizing pedagogy requires educators to assess inequalities and to address directly the reality of marginalized students who are taught to believe in their own inherent deficit and to accept, without question, standardized knowledge. Hence, the critical dialogical approach of a humanizing pedagogy seeks to counter the traditional “banking model” (Freire 1993, p. 14) of education. It does this by advocating for the development of lecturers who are prepared to engage in an ongoing reconfiguration of curriculum while simultaneously making central “the lived histories of their students” (Freire 1993, p. 15).

A capability approach similarly advocates for education as a, “process of becoming and for providing people with options that allow them to shape their future” (Andres and Chavez 2015, p. 20). Initially proposed by Sen (1980) and further developed by Nussbaum (Nussbaum and Sen 1993), this approach argues that, “economic wealth is only one facet of human well-being and that if a sole focus on aggregate wealth maximisation occurs, then deprivations suffered by many would be ignored” (Anand and Sen 2000, p. 2039). In other words, there would be “a failure to consider the opportunities that people do or do not have for maximising well-being” (Alkire 2008, p. 76). Hence, the opportunity to achieve capabilities is an imperative if education is to be designed to enable valued “functioning” such as “knowledge, social relations, critical thinking, imagination, empathy, recognition, respect, enjoyment from the active participation in learning, autonomy, confidence to form and argue an opinion, active citizenship, deliberative dialogue, and economic opportunities” (Walker 2008, p. 459).

Thus, as a direct complement to a humanizing pedagogy, a capability approach to education privileges human dignity and well-being over economic growth. Powell and McGrath (2014, p. 17) bring into conversation TVET education as “potential for self-actualization” and on “learning as a life-long process.” Their view is supported by the Human Development Report (2010, p. 86) which explicates that, “the expansion of people’s freedoms to live long, healthy and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development equitably and sustainably on a shared planet.” In this sense, people are both the beneficiaries and drivers of human development. Thus there is an alignment between a capability approach and a humanizing pedagogy, because “well-being, justice and human agency are at the heart of the capability approach” (Powell and McGrath 2014, p. 19).

While we may ascertain the value of a humanizing pedagogy against contextual realities, it is also incumbent upon critical educators to examine the nature of economic inequalities and the problematic role of market-driven education policies. Inherent in such examinations is the need to interrogate critically how macroeconomic trends impact life at the colleges and how it creates sites of resistance. These principles require educators to create class consciousness and to unpack the idealist assumptions and social implications of the college sector as the great equalizer in a system driven by the dictates of profits rather than human needs.

In addition, Freire's dialogic approach to education supports a capability approach in that, "capabilities cannot be generated from consultations with experts or business representatives but must take heed of the voices of all relevant stakeholders" (Powell and McGrath 2014, p. 20). According to Tikly (2013, p. 6), "different interests define capabilities differently." Therefore, fundamental to the capability approach is the processes for determining capabilities. A simple process of consensus building is not sufficient; instead account must be taken of critiques as to how consensus is formed particularly when there are imbalances in power, as well as of the fact that human beings are agents of change rather than just its beneficiaries (Powell and McGrath 2014, p. 20).

Both the capability approach and a humanizing pedagogy take into account the rich cultural capital of marginalized students who are plagued with deficit notions. A capability approach to TVET requires account to be taken of, "the personal, social and environmental factors that limit freedoms not only to access TVET, but also to learn, such as sexual harassment or minority group discrimination within the TVET environment, lack of access to sanitary facilities for girls and women and absence of facilities for disabled persons, or textbooks in non-first language vernacular" (Tikly 2013, p. 9). Furthermore, if TVET is indeed a second choice, as many claim it to be, then there is a need to understand why this is so and a means to address the deprivation of freedoms that makes this so must be found (Powell and McGrath 2014, p. 19).

Hence it is within these theoretical underpinnings that the program development journey undertaken by the Nelson Mandela Faculty of Education is described more practically. To set the scene, a brief overview of the sequence of events that led to policy framing of the AdvDip(TVT) is shared, before a more in-depth discussion is provided on the content and pedagogy for the suite of modules in our AdvDip(TVT) program.

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## Toward Radical Revisioning of Curriculum

### An Overview of the TVET Journey

In 2011, the Eastern Cape Socio-Economic Consultative Council (ECSECC) (<http://www.ecsecc.org/programmes/project/post-schooling>, accessed 5 July 2017) facilitated the implementation of the Vocational Education Orientation Program (VEOP), a 30-credit (This SLP is credit bearing which means that students may offer the credits toward an appropriate vocational qualification.) short learning program (SLP) for TVET lecturers. We reviewed and adapted the curriculum provided and premised the development of our version of the SLP within a humanizing pedagogy. A research paper (Rudman and Meiring 2018) involving this offering reports that the humanizing components of the program had a powerful, lasting transformational effect on the TVET lecturers who completed the program. Hence, this finding is a significant affirmation for the humanizing approach we have chosen for the AdvDip(TVT).

As national efforts were underway to assist universities to develop common curriculum structures that informed the development of the AdvDip(TVT), it became clear to us that the collaboration with all stakeholders, the adoption of a humanizing

pedagogy, and a capability approach were an imperative. These would dispel deficit notions of the sector, and it would provide a resurged focus on the decolonization of the curriculum. It would also enable considerations for defining a vocational pedagogy for an African context and infuse the inclusion of technology toward sustainable development through TVET lecturer preparation.

The promulgation of the Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training (2013) saw the establishment (at national level) of a DHET-funded collaborative effort to develop a framework for the AdvDip(TVT). The Centre for Researching Education and Labour (REAL) at the University of the Witwatersrand facilitated the processes, bringing together a consortium of ten universities who managed to publish the product of this collective effort in 2016.

Hence, collaboration became one of the foundational principles of our work on the AdvDip(TVT). We consciously sought partners internationally, elsewhere on the continent and locally who could share this journey. On the international stage, we established a collaboration with Carl von Ossietzky University in Oldenburg, Germany, researching the German models of work-integrated and workplace-based learning. We also engaged with Prof Bill Lucas at Winchester University in England, researching the basic tenets of a vocational pedagogy and we met with colleagues at the University of Aberdeen, researching blended learning practices, ICT learning platforms and lecturing at a distance. This journey provided us with an opportunity to benchmark ourselves in terms of international comparability.

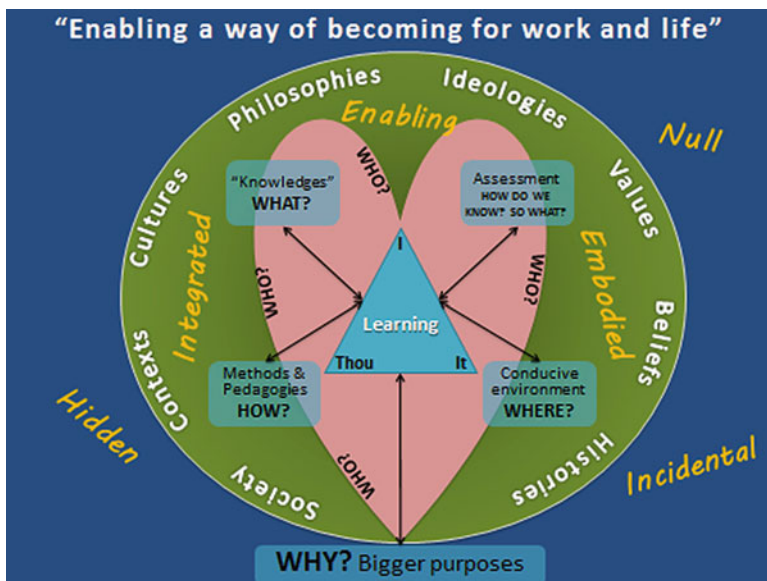
As we were developing the qualification, we also established collaborations with the academic leaderships of the three TVET colleges we planned to serve: South Cape, East Cape Midlands, and Port Elizabeth TVET Colleges. The purpose of these collaborations was to ensure that we reflected their voice in the curriculum content and that they would also take ownership of the program.

On another level, we also explored on-campus inter-faculty collaborations, as Nelson Mandela University is a comprehensive university. We are acutely aware that all the faculties have well-established networks with business, commerce, and industry. We needed access to these networks if we were going to deliver on our work-integrated and workplace-based learning spaces of the program.

## Program Development

A critical guiding post for the curriculum development was the faculty curriculum design framework. While exploring the framework that considers “learning” to be at the center of the curriculum, the “instructional triangle” adapted from an essay by David Hawkins (1974) was one of the conceptual tools that influenced our thinking about teaching and learning. The “I-Thou-It” (Hawkins 1974) interaction had a direct bearing on the approach we considered as fundamental to the development of the AdvDip(TVT), aimed at preparing lecturers that serve the TVET sector.

As argued by Hawkins (1974), we believe that the relationship between teacher (I) and student (Thou) differs from other caring relationships because of the presence of the third element (It) – the curriculum. The “It” is something outside both the teacher and student,



**Fig. 1** The Nelson Mandela Faculty of Education’s Humanizing Curriculum design framework

which provides a shared and vital focus for their relationship and interaction. This three-part relationship supports both the development of an understanding of the content and the development of human relationships central to a humanizing pedagogy. This plays out in what we fondly refer to as the “heart of the WHO” – in other words, who we are, who the lecturers are, and who the TVET College students are (Fig. 1).

What was a significant consideration for us in terms of the “heart of the WHO” is what Baatjes et al. (2014, p. 93) bring to light as an “oppressor-oppressor dichotomy” where TVET lecturers are themselves marginalized as educators, while they in turn deliver an instrumentalist curriculum to marginalized TVET students. Hence, the call they make for progressive lecturers is addressed in our program through the constant nurturing of a humanizing and capability orientation that aims to (re)shape how lecturers view the role and purpose of vocational education, the perceptions they have of their students, and the ways in which they facilitate learning.

The purpose statement for our AdvDip(TVT) reads as follows (Nelson Mandela University Form 2):

The purpose of this qualification is to develop and deepen the teaching competencies of TVET lecturers by:

- Promoting critical and inquiry-based dispositions with regard to the foundations of education as well as the technological industry/workplace spaces in which they specialize
- Placing an emphasis on practical learning by exposing and engaging lecturers to both classroom-specific and industry/workplace-specific environments

- Sensitizing lecturers to the unique and complex challenges in the sector so they may engage in socially responsive ways to the diverse TVET student profiles
- Strengthening the foundations of a vocational pedagogy grounded in a humanizing pedagogy and capability approach
- Practicing a vocational pedagogy which reflects the requisite professional values, ethical conduct, justifiable decision-making, and leadership
- Embracing a personal philosophy of teaching and learning underpinned by a strong theoretical foundation of a vocational pedagogy within a humanizing and capabilities framework

A suite of ten modules were designed in relation to program purpose. They are named and briefly described in Table 2.

**Table 2** An overview of the modules designed for the AdvDip(TVT) at the Nelson Mandela University Faculty of Education

Core modules	Overview of module
Philosophical perspectives in education	Provides an overview of philosophical orientations to education from a historical perspective focusing on the key principles of critical pedagogy and humanizing pedagogy, enabling students to develop a personal philosophy for teaching and learning in the field of vocational education
Psychology of education in a vocational context	This module is nested within an inclusive education paradigm, and it provides an overview of the barriers to learning confronting students in the TVET sector, so that lecturers may develop an understanding of and appreciation for their students' holistic development
Vocational education for social change	Sensitizes lecturers to the unique world in which the TVET system functions, in order that they may understand the sociopolitical and socioeconomic realities that shape this sector. It is envisaged this will prepare them for the central role they play as agents of change to develop of a socially just society
Historical developments in vocational education	Provides a brief overview of the history of post-school education and training (PSET) in South Africa to give students a better understanding of the current TVET context. It is envisaged that this may empower students to make informed decisions with regard to the implementation of the program's curriculum and practice in their current context
Curriculum studies and assessment practices	Provides an overview of theories that underpin different approaches to a practice-based curriculum and the implications for pedagogy and assessment inherent in the different approaches, as a means to support student learning and aspirations
Pedagogical perspectives in TVET	Conceptualizes a vocational pedagogy for the TVET sector by taking into consideration the imperatives for sustainable developmental practices, the varied contextual realities, as well as the needs of the sector and adult vocational education learners

(continued)

**Table 2** (continued)

Core modules	Overview of module
A professional identity for a vocational lecturer	Engages lecturers in examining the formation and re-formation of her/his own professional identity in the broader context of a vocational pedagogue
Designing a vocational pedagogy	Pulls together the various philosophical perspectives and theories of knowledge in curriculum implementation in relation to the existing contextual realities, so that students may make informed decisions about designing an appropriate vocational pedagogy
Critical discourses in TVET	Provides an overview of national policies that have impacted the sector in South Africa post-1994 so that lecturers may contribute to critical discourses impacting the contextual challenges that bedevil the sector
Practical learning – Teaching practice	Gives lecturers the opportunity to demonstrate in real-life and simulated environments the requisite knowledge, skills, and attitudes (PCK) that reflect those of a pedagogue practicing a humanizing and capability praxis through both practice and research engagements
Practical learning – Workplace-based practice	Gives lecturers the opportunity to gain experience in the industry(s) served by the subject discipline(s) they lecture, so that they may align the workplace and their subject discipline through the lens or workplace as a site of learning

## Toward Cultivation of a Progressive Vocational Pedagogue

The *Philosophical Perspectives in Education* module introduces TVET lecturers to the theoretical foundations of a humanizing pedagogy and the concepts of Ubuntu as an African philosophy so as to encourage lecturers to find ways to tap into the agency of students and the socially useful knowledge that impact their lives (Salazar 2013). In addition, *Critical Discourses in TVET* and *Vocational Education for Social Change* are open-ended modules that explore the contextual, socioeconomic, and policy challenges currently facing the TVET sector. In these modules, TVET lecturers are invited to raise issues that are of interest and direct concern to them in their current experiences at TVET colleges. In so doing, the deficit perceptions of students are challenged and redirected toward a capabilities framework. At the same time, lecturers are empowered to create democratic spaces for teaching and learning by applying appropriate pedagogical tools that enforce active learning that is inclusive of divergent views (Hyslop-Margison and Sears 2010, p. 57). Hence, the program as a whole seeks to prepare a progressive, critically conscious lecturer who is able to exercise a holistic, democratic praxis against an enforced instrumentalist curriculum.

We subscribed to Roberts (2000, pp. 13–14) interpretation of Freire’s use of the term pedagogy as a “complex philosophy, politics and practice of education that demands of educators a clear ethical and political commitment to transforming oppressive social conditions.” The pedagogical orientation throughout our AdvDip (TVT) seeks to role model through praxis a radical reconstruction of teaching and learning by engaging lecturers with various lenses (Tenets of a humanizing



pedagogy (Zinn and Rodgers 2012; Salazar 2013), issues linked to a vocational pedagogy (Lucas et al. 2012), and Sen's (1980) capabilities framework are explored throughout the program.) into the TVET world so that they can develop their own vision on how to transform it.

Since we interpret Freire's pedagogical perspective as a way of living in the world rather than merely technical pedagogical practices, modules like *Pedagogical Perspectives in TVET, Curriculum Studies and Assessment Practices*, and *Designing a Vocational Pedagogy* link pedagogical and curricular resources as well as assessment to the lifeworld of marginalized students. This is done by exploring with TVET lecturers various "landscapes of learning" (Wenger-Traynor et al. 2015), including "social landscapes generated in disenfranchised communities and often not valued by formal education processes" (Catts et al. 2011, p. 11). Such an approach should result in an evaluation of South Africa's oppressive colonial past and the lack of value given to black education in general and their indigenous knowledge in particular. This is supported by the *History Developments in Vocational Education* module and forefronted across the entire program so as to interrupt patterns of exclusion and the present orientation to vocational education which perpetuates class divisions reproducing the economic and social inequality still evident in South Africa today.

In addition, throughout the AdvDip(TVT) program and especially in the *WBL module*, TVET lecturers are given the opportunity to explore both the formal and informal sector as sources of employment and learning for TVET students. Such explorations not only increase the range of social and occupational possibilities but also support opportunities for lecturers to view TVET education as one that promotes intellectual growth, vocational enrichment, and social improvement. Powell and McGrath (2014, p. 17) speak of an education that leads to the "capacity to aspire" without which freedom amounts merely to a choice between current available options. Education should therefore enable valued functionings (Walker 2008) and effect social change, "since a capability is power to do something" (Sen 2009, p. 19). Hence, the AdvDip(TVT) aims to sensitize lecturers toward a capability approach with the prospect that a "capability is an opportunity that brings with it a responsibility...to expand the capabilities of the poor and disadvantaged" (Walker et al. 2009).

In this way our curriculum design sought to address a resurgence in the belief of human potential, resiliency, and agency based on a humanizing pedagogy and a capability approach, by providing TVET lecturers with multiple opportunities to grapple with common understandings of a humanizing pedagogy and the possibilities for a capability approach in TVET education and its concomitant implications for identity, pedagogy, curriculum, and praxis.

## **Engaging with Vocational Identity and a Vocational Pedagogy**

Our program is designed at present to serve two cohorts of lecturers: firstly academically qualified but professionally unqualified TVET lecturers who are already teaching in TVET colleges and secondly new graduates that intend teaching in the sector in the future. Therefore, in designing the program, it was important for us to



reflect on how to prepare experienced lecturers without assuming that they are “deficient” in some or other way. In this regard, Wheelahan’s (2010) caution that there is no one idealized notion of a TVET teacher needed consideration.

The imperative toward interrogating what it means to be a TVET educator is located in the *A Professional Identity for a Vocational Lecturer* module. This module explores the dual identity dilemma that TVET lecturers face, namely, that of a professional educator and also that of business or industry professional. In this regard, a change in orientation for lecturers is required since there would be a need to unpack the process of integrating the theory and practice of a TVET curriculum that “faces both ways” (Barnett 2006). Through reflexive processes and autobiographical/ethnographical explorations, this module personalizes the dual identity dilemma as it concerns individual lecturers and how this might feed into their approaches to *Teaching Practice* and *Work Based Learning* modules.

Supporting the notion of lecturer identity is the *Designing a Vocational Pedagogy* and the *Curriculum Studies and Assessment* modules which are both designed to explore the theoretical constructs and conceptions of a practice-based curricula because for TVET, “work is the curriculum” (Boud 2001, p. 5). Therefore, lecturer preparation both in curriculum theory and in practice (*Teaching Practice* and *Work Based Learning*) provides TVET lecturers with conceptual and practice tools that enable them to mix different forms of knowledge drawn from empirical (conceptual) and nonempirical (situated in the everyday) domains. This prepares them to understand how knowledge progression and occupational progression can be developed through the curriculum they teach. In addition, the idea that TVET has to do with knowledge production in the workplace opens pathways for conversations on the nature of work and “how people learn in, from and through work” (Blom 2016, p. 6). In this deliberation we include a reminder from Gamble (2012, p. 9) that “neither craft, nor trade is a homogenous concept and these are understood differently depending on the system in which one works.”

In this regard, “learning by doing” describes vocational pedagogy too simplistically, obscuring the fact that “there is no one definitive notion of a vocational pedagogy” (Wheelahan 2010, as cited by Gamble 2013, p. 221). Lucas et al. (2012, p. 14) reflect that since “pedagogy is undeniably complex, it leads some agencies to focus on controllable factors like the nebulous notion of teacher quality.” Hence we utilize the vocational pedagogical perspectives identified by Blom (2016, p. 5) for the South African context to prepare TVET lecturers with the tools needed to design vocational pedagogical approaches for the TVET curriculum they teach.

Finally the imperatives for an Africanized and decolonized curriculum in Higher Education meant that there was a need to explore alternative ways of knowing in relation to TVET curricula and the preparation of TVET lecturers.

## **An Africanized, Decolonized, and Responsive Curriculum**

Decolonizing and Africanizing the university curriculum much less that of TVET has been challenged by institutional complexity under which curriculum change is pursued.

For TVET lecturers, the curriculum for their students is provided, and they have a limited role, if any in the design of TVET curriculum. However recent TVET student protests lament on an outdated curriculum, and during the #FeesMustFall campaign, False Bay TVET college joined fellow students from Higher Education Institutions in the western Cape at a summit entitled “Students as Partners in Nation Building” to deliberate on transformation, decolonization, and democratization of Higher Education (False Bay TVET College News 2016). This indicates that the decolonization and Africanization conversation has also begun at TVET colleges in some provinces.

Despite “multilayered struggles,” what is useful according to Jansen (2017, p. 5) is an “expansive imagination when it comes to thinking about curriculum work.” This approach will be adopted with TVET lecturers in our program. We have considered Liebowitz’s (2017, p. 98) charge that “social realism has separated knowing from doing, learning from experience and cognition from emotion,” because this has direct relevance to TVET where “work is the curriculum” (Boud 2001, p. 5). Like university curriculum, in the TVET curriculum, the domination of western knowledge has also marginalized alternative and indigenous knowledge forms. Hence, there is a need to acknowledge and bring into dialogue the relevance of indigenous knowledge where possible. Since the curriculum designed for the AdvDip(TVT) is much more than content, critical engagement with lecturers brings “rival knowledge traditions responsive to real life experiences” (Jansen 2017, p. 5). These will be included wherever possible. It is envisaged that social dialogue will provide opportunity for personal and social change opening the curriculum of the AdvDip(TVT) to flexibility and sharing within a kind of praxis that lecturers can also explore with TVET students in their own classrooms. In this way, not only pedagogical but also cognitive justice (a normative position that advances the equal treatment of all forms of knowledge) will be attempted through all of the modules offered in the AdvDip(TVT) at Nelson Mandela University.

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## Conclusion

In this chapter, we share with an international audience the journey that a South African university – Nelson Mandela University – has embarked on to radically revise the AdvDip(TVT) that prepares TVET lecturers. Although it remains imperative to develop a well-educated and skilled workforce, we collectively need to acknowledge that there is much more to TVET than simply training workers. We are of the view that we need to cultivate progressive lecturers who, through their practice, activate students toward enabling capabilities so that they can choose a life they have reason to value and to reach higher aspirations. Our philosophy is that human well-being precedes economic development and growth, as articulated through the humanizing pedagogy and capability approaches to education adopted in program development.

Our journey toward the development of the AdvDip(TVT) demonstrates our intention and effort to shift from human capital and conventional banking approaches to education and move toward a humanizing, liberatory, and democratic approaches that support human agency. Therefore, we intend, through the enactment

of humanizing pedagogies and a capability approach, to cultivate TVET lecturers who see themselves as agents of hope and change in society and as lecturers who seek to promote social justice, equality, and human well-being through their transformative teaching and learning praxis.

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# Making a Life: Doing, Radical Humanism, and Agency

# 17

David Balwanz

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## Abstract

More than one billion people globally are making a life outside of the formal labor market. This chapter draws on original research in South Africa to argue that many people are *making a life* outside of the market in accordance with a set of values which fundamentally contest core assumptions embedded in dominant discourses about the relationship between learning, labor, and having a good life. People we spoke with argued that their *making a life* was characterized by concrete labor (or doing) and radical humanism and saw these elements as constitutive features of their well-being and instrumental to their well-being improvement. This chapter shares this research, explains the making a life framework, and then draws on this framework to explore its relationship with human agency and capability. In this exploration, the chapter notes that while structural perspectives often emphasize the (very real) agency-freedom constraints facing poor and working class people, a making a life framework

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demonstrates the inherent agency and humanity expressed by people enduring often extreme hardship and importantly offers a new perspective for interpreting human agency – inclusive of the self-defined efforts of people to make their own lives better and on their own terms.

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**Keywords**

Concrete labor · Doing · Radical humanism · Agency · Making a life

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## Introduction

This chapter makes three arguments:

- Formal vocational education and training not only does not help; it actually harms a large number of people.
- A “making a life” framework built around the concepts of concrete labor, radical humanism, and caring can be used to understand how the more than one billion people living outside formal labor markets take care of their own well-being, needs, and interests. The “making a life” framework draws on theorizing presented in Baatjes (2018).
- Capabilities scholars could draw on the “making a life” framework to broaden their understandings of human agency, as well as understandings of the conditions, circumstances, and ways in which human potential, in its varied manifestations, unfolds.

The preponderance of scholarship on VET policy and practice is grounded either in human capital and productivist logic or, alternatively, a full-throated critique of dominant paradigms. Critics of productivist logic have found it analytically useful to situate and understand VET within the broader social and economic structures in which it is located. Such contextualizing has resulted in scholarship identifying the rigidity of class structures and the extent to which social structures and unequal power perpetuate class inequality and relegate, in many countries, vocational training and manual labor to second-class and lower-income status (Vally and Motala 2014). However, if this frame of reference and model of social relations are taken as static, one seems to face either an analytical cul-de-sac (e.g., scholarship promoting TVET for class mobility within an inherently unequal set of social relations) or is forced to make naïve claims about the potential of VET or human agency to transform structural poverty, inequality, and joblessness. Notably, the failures (and rejections) of capitalism have created new material and analytical spaces – labor taking place outside of formal markets – that can be drawn on to develop new understandings of human labor and, concomitantly, new expressions of human agency and human potential. These interstices (Holloway 2010), or rather, what is happening in them, are the focus of this chapter.

This chapter draws on data collected during the Emerging Voices 2 (EV2) research project. The project (described in the next section) reached people in over

20 poor and working-class communities in rural and peri-urban areas in South Africa. People we spoke with told us about what mattered to them and how they met their human needs on a day-to-day basis. People told us about their concrete labor, that is, their activity which met their human needs and was measured in its use value. Peoples' lived experiences and their reflection on their experiences conveyed a radically human orientation, that is, a privileging of humanity, investment in interdependent and caring relationships, and resistance to oppressive forces. What we learned through this research was an orientation to "making a life" and "well-being" that was significantly different from the normative model conveyed in modern capitalist society and conveyed through formal institutions of education.

These findings matter for two reasons: (i) productivist economic and educational paradigms have not and are unlikely to resolve poverty, unemployment, and inequality and (ii) the share of people and families making a life outside the formal labor market accounts for one-fifth of the world's population. In South Africa, nearly half of South African families live below the poverty line, and unemployment, using the broad definition, is equal to 37%. Youth unemployment is much higher at 67% (Stats SA 2017). Finally, South Africa has one of the world highest levels of economic inequality. These indicators remain little changed in the two decades following South Africa's transition to democracy. More troublingly for human capital adherents, higher levels of educational attainment and TVET certification in the general population do not appear to have addressed unemployment and poverty and joblessness in rural or urban areas. Nearly 50% of South Africans live in informal urban settlements or rural and remote areas, and over 20% of the labor force is "informally employed" (Stats SA 2015; Wills 2009). At a global level, nearly two billion people, almost one in five people, work in the informal sector (Neuwirth 2012). Based on our research, efforts to formalize (from a social, economic, or educative perspective) so-called informal labor arrangements amount to the misapplication of a normative model to phenomena that is, by structure and definition, positioned outside of the dominant logic of markets and formality. For the medium term at least, widespread exclusion and massive informal labor systems will continue to be a daily lived experience for nearly 20% of the people on our planet. While the EV2 research elicited new ideas and perspectives, this chapter does not in any way seek to romanticize the lives of the people with whom we spoke. People we spoke with talked about the material hardships of poverty, including hunger, ill health, and insecure living conditions; poor access to basic services; and insecurity, powerlessness, and loss of hope. However, in sharing how they "made a life," people also spoke of the extent to which human needs, interests, and relationships shaped their labor and daily lives.

This chapter elaborates on the three arguments outlined in the first paragraph and, based on these arguments, reflects on possibilities for agency- and capabilities-related thinking in a "making a life" framework. This chapter does not suggest that research findings in any way resolve critical issues facing formal VET. Instead the chapter hopes that information shared limits the harm inflicted by education and opens new spaces for thinking about more humane living and the labor which sustains it.



## Learning Malpractice! Schooling That Harms People

This chapter draws on data from the Emerging Voices 2 research project: a 3-year project funded by the Department of Higher Education and Training in South Africa and implemented by the Education Policy Consortium. Research was conducted by three university-based research centers (the Centre for Education Rights and Transformation at the University of Johannesburg, the Nelson Mandela Institute at the University of Fort Hare, and the Centre for Integrated Post-School Education and Training at Nelson Mandela Metropolitan University) and the Centre for Education and Policy Development.

The purpose of the research was to reimagine post-school education (In - South Africa, the term post-schooling refers to post-secondary schooling and can include university, TVET, and adult education and skills training.) so that it would better serve the needs and interests of poor and working-class communities in South Africa. In addition to interviewing and holding dialogues with students and staff in VET colleges, universities, and Adult Education and Training (AET) centers, the research team also visited several large number of informal education organizations and organizations in which nonformal learning took place (Baatjes 2014) and conducted workshops in communities to get a better sense of how people solve the daily problems and challenges that they face in different parts of South Africa.

One of the things people told us was the extent to which dominant developmental paradigms and institutions, including formal institutions of education, not only did not serve their interests, but actually *harmed* them. Many people told us that their experience in formal education, including secondary school, VET, and adult education psychologically harmed them, leading them to feel stupid, slow, or worthless. This harm came from classroom experience (i.e., disrespect from teachers and lecturers, repeated experiences of failure), inadequate public support (TVET colleges and AET centers that are poorly resourced, have inadequate infrastructure, and do not have sufficient or sufficiently qualified staff), and dominant discourses and labor market signaling which confer second-class status to blue-collar work, VET colleges, and AET centers. One TVET college lecturer notes:

We get so many grade 11 learners coming here and wanting to enroll. . .and we have to ask, why not complete grade 12???? They will cry. They studied for the grade 11 three times. They don't want to go back there. Even when you look at their reports there are circles, red marks showing that they did not pass this and this. (FETC Lecturer, Gauteng)

TVET colleges are regularly described as “dumping grounds” – a characterization to which, unfortunately, education officials contribute. During the period of the EV2 research, Mathanzima Mveli, the director general for the Department for Basic Education, stated that the rationale for the introduction of a Grade 9 leaving certificate is for “those learners who have mild to moderate intellectual disability and who can't go beyond Grade 9 academically” (SAFM 2015). This argument was drawn on to justify efforts to direct “slow learners” into secondary-equivalent courses at TVET colleges. Unfortunately, because many of the costs of attending TVET colleges are

shifted onto students, a large share of students enrolling in TVET college do not complete a degree – leaving them with neither a secondary certificate nor the TVET college equivalent. Many youth and adult learners, identified as failures multiple times, and observant of the fact that their academically more successful peers have access to better resourced, better run, and better respected educational institutions, indicated that they begin to believe that they may be “less than” or become depressed about being able to change their own future.

People also told us of the harm and disillusion that came from the false promise of education: the promise of a path to a better life and to jobs and lifestyles which do not exist. In one student dialogue, a technology student observed, “Education was once called a key to success but now. . . No. (Student, University of Technology, Gauteng). Research participants capture the “cruel optimism” identified by Berlant (2011) – where the promise of material wealth and status following graduation meets less glamorous labor market realities. In South Africa, people we spoke with in numerous communities associated the unmet expectations of education and labor market success with loss of hope, the use of alcohol and drugs, self-harm, and violence among youth. One male adult learner told us:

Children don't see the purpose of matriculating; those who do write and pass matric sometimes end up on the streets. This means that we have high rates of alcohol and drug abuse, promiscuity, teenage pregnancies and crime. There's no sport, our youth don't know how to relax. (Bluelilliesbushes, Eastern Cape)

For first-generation college graduates who are not able to find a job, the feeling of failure may hit especially hard as family members helped pay for higher studies and expected them to get well-paying jobs. Recent graduates from poor and working-class backgrounds who do find jobs often struggle with high levels of student loan debt and expectations of supporting extended families.

Many people we spoke with provided an incisive analysis of their dilemma but also great difficulty of identifying an alternative. People recognized that high structural unemployment (including ongoing retrenchments in manufacturing and mining industries) meant that their chances for finding a job were slim. As a result, many were drawn to further education and certification as a means to improve, if only slightly, their competitiveness in the labor market. People identified “giving up” as the only alternative to participation in education. It was only when we stepped outside of “formal” spaces that alternatives were identified. It was people outside of the formal system who identified the extent to which people (in formal education) were schooled into someone else's logic of what it meant to make a life – part of which included being dependent on someone else to give you a job. (Peter Hessler, in reflecting on teaching at a University in Fuling, China, thousands of miles away makes a similar observation; he writes of a conversation with an uneducated Chinese worker, a photographer, “I realized that as a thinking person his advantage lay precisely in his lack of formal education. Nobody told him what to think, and thus he was free to think clearly (Hessler 2001 p. 173) . . . the more I thought about this, the more pessimistic I was about the education my students were receiving.”) An adult educator we spoke with said that we need to eradicate the mentality that “I must go

to town to be employed” (Adult Educator, Gauteng). Students we spoke with talked about how their experiences of going to school iteratively distanced them from their past and their lived experiences. Upon returning to their communities, they found themselves unable to relate to others and often became reliant on others in order to be able to meet their basic needs. Ironically, for these students, formal education and the expectation of the results of formal education (i.e., a job and a paycheck) created in them a dependency on others which did not exist previously. One interviewee recounted, “this mother in the township is selling fatcakes and sending all her kids to varsity. . . and some of those kids are coming back home and living with her” (Local Activist, Orange Farm, Gauteng).

Of course, many students have also benefitted from their participation in VET and AET education in South Africa. TVET colleges reach over 700,000 students in South Africa: many students benefit from their participation in TVET college courses. For example, Powell (2012) and Needham and Papier (2011) offer recent positive examples of VET improving the lives, agency, and aspirations of youth and adults from poor and working-class communities. However, the EV2 data show that VET and AET also harm a large number of youth and adults in South Africa. As this chapter will later argue, one of the greatest harms is the extent to which formal schooling appears to construct in students a narrowed and diminished agency capacity and, because of this, a truncated understanding of the fullness of human potential which could be developed.

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## **Making a Life: Doing and Radical Humanism**

As noted earlier, while part of our research focused on the experience of formal schooling, a significant portion of the research involved collecting data on how people in poor and working-class communities “made a life.” Many people we spoke with were busy meeting their basic needs – getting food and water; engaging in informal trade and service activities to generate income; farming; working with, taking care of, and relying on others (family/community); finding creative ways to get electricity or ensure shelter and comfort; and thinking creatively about ways to better their lives. It is worth noting here that people we spoke with did not distinguish between “making a life” and “making a good life.” Their daily labors and efforts were, by and large, consonant with their own understandings of well-being. People we spoke with often would offer a holistic assessment of the extent to which their activities and life met their well-being, needs, and expectations. In so doing, people we spoke with, most of whom did not have formal sector jobs and many of whom lived in circumstances of poverty and hardship, offered a framework for making a life that fundamentally contests core assumptions embedded in dominant discourses about the purpose of education and the relationships between education, labor, and making a good life. Put another way, people we spoke with rejected the abstract and normative understandings of labor and markets in favor of concrete activities which responded to and met human needs. In communicating their experiences, people lead us to a scholarship on concrete labor, “doing,” and radical humanism. In dominant discourse, informal economies and so-called marginalized populations are defined from elite perspectives. Using a making a life framework allows us to see that people

who are “marginalized” are not simply eking out an existence on the margins of society, needing to be “empowered” or trained to be integrated into the mainstream economy; instead, many of the groups we worked with are actively and purposefully creating lives outside of mainstream economic logic and reoriented toward meeting human needs (Baatjes 2014). (The making a life framework also builds on the concept of perfiguration, which differs from sustainable livelihoods in that people we spoke with were not only engaged in securing their livelihoods but engaged, often, in a broader struggle to build a different kind of society (CIPSET 2018).)

## Doing

The making a life framework is grounded in Holloway’s interpretation of “doing.” Holloway identifies doing as our “free conscious activity” necessary for the production and reproduction of social life; “doing” is a constitutive feature of our being and, simultaneously, an expression of our humanity. Our “doing,” our daily activity, corresponds to meeting our human and social needs for sustenance, shelter, health, warmth, and companionship, as well as addressing other matters and meaning we define as important to us. Holloway’s conception of “doing” aligns with Marx’s interpretation of concrete labor – labor measured in terms of its use value or the extent to which it contributes to meeting human needs. In Holloway’s interpretation, labor that is directed to meeting human needs is also humanizing; all doing is laden with human meaning. This doing is contrasted to Marx discussion of abstracted labor and alienation. Holloway writes, “labor, as alienated labor, is a separating of ourselves from ourselves, a tearing asunder of ourselves and our activity” (Holloway 2010, p.88). Because exchange value creates a relationship between commodities (and not people), the alienated labor used to produce the things being exchanged becomes abstracted, and our social relations become shaped by exchange value. (This section on “doing” draws on the work from Anne Harley (University of KwaZulu-Natal), including a brief write-up on Holloway’s work in *Crack Capitalism* as well as several exchanges during the process of writing “Learning for Living.”)

The distinction between concrete and abstract labor was evidenced time and again in our research with formal institutions and systems and informal, outside the market, organizations. While many students and young adults offered humane reasons for their interests in particular areas of study or job, they were, time and again, confronted with the inhumane logic of the market. The job market hired less-qualified workers who could be paid less and more easily fired; students, desperate for income, sought any form of job, regardless of whether it spoke to their interests, and we came across many examples of people who held onto jobs that made them sick or depressed rather than follow an alternative path which could promote different forms of well-being. The common thread in the life stories people shared with us was the extent to which they privileged the exchange value of their labor over other human needs and priorities.

Alternatively, it was from people and organizations operating outside the market, where labor was more closely connected to meeting human needs and where people did not make the distinction between working and making a life: they were simply

making a life, with their doing a constitutive part of the whole. Many people we spoke with talked about the care and attention they put into their daily activities: they saw themselves as enmeshed in structures of care and interdependence and, from their experience, identified a new (old) humanizing logic for making a good life. Holloway argues that doing exists “within, against, and beyond” capital and that doing is a part of our ontological nature. Doing is expressed within experiences of abstract labor, pushes against alienating labor to construct meaning/combat meaninglessness, and, as identified above, is expressed in the absence of market logic and forces. An approach to living and learning that recognizes “doing” as an ontologically fundamental, and fundamentally human impulse, could allow for new thinking in VET and application of capabilities thinking.

## Radical Humanism

What people told us also conveyed elements of radical humanism. A radical humanism philosophy privileges humanity (human beings, human needs, human interests), recognizes the collective rather than individualized nature of being human, and is active in its struggle against the oppressive social relations to, in the words of Fanon, the “right of every person to be a person amongst other people” (Fanon, cited in Pithouse 2011). Theorizing on radical humanism draws largely on postcolonial literature, including the work of Fanon. Neville Alexander, writing on “racial capitalism” in South Africa, and Fanon, on the colonial experience in Algeria, both identify “being dehumanized” as one of the central experiences of living as a person of color under colonial structures. A radically human philosophy rejects individualized conceptualizations of humanity and instead argues that the collective struggle against oppression is one way of reclaiming humanity.

People we spoke with were not ignorant of their own oppression and dispossession. Many people we spoke with, drawing on their lived experiences, offered an incisive critique of neoliberal policies, capitalism, and development. Neoliberal capitalism bred joblessness, inequality, and insecure living and working conditions and perpetuated dehumanizing and undignified conditions in work and life. So-called “development” was the spreading of a mythology and programs which often benefited the elite and enriched the powerful at the expense of the poor. Development was bulldozing informal settlements because land was sold to “develop” middle-class housing in Port Elizabeth; development was the perpetuation of a severely unequal schooling system. People routinely observed the contradiction of government claims toward solving unemployment amid ongoing retrenchments in manufacturing and mining industries and structural labor market changes related to the displacement of labor by capital and the increased casualization of work (Hlatshwayo 2014; Balwanz and Ngcwangu 2016). For many people, the path toward a radically human philosophy came from their rejection *by* the dominant system (e.g., dispossession, unemployment, low power status) or, alternatively or concomitantly, their rejection *of* the dominant labor market model.

Baatjes (2014) among others identified a large number of movements, collectives, and community organizations organized around community needs, drawing on

community capabilities (see Powell 2016) and expressing radically human values in their work. Even outside of formal organizations, people we spoke with who were living outside the market routinely privileged discussion on human needs, interdependence, and caring and, often in routine but meaningful ways, rejected the oppressive relations fostered by market living: people grew their own food, worked their own hours, sought connection to or were involved in maintaining local culture, and made more decisions for themselves about what they needed to do and what was important to them.

Like “doing,” a radical humanist positionality does not seek to “solve unemployment” or provide comment on promises or critiques of a human capital orientation. Rather, we can use the lens of radical humanism to understand how people actually make their lives and define and find well-being in the midst of economic and social hardship. People we spoke with told us about the values they expressed or hope to express in their lives and futures – people sought equality, ubuntu, and dignity; several organizations were oriented toward social justice; others were simply organized around local capacities and needs related to health, care, education, food production, or small-scale service and goods production for income.

Holloway’s conception of “misfitting” helps describe what we’re seeing. Holloway notes that misfitting is a “constitutive element of a capitalist society.” Holloway continues, “if we did fit in completely and were completely dominated by abstract labor and capitalist reproduction, then we would no longer be human” (Holloway and Susen 2013). Here Holloway helps us to connect the incongruity between dominant discourses and formal experiences of people and the lived experiences of making a (good) life which people told us about. Education harmed a lot of people we spoke with, in part because education was premised on an inhumane market logic that was practically and experientially repulsive to many people, “misfits” so to speak. In moving outside of the market, many people gained or regained their capacity for “doing” and the (re)construction of their humanity ontologically linked to use-value activities. Similarly, people’s work and, bluntly, economic and social vulnerability fostered an expression of radically humanist values: their activities took on an assertion of being and humanity, in part because of the dependence of life on them. So what does this matter to scholarship on capabilities and VET?

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## Rethinking Agency and the Exploration of Human Potential

I think . . . tertiary education . . . to be a civilised way of slavery. It teaches on how to build another person’s dream rather [than] to teach one to actually make use of the resources around them so that they can adjust a very independent living. (University student and YRLA researcher, Eastern Cape).

We tell them [youth] this is your future. No one is going to live it for you. You decide. (Founder, Youth Development Program, Gauteng).

This section of the *handbook* challenges authors to discuss how capabilities perspectives could inform policy and practice in vocational education and training. I draw on the making a life framework and focus my analysis on the issue of agency

to make three observations. First, I argue that we need to understand the agency to be mediated and shaped by context and social relations. The making a life framework offers a different social field for conceptualizing agency and its varied expressions – as well as framework for making a comparative analysis of agency-suppressing features of dominant social fields. Second, contrary to some strands of capabilities thinking, I argue for a definition of agency which places less emphasis on “deliberation” and “purpose” and better appreciates the lived, present-based, experience of doing. To conclude this section, I argue that educators and scholars ignore structuralist critics who mostly emphasize what is not possible within a predefined and restrictive model of social relations, step outside of capitalist spaces and logics, and do whatever is in our power to promote the expansion of human agency and thereby the unfolding of human potential.

A fundamental contribution of an agency-focused capabilities approach to scholarship on human development is that the approach places agency, one’s capability, and the scope of this capability to act at the center of conceptualizations of human development. (In this section, I draw largely on the scholarship of Sen and Crocker on an agency-focused capabilities approach.) Capabilities approaches, which promote a normative perspective on human development, are often paired with a theoretical perspective for understanding social reality. The same must be done for understanding agency. Recent scholarship in comparative and international education, drawing on critical and sociological perspectives, understands agency, one’s capability to act, to be dialectically related to one’s spatiotemporal social context (Emirbaryer and Mische 1998) and mediated by the norms and rules of the social fields in which human relations are enacted (DeJaeghere et al. 2016a). Our agency-space, the socially constructed space in which we are (and imagine ourselves to be) capable of acting, and the constriction or expansion of that space are necessarily grounded in and mediated by our material and socially constructed contexts (Balwanz 2015). Recent scholarship related to young adult participation in work and livelihood education programs in East Africa argues the agency to be ontologically positioned in relation to others – that human agency cannot be understood outside of an understanding of one’s social relations (DeJaeghere et al. 2016b). (It is worth noting that this research contests the pervasive individuating logic of capitalism and formal education while at the same time suggesting that the ability (and structural interest) of capital to weaken human agency and social relations explains the resilience of capitalist structures.) I will argue later that this conceptualization of agency has implications on how we understand the expression (or suppression) of agency in different social spaces.

An increasing number of scholarly articles in the field of education and human development draw on capabilities thinking; as a result, the issue of the agency, and its role in human development, is a prominent topic. My own thinking on agency has evolved over time – away from the “development economics” conceptualization of Sen and Crocker and toward pragmatist and phenomenological schools of thought. Capabilities thinking grew, in part, out of Sen’s reflections on *Well-being, Agency and Freedom* (1985). In this lecture, and later on in *Development as Freedom* (1999), Sen identifies human freedom (agency) to be a constitutive feature of our



human well-being, and, at the same time, Sen and, later on, Crocker and Robeyns (2009) ground their definition of agency to phenomena of *deliberation* and *purpose* as well as to the ends of agentic action, well-being, or ill-being achievements. Crocker (2008) provides the end result of a means-privileged conceptualization in his identification of four dimensions of agency which emphasize self-conscious determination and disciplined and deliberative action based on a preconceived understanding of how action will have a desired “impact on the world” (Crocker 2008 p. 10). Were that we, and our worlds, and the phenomenon of “realized agency success” so neat and well-reasoned. Problematically, this strand of capabilities thinking appears to have brought a homo economicus into our understanding of how human potential unfolds. American pragmatists and phenomenologists offer a different interpretation of the expression of agency in a social context. Emirbayer and Mische’s (1998) understanding of the expression of agency is that:

action not be perceived as the pursuit of preestablished ends, abstracted from concrete situations, but rather that ends and means develop coterminously within contexts that are themselves ever changing and thus always subject to reevaluation and reconstruction on the part of the reflective intelligence. . . . (p. 967–978)

Put another way, “action happens.” Our action needs not necessarily be purposeful or the result of our reflective intelligence. Sometime, this is the case, and, as good educators, we hope that actors engage in reflection, post-action. A second observation by Emirbayer and Mische (1998) is that, even in post hoc analysis, our instrumental and existential rationales for (or understandings of) action are analytically inseparable. (In some instances, agency that is overly projective in nature and (see Frye 2012) also privileged instrumental rationales, which in some contexts truncate present expressions of agency.) Both observations broaden the conceptual space for understanding of human agency and, I argue, place a greater emphasis on freedom of action in a non-self-conscious present, in which the oppressive rules, norms, and social relations constituting social fields fall away. Research from Balwanz (forthcoming) on three holistic youth development programs argues that the social fields created by the programs create spaces where youth, in the words of one participant, feel “good and free because I can be able to express myself and talk about reality.” Often, it is not in the moment, but after it, that people realize that they have done something. Some of them think, maybe I could do that again. In other cases, someone else tells you – hey you did that, and you think, I guess that’s right. These present, messy, lived experiences are starting to look like the “free conscious activity” that Marx argues is a part of our species characters.

The above discussion on agency can help to explain the different experiences of the people who spoke with us. People in formal VET and AET programs were, by and large, situated in social fields in which rules, norms, and expectations were defined by others; they were defined by others and by what they could not do (i.e., academic failures, apply here); they were in spaces which demonstrated and reinforced structural and material inequalities in society and social relations and which were oriented



toward neoliberal- and market-oriented (individuating and dehumanizing) conceptualizations of agency, human potential, and well-being. Given these conditions, is it any wonder that many people physically leave or psychologically tune out or, alternatively, exercise some form of voice, or resistance, that reflects their lack of belief, or unwillingness, to buy into the dominant model (Giroux 2001)? A capabilities perspective, if located within a system and social reality framed by the dominant discourse, would appear to provide the same result as human capital approach: agency is defined in terms of responding to market logic, capabilities are defined and valued by capital, and human needs, values, and our ontological characteristics are token “priorities” which are bent toward and subsumed by the capital’s demand for efficiency and profit. Embedded in the dominant discourse, a capabilities approach proves at best irrelevant and, at worst, harmful for a large share of people in poor and working-class communities. Formal institutions of education, largely refracting social and economic reality of late capitalism, enforce a particular, and particularly narrow, understanding of human potential and human agency. A broader exploration of human agency and human potential requires that we look further.

These reflections return us to the Emerging Voices 2 research. People making a life outside the market found new ways of organizing human production and learning, which narrow (or eliminate) the (artificial) space between knowledge, lived experience, and practice. Importantly, this different set of conditions required action (labor) that was more directly connected to its use-value (meeting human needs) as opposed to its exchange value. People who were making a life appeared to demonstrate, and act, with an agency-freedom not common within market logic spaces. Instead of focusing on or perceiving of themselves as passive victims (or beneficiaries) of structure, people had articulated and were enacting a new way for making a life (Powell). People talked about freedom from oppression of capital: the importance of “having a skill” so as not to depend on an employment to get by, being able to grow their own food (which was better, cheaper, and more readily available than that from the market), of preferring to oversee their own small shop, and of caring and support activities. Each is an expression of agency, unfolding in response to lived experiences and human need.

The making a life framework broadens the conceptual and practical space for thinking about and acting on agency. This matters because (partially complete) interpretations of social reality, in defining the oppressed from the perspective of their oppressors and dominant understandings of human development and well-being, place too great an emphasis on structural constraints and the implications of their removal. Too great a focus on this particular (elite) conceptualization of structure may prematurely foreclose exploration of human agency development – the ‘heterogeneity’ and ‘doing’ – that Holloway sees in interstitial spaces. The creative, humane, and life-affirming examples of “making a life” people shared with us suggest a need to place greater emphasis on and take more seriously the issue of human agency. I argue that educators and scholars ignore structuralist critics who mostly emphasize what is not possible within a predefined and restrictive model of social relations, step outside of capitalist spaces and logics, and do whatever is in our power to promote the unprescribed and undifferentiated expansion of human agency and thereby the unfolding of human potential.

## Conclusion

To date, few efforts have been made to conceptualize how human conditions of concrete labor and interdependence, conditions manifest within and beyond the capitalist structuring of society, could be drawn on to extend understandings and applications of capabilities approaches in technical and vocational education and training (TVET). This chapter has drawn on empirical research and a making a life framework to share some reflections on the application of a capabilities approach to VET. People we spoke with, most of whom did not have formal sector jobs and many of whom lived in circumstances of poverty and hardship, offered a framework for making a life that fundamentally contests core assumptions embedded in dominant discourses about the purpose of education and the relationships between education, labor, and making a good life. Based on this research, this chapter claims that education “harms” a large number of people that human agency is contorted and made inhumane through market-oriented systems and that new application of a capabilities perspective, and particularly of human agency, could draw on the observations of human nature evidenced in the making a life model. This initial work offers a starting point for further research and theorizing.

It is important to continue to make an argument that the “making a life” conceptualization matters. In our research, we justify this approach by observing the large (and growing) number of the global working population living outside the market and of the extent to which the proposed framework reflects their lived experiences, inclusive of connecting nonmarket model labor to humane impulses. As noted earlier, people’s work and life were not only about securing their livelihoods but also involved a prefigurative element in which they actively and purposefully sought to create a new society beyond the mainstream economic logic (Baatjes 2018; CIPSET 2018). In this chapter, we connect this framework to an understanding of agency expansion – however, applications are not limited to theorizing new directions with a capabilities approach.

This chapter closes with a word of skepticism on the extent to which formal VET can actually truly promote concrete labor and radical humanism. In our research, formal systems appear to be so completely enmeshed in neoliberal logic and structures of power that they will inevitably reshape humane and agentic impulses in the direction of capital. In the absence of structural shifts in the labor market and society, there may not be sufficient resources within formal VET to support such a paradigm shift. Thus, for the time being, clever educators may need to continue to look for interstices and the misfits within, against, and beyond their own institutions.

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# VET Contribution to Human Development Within a Context of Marginalization: The Case of Palestine

# 18

Randa Hilal

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**Abstract**

One of the advantages of a human development approach to thinking about skills development is its ability to highlight the importance of inequality and marginalization compared to the orthodox human capital approach. The case of the occupied Palestinian territories (oPt) is particularly valuable in showing both the effects of marginalization and inequalities but also the possibilities for improving human development through Vocational Education and Training (VET).

The context of the occupied Palestinian territories (oPt) adds additional layers of marginalization and inequalities, creating different context-related vulnerable groups. Within such a context, highlighting VET's contribution to human development and reducing inequalities are paramount, as well as acknowledging structural challenges faced within such a context.

In this chapter I draw on my doctoral work, in which I consulted over 1000 people through a graduate survey, focus groups with students and trainers, and interviews with VET management, teachers, and government officials.

I combine human development and capabilities' perspectives with insights from gender and development theory and intersectionality accounts to address concerns about structure and agency. This extensive dataset and these combined theoretical resources allowed me to explore how vulnerable learners are able to make genuine progress in achieving their valued functionings in spite of the multidimensional challenges they face.

I will define the context-related vulnerabilities, as other inequalities, and test their attraction to VET, as well as the intersectionality among the different inequalities. Achieved functionings are also analyzed according to the defined inequalities and vulnerability.

The analysis and findings reveal that VET has acted as an effective tool for achievement of human development and reducing inequality. It will also define evaluative methods for impact assessment of VET within a human development approach.

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**Keywords**

Vocational education and training (VET) · Occupied palestinian territories (oPt) · Human development · Capability and functioning · Inequality · Gender and development · Intersectionality

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**Introduction**

The UNESCO (2012) Third International Congress on TVET, held in Shanghai, agreed on a vision of a “transformative TVET” and called for a better visibility and support for TVET as an integral part of the post-2015 international education and sustainable development agendas, accordingly, UNESCO (2015) recommends that TVET's role goes beyond the productivist agenda:

TVET contributes to sustainable development by empowering individuals, organizations, enterprises and communities and fostering employment, decent work and lifelong learning so as to promote inclusive and sustainable economic growth and competitiveness, social equity and environmental sustainability. (p.2)

This vision introduces the shift toward a human development agenda, concerned with individuals as well as organizations and society, and with a clear emphasis on social equity. In a context of marginalization, particularly, the impact and outcomes of VET supersede that of economic development and contribute to human development. Hence this chapter adds value in assessing VET's contribution to human development, contributing to the international debate and international scholars (Anderson 2008; McGrath 2012; Powell 2012, 2014; McGrath and Powell 2014, 2015; López-Fogués 2012, 2016; DeJaeghere 2016) and validating this contribution within a context of marginalization.

In the next section, the specific context of Palestine is presented. This is followed by the theoretical and conceptual framework used in this chapter and then the methodological approach. Following which, I present my findings in the form of a developed capability list. This capability list is based on Powell's (2014) list with the added gender and marginalized lens. *The capability list Powell 2014/Hilal 2018* (Hilal 2018) is preceded by the aspirations as well as valued and achieved functionings of the VET learners. The chapter will also present the assessment of achieved aspiration by the graduates, followed by the conclusions that summarize how VET contributes to human development within a context of marginalization.

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## The Context

### The Overall Context

The Palestinian territories have a unique status in being, on the one hand, under military occupation while, on the other hand, preparing for state building. This status has resulted from a series of treaties with the Israelis since 1993 that provided a temporary agreement aiming at ending the occupation of the territories. These treaties, known as the Oslo Accords, handed over services such as health, education, and social welfare to the Palestinians. The treaties allowed for the existence of the Palestinian Authority (PA) in governing Palestinians in the oPt. It also resulted in the division of the West Bank into different zones. The failure to end occupation and the ongoing violations of human rights after more than 20 years have created a humanitarian crisis and increased vulnerability of the Palestinian population. The UNOCHA has long identified the occupied Palestinian territories' status as one of a "protracted protection crises." In their 2016 annual report, they explained that:

The humanitarian context of oPt is unique amongst today's humanitarian crises and remains directly tied to the impact of the Israeli occupation, now in its 50th year. The occupation

denies Palestinians control over basic aspects of daily life, whether they live in the Gaza Strip or in the West-Bank, including East Jerusalem. Their ability to move unimpeded within their own country, to exit and return, to develop large parts of their territory, build on their own land, access natural resources or develop their economy is largely determined by the Israeli military. (UNOCHA 2017a, p.1)

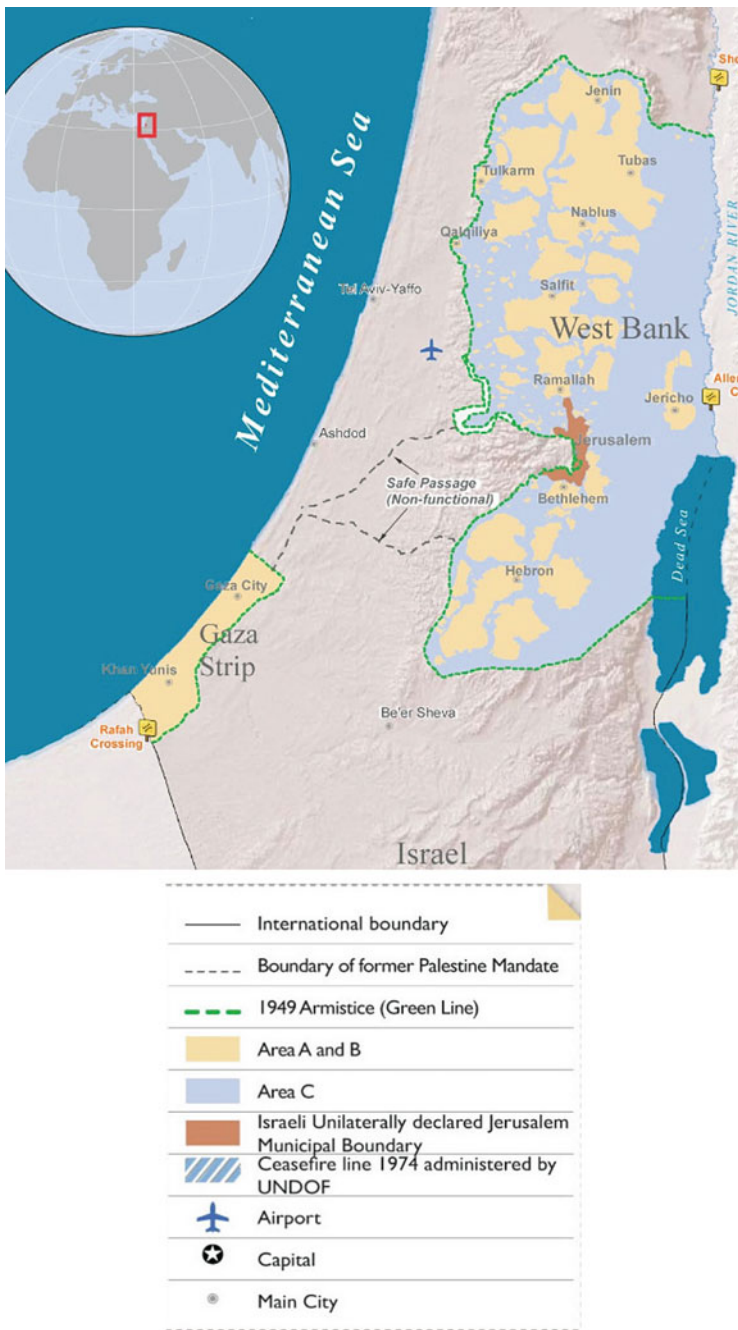
The oPt consists of three different zones, the West Bank, East Jerusalem, and Gaza, that are separated from each other (The “occupied Palestine territories” (oPt) is the name that describes its realities before 1993, the existence of the PA. This was replaced in UN documents and in PA official documents in 2012 by the designation “The State of Palestine.” I will use oPt here following (Hilal and McGrath 2016, p.88), as “occupation is a continued reality and statehood an aspiration.”). Access of people and goods are restricted as the UNOCHA (2017b) map below indicates. The West Bank is further divided into zones A, B, and C, where C (constituting 60% of the West Bank) is almost all under the control of the Israeli military, adding additional vulnerable groups in need of humanitarian protection (UNOCHA website could be accessed for more information: ([www.ochaopt.org](http://www.ochaopt.org))). (Map 1).

The United Nations Conference on Trade and Development (UNCTAD) (2016) noted the effect of the military occupation on the people and on the economy. It argued that occupation imposes a heavy cost on the economy of the Occupied Palestinian Territory, effectively halving its size. UNCTAD (2016) stated:

[M]ilitary occupations typically involve the exploitation, impoverishment, marginalization and displacement of the occupied people, as well as the destruction of their assets and appropriation of their resources. Equally damaging are measures and policies by the occupying Power that undermine the capacity of occupied people to access and utilize their resources, move freely within their homelands and conduct normal trade, economic and social transactions with neighbours and trading partners. (pp.7–8)

Clearly such status has affected the whole population, with special emphasis on those directly affected by the context as defined by UNOCHA various reports, being those that have been subjected to certain measures, living in Gaza, Area C, and East Jerusalem, in Jordan Valley, and in seam zones (near the wall or in military-gated community). In addition to refugees and internally displaced people, families lost breadwinners due to this status. It also affected females differently. As Abdo-Zubi (2006) explained, the role of patriarchy is exercised on Palestine Women in its internal and external forms. The “internal” form is exhibited through expressed norms, traditions, practices, and perceptions, and the “external” form is expressed through political violence practiced by the Israeli occupation, both are main forces of marginalizing Palestinian women. Section “[Marginalized VET Learners](#)” will indicate how VET is attracting male and female youth from these categories and how it plays a role by contributing to the eradication of the marginalization effects noted through impoverishment and disempowerment.





**Map 1** The oPt overview map (UNOCHA 2017b)



## VET in Palestine

Various church-related and nongovernmental actors have provided VET in Palestine since 1948, as well as the United Nations Relief and Works Agency for Palestine Refugees (UNRWA). As hundreds of thousands of Palestinians became refugees, VET was provided as an additional humanitarian assistance for skills development that could lead to employment and family support.

In 1994, the PA resumed their authority over education following the Oslo Accords. This responsibility entailed unifying the fragmented education systems between the West Bank, under Jordanian rule between 1948 and 1967 and following their systems, and the Gaza Strip, which had been under Egyptian rule during the same period. It also entailed rebuilding the schools, curricula, teacher development, and infrastructure of schools after their neglect during the period of Israeli control of education, 1967–1993.

Currently, VET is provided mainly by governmental and nongovernmental institutes and the UNRWA and is governed by two ministries: the Ministry of Education and Higher Education (MOEHE) and the Ministry of Labour (MOL). Amidst the strength of VET providers and their response to the Palestinian context, TVET governance and structure in Palestine is fragmented, and structure is unable to respond to its needs and implement its strategy effectively. This is aggravated by weak accountability linked to the overall context (Hilal 2013; Leney and Jweiles 2014; Kuhail 2015).

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## Theoretical and Conceptual Framework

This chapter relates to the growing account on VET's contribution to human development (HD), beyond the orthodox human capital approach. Activated by McGrath's (2012) call for VET's need for a new theory and the work of McGrath and Powell, the account presents studies from South Africa, Spain, Palestine, and Tanzania (Anderson 2008; McGrath 2012; Powell 2012, 2014; McGrath and Powell 2014, 2015; López-Fogués 2012, 2016; Hilal and McGrath 2016; DeJaeghere 2016).

The human development approach is concerned with the lives of people and their well-being, as well as their freedom to choose the life they want, as presented in the work of Sen (1985, 1990, 2000, 2004). Sen defines capabilities and functionings as potentials and achievements of being and doing. Nussbaum (2003, 2011) has included the social justice prospects. She argues for capabilities based on entitlements and rights that would lead to equality, with human dignity as their core. Nussbaum (2000) has argued that unequal human capabilities contribute to unequal social and political circumstances. In this regard, Robeyns (2003) has also noted that the inequalities in achieved functionings reflect inequalities in capabilities, in turn reflecting social setups and obstacles.

Central to my research is the work of Powell (2012, 2014) on *Expanding the Capability to Aspire* and her work on capability lists for VET learners in

South Africa. This chapter develops further this work by integrating the inequality elements and particularly as experienced within the context of marginalization.

Hence, I will be presenting the *Powell 2014/Hilal 2018 capability list* (Hilal 2018), as well as the validated and measured valued and achieved functioning of VET graduates in the case of Palestine.

I also borrow from gender and development (GAD) theory, the notion of empowerment, which is essential in the case of inequality and marginalization, presented in the work of Kabeer (1994, 1999, 2008, 2010, 2015). Kabeer (1999) locates the core of empowerment in the concept of “power,” in terms of “the ability to make choices.” Thus, she describes empowerment as a process that can bring change to the disempowered who has been denied the power of choice. Kabeer’s account of “choice” is central to understanding empowerment. Choice is related to conditions surrounding a person or group and the consequences these have on the range of available choices and the capacities to act upon them. Kabeer further argues that achievement of capabilities and functions would not necessarily achieve empowerment without also developing the sense of agency. I complement the understanding of GAD with an intersectionality approach that explains the multilayers of inequalities, developed by black feminists (Davis 1983; Crenshaw 1989; Collins 1989, cited in Hilal 2018) who have highlighted the intersectional inequalities between race and gender, noting that gender inequality analysis alone is insufficient to analyze gender inequalities in a given society.

My work also engages with political economy arguments and specifically the work of Brown et al. (2001) on the need for “social transformation” to achieve the aim of a high skill society. Their work suggests an increased role for government and social partners and the political will for skills upgrading. In this regard, the chapter analyzes how adopted policies are used to reduce or reproduce inequalities.

Using these three approaches and theories were essential for relocating VET within development theories and approaches by placing the focus on human development. Yet, while the question of inequality requires the addition of theories such as the GAD and intersectionality that tackle inequalities, a political economy lens provides for the assessment of the structural analysis and enabling policies for achievements.

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## Methodology

The chapter utilizes data and analysis from my PhD research, which has used a combination of qualitative and quantitative methods. Methods used included VET graduate survey, semi-structured interviews, focus group discussion (FGD), and review of documents. Data was collected during 2015, with the exception of interviews and FGD in Gaza in 2016, when Israeli permit to enter Gaza was granted.

A total of 764 graduates filled the survey, a representative sample of VET institute graduates from governmental and nongovernmental institutes with wide geographic spread and gender representation. The research has also consulted with 487 persons through interviews and FGDs.

All in all, 1240 persons were consulted through the research (11 graduates were subtracted as they participated in both the survey and the FGD), 33 VET institutes participated (as management, teachers, students, and/or graduates participated), head of 8 directorates and teachers of general schools participated, and officials from 2 ministries and 2 employers' representatives, as well as 10 employers and several community representatives, participated.

All the tools used were developed from the theoretical framework outlined above which supported the identification of the themes of the discussion and the analysis. Piloting and validation of the survey was conducted which was analyzed using the SPSS software package. The qualitative data was documented, tabulated, and analyzed along the interview themes raised during the discussions. Quantitative and qualitative data were triangulated. Data was also presented in comparison with relevant national data as Figs. 1 and 2 indicate, while the empowerment indicators were listed according to the research theoretical framework.

Capabilities were tested through the survey and the qualitative methods. It is presented as percentages of achievements. Collected data was cross-checked with relevant national data and presented (Figs. 1 and 2). Key concepts based on the theoretical framework of the research were presented as statements to be rated on a five-point Likert scale; the agreement or achievement was sometimes presented as aggregated responses of "satisfied/agreed" and "highly satisfied/agreed" on these scales (Figs. 3 and 4).

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## Marginalized VET Learners

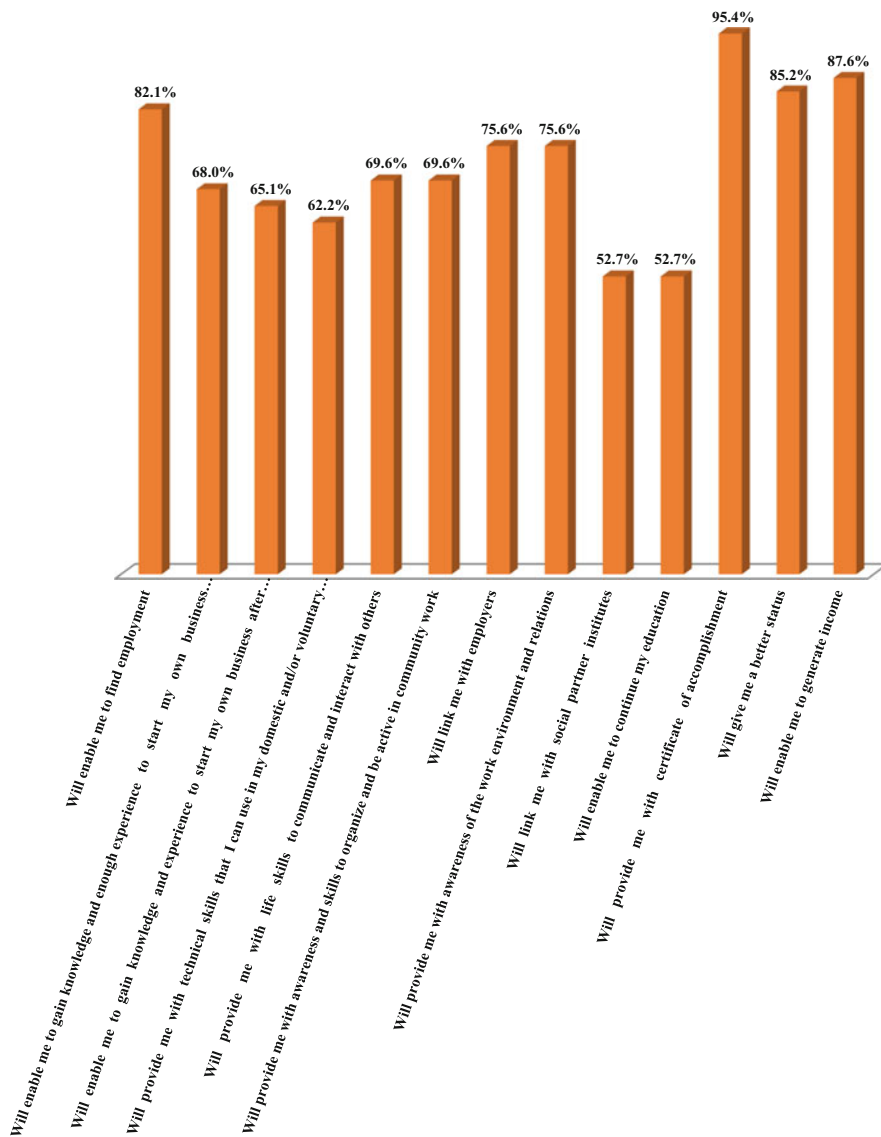
Marginalized groups in oPt were identified based on various studies and researches, regarding the different marginalized groups including UNOCHA (2014, 2016) identification of the marginalized and Ministry of Social Affairs (2014) identification. Research investigated VET learners according to marginalization and intersectional marginalization.

### **The identified marginalized groups in oPt are:**

- (a) Socially marginalized groups, e.g., youth, women, and people with disabilities.
- (b) Economically marginalized groups such as the poor, the unemployed, and the vulnerable workers.
- (c) Academic dropouts and potential dropouts.
- (d) Marginalized by the context of the occupation. Furthermore, the context has its own effects on all the other marginalized groups.

The first three groups are shared globally, while the fourth is specific to the case of Palestine.

**VET attracts the marginalized:** The results indicate that VET is attracting the marginalized within the context of "a protracted protection crisis" of a military occupation and human rights violations. Specifically, VET is attracting the different marginalized individuals, groups, and communities, with regard to the

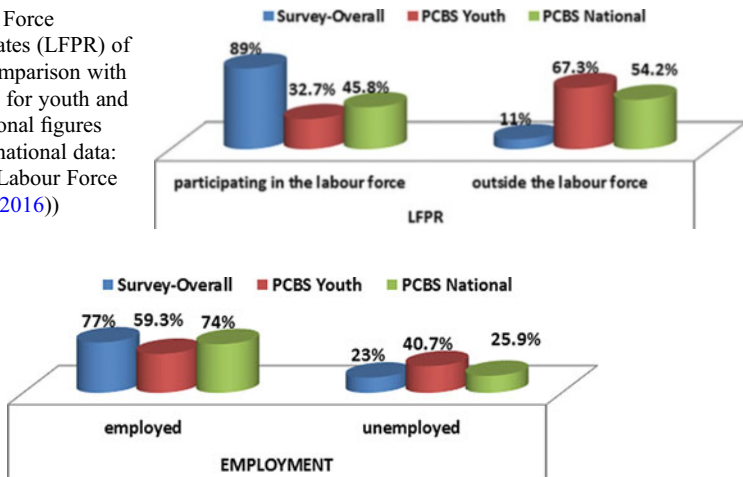


**Fig. 1** Expectations of youth upon graduation from VET – percentages

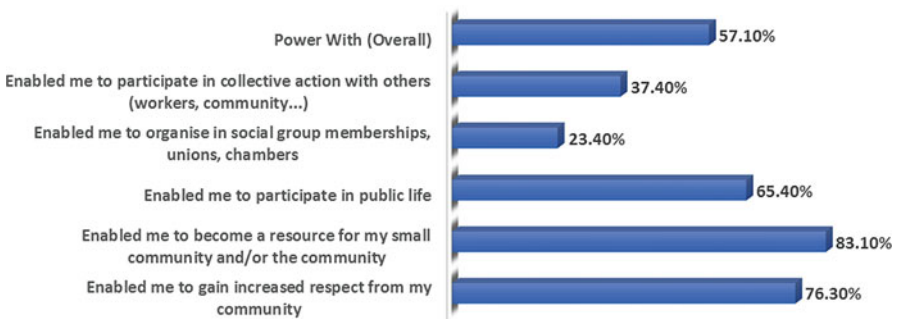
context-related marginalization, poverty and economic status, gender, and social conditions, as well as attracting the low achievers, potential dropouts, and dropouts.

The findings indicate that when VET learners enroll, they suffer multilayered and intersectional marginalization, confirming the theories of inequalities and intersectionality. Inequality, in terms of power relations and limited access to, and control over resources, which is structured and intersectional, was the

**Fig. 2** Labour Force Participation Rates (LFPR) of graduates in comparison with national figures for youth and the overall national figures (Source of the national data: National 2015 Labour Force Survey (PCBS 2016))



**Fig. 3** Employment and unemployment rates of graduates in comparison with national figures for youth and the overall national figures (Source of the national data: National 2015 Labour Force Survey (PCBS 2016))



**Fig. 4** Percentages of VET graduates in agreement or high agreement to “Power With” indicators due to VET and work

experience of most of the VET learners when enrolled. Hence, they are often disempowered and impoverished.

Most VET students and graduates are subject to some form of inequality and in most cases to intersectional inequalities. Palestinian youth who were affected by context-related inequalities in the form of being from vulnerable localities, those directly affected by the context, refugees, or experiencing other context-related inequalities, were attracted to VET. Evidently, the last group intersected with poverty, as a result of loss of land, resources, access, and sometimes the very lives of family members, all of which clearly affected their financial and economic status and their well-being.

Students and graduates affected by gender inequalities and social hardship cases were also affected by other sorts of inequality, including poverty. It was evident that

most of the single females came from poor families, while those that were widowed or divorced were also affected by poverty. On the other hand, more male students and graduates were low achievers and affected by economic or social hardships through this medium. Females faced an added level of inequality through social attitudes that underpinned their marginalization.

Students and graduates affected by economic inequality, meanwhile, were also attracted to VET, as two out of three graduates were from households with income below the poverty line when enrolling (The national poverty line is calculated using the PCBS poverty line (PCBS 2011), and the East Jerusalem poverty line was according to Israeli National Insurance Institute (2010)). These groups also intersect with the remaining inequalities; and it was evidenced that poverty vertically intersected with all other inequalities in different forms.

---

## The Capability List Responsive to Inequality and Marginalization

Findings presented here are grounded in the capability approach and starts from the ideas of “aspirations as capabilities” and “listening to VET learners’ aspirations” according to Powell (2012, 2014). The examined capabilities and functionings are based on the understanding of Sen’s (1992) capabilities as real opportunities for acts of “being and doing” of the valued functionings, which as defined earlier has been extended to include processes and agency. The capability list is in line with Nussbaum (2003) work for “central human capabilities” based on human rights and social justice, and with Robeyns (2003) work that included gender elements.

This section will list aspirations as valued functionings stated by the VET graduates themselves and will then investigate capabilities, valued functions, and achieved functionings. Building particularly on Powell’s (2014) list for VET, I will add gender, marginalization, and political economy lenses.

The capability list I am presenting adopts defined capabilities by Powell (2014) to be responsive to the gender and marginalized and adds related missing ones. The details of which are presented in the next section of this chapter. The capability list also adds the additional columns of valued functionings that defines the valued functionings for policymakers. These valued functionings are based on a political economy understanding of the economy of skills, which relates to measures and policies that would lead to the achievement VET learners’ functionings and aspirations. It has the added advantage of presenting an agenda for accountability.

Alike to Powell (2014), the list follows the five criteria mentioned by Robeyns (2003) of having explicit formulation, methodological justification, sensitivity to context, and different levels of generality, while the last criterion of exhaustion and nonreduction implies that listed capabilities should include all important elements.

The list emphasized the capabilities that matter for the poor (Kabeer 2015) being employment, income, and skills; hence generated income is added; this is especially important for the poor given the lack of a formal social security system in Palestine, which is the case in many of the Global South countries.

The list also adds the other forms of unpaid work based on my investigation into the recent literature body on work of feminist economist (Ferber and Nelson 1993; Folbre 1994; Himmelweit 1995; Akram-Lodhi 1996; Gideon 1999, cited in Power 2004) and resonates with Robeyns' (2003) list for gender equality which similarly includes unpaid work.

In addition, the list includes elements for transition to the World of Work (WOW). The WOW elements that are relevant to gender and poverty are as indicated through my previous work (Hilal 2011, 2012) and are in line with UNESCO (2012) transformation plan and the recommendations of UNESCO (2015).

Moreover, the list reflects Kabeer's (1999) empowerment framework used based on work and the developed social empowerment indicators, part of these indicators resonates with Powell's (2014) capability list for VET.

Finally, the list adds the context relevant aspiration of mobility. With mobility also reflecting the social restrictions related to power over mobility-related decisions, security and protection are also added.

Hence the developed list is gender sensitive and encompasses poverty and context-related elements. The list has 10 dimensions of VET capabilities.

The methodological justification included predefining the aspirations through the previous work of the researcher (Hilal 2009, 2011, 2012) addressing VET male and female graduates and other unpublished work. The survey was filled by the 764 male and female graduates. The fields were complemented by open part in the survey for additional aspirations and by qualitative interviews and focus group discussions with different groups.

The Powell/Hilal capability list is illustrated below; the listed functionings included in the list were extracted from key findings discussed in details in the coming section of this chapter (Table 1).

---

## **Valued and Achieved Functionings of the Graduates**

### **Aspirations of the VET Graduates: Valued Functionings**

Graduates were presented with 13 possible areas of capabilities that they might be expected to achieve upon graduation. These areas were developed based on my long experience in TVET and previous research work (Hilal 2009, 2011, 2012), in addition to the international VET and capability literature. Graduates indicated their level of agreement with the various statements, thus expressing their valued functionings, as demonstrated below.

The valued functionings expressed by graduates included income generation (87.6%) and employment (82.1%), as would be expected of youth who are impoverished and facing a situation of high youth unemployment, which is even higher among the marginalized youth. This is in line with the importance to the poor of human labor, skills, knowledge, and abilities that Kabeer (2015) has noted in her work on poverty.

**Table 1** The Powell/Hilal capability list: Powell (2014) VET capability list with focus on gender and inequality

Dimensions of VET capabilities and valued functionings that matter to FET college students in South Africa (Powell (2014))		Dimensions of VET capabilities and valued functionings that matter to VET students in Palestine, with a focus on gender and inequalities (Hilal (2018))	
Dimensions of VET capabilities	Valued functionings	Dimensions of VET capabilities	Valued functionings for graduates
	Being fairly remunerated		Able to find employment opportunity
Economic opportunities that matter	Earning a living wage	Economic opportunities that matter for all	Able to find employment opportunity that matches qualification
	Having employment stability and security		Able to start own work immediately or after gaining experience or opt for a flexible work mode
	Having access to fair and equal opportunities to career progression		Earning a living wage
	Able to make a valuable contribution in the workplace		Positive working environment in the workplace (space, relations)
	Able to take pride in their work		Working regulations (outside the labor law)
			Skills enabling nonmarket work
	Nonmarket work carried out by choice		Nonmarket work carried out by choice
			Valued functionings for policymakers (VET-related policies and measures)
			VET graduates' access to employment and self-employment rates compared to national youth figures
			Decent work agenda implemented
			Economic policies that encourage entrepreneurship
			Norms, rules, and resources facilitating different choices of work

*(continued)*



**Table 1** (continued)

Dimensions of VET capabilities and valued functionings that matter to FET college students in South Africa (Powell (2014))	Valued functionings	Dimensions of VET capabilities	Valued functionings for graduates	Valued functionings for policymakers (VET-related policies and measures)	
		care by choice; unpaid work (home caring, voluntary)	Skills enabling a variety of work modes		
		Economic resources for poverty reduction and well-being	Generate income to support family –poverty reduction Own income for independent choices and well-being		Access to finance and income generating activities Social protection system
Active citizenship	Inclusion in political and institutional decision-making	Active citizenship (Power With)	Enable creation of new family	Inclusive citizenship	
			Gain increased respect within own community		
	Strong sense of their own effective agency		Become a resource for own community		
			Knowledge and understanding of the problems of their community Participate in public life Organize in social group memberships, unions, chambers		

Confidence and personal empowerment	Being encouraged to live a full life	Confidence and personal empowerment (Power Within – sense of agency)	Gain confidence in technical and financial skills and know-how	Social skills and communication skills among employed and non-employed graduates
	Being able to encourage others to live a full life		Gain self-confidence in abilities and self	
	Having a range of futures as possible aspirations		Improve communication skills Having a range of futures as possible aspirations	
Bodily integrity	Being free from attack and physical harm, including sexual assault, and from the fear thereof	Bodily integrity	Being free from attack and all sorts of violence and from fear and psychological effects	Combating violence against women and the marginalized
	Being safe from the psychological trauma of attack on your person or other members of the family or community or anyone else		Being free from violence and collective acts against their communities Being able to have free mobility to education, training, work, and services	
Senses and imagination	Developing an understanding and love of the creative arts	Senses and imagination: developing creativity	VET develops artistic talents	Promoting creativity
	Participating in and enjoying in sport that promotes physical wellbeing		Appreciation for VET for developing creativity	
			Appreciation for VET for being practical oriented	

(continued)

**Table 1** (continued)

Dimensions of VET capabilities and valued functionings that matter to FET college students in South Africa (Powell (2014))		Dimensions of VET capabilities and valued functionings that matter to VET students in Palestine, with a focus on gender and inequalities (Hilal (2018))	
Dimensions of VET capabilities and Recognition and respect	Valued functionings	Dimensions of VET capabilities	Valued functionings for graduates
	Being treated as a dignified human being	Recognition and respect	Being treated as a dignified human being
	Having self-respect Not being discriminated against for being a VET graduate Not being discriminated against for any reason including religion, gender, race, physical handicaps, and age		Having self-respect To respect the choice of selecting VET Community recognition – steadfastness and identity recognition
			Valued functionings for policymakers (VET-related policies and measures) Access to VET for all regardless of gender, physical handicaps, religion, marital status and age, or being a victim of status (political prisoner, refugees, IDP) Facilitating positive attitudes of learners and communities to VET

Upgrade skills and qualifications throughout the life course	To have the opportunity to study and learn throughout their lifetime	Upgrade skills and qualifications throughout the life course	To have the opportunity to study and learn throughout their lifetime	Access of VET graduates to further education and lifelong learning
	Having the learning skills required for further study	Having the learning skills required for further study	Having the learning skills required for further study or continual upgrading	
Occupational knowledge	Having the qualifications needed for entry into the labor market	Enabled transition to WOW through awareness, preparation, and connections for all	Occupational knowledge and skills for employment	Youth transition period to employment is minimized
	Having the skills to do a good job		Occupational knowledge and skills for self-employment	Encouraging social partnerships and WBL modes
	Having the learning skills that allow for experiential learning in workplace		Awareness and preparation for the WOW Connection to employers and work-related actors	

Graduates were also expecting that VET would provide them with better status and a certificate (85.2% and 95.4%, respectively). This is surely connected to the disempowerment of youth and marginalization, as well as to aspirations to acquire a better status and to overcome their intersectional and multilayered inequalities.

Their aspirations included self-awareness and assertiveness, as well as social engagement, in addition to gaining skills to continue their education. These aspirations are illustrated in the figure above. They varied according to the variables of marginalization (gender, refugee's status, marginalized localities).

Graduates living in context-related vulnerable localities had the highest aspiration with regard to employment, and more females had expectations with regard to employment than males. While the desire to generate income was high among all groups, it was highest for those living adjacent to the wall/seam zone and in Jerusalem inside the wall.

The coming parts will illustrate achieved functionings with regard to work, income, and transition to the world of work, including technical skills, as well as personal skills for empowerment and community interaction, and "achieved aspirations," as perceived by the graduates.

### **Capability 1: Economic Opportunities that Matter**

Findings indicate that most of the graduates have participated in the labor market and most of them have achieved their aspiration of employment (see Fig. 2). Moreover, the Labour Force Participation Rate (LFPR) was much higher than the overall national figures and national youth figures within the same age group, while the proportion of VET graduates outside the labor force was much lower, indicating the enabling access of VET to employment.

Findings have also indicated that the expansion in the achievement of employment opportunities was considered significant for gender and marginalized groups, in specific the context-related marginalized localities.

Although achievements were higher than national figures for the marginalized, the gaps in achievement imply *inequalities in capabilities* as noted by Robeyns (2003, p.85). Some of the female graduates who were unemployed have indicated the social-related obstacles to their employment presented through social attitude towards their role and abilities.

Moreover, obstacles to achievements were also noted due to obstacles related to decent work agenda (specifically low pay, long hours, other work regulations, and conditions), according to ILO (2012) indicators. Obstacles were also due to the context-related accessibility issue.

### **Capability 2: Domestic Work and Nonmarket Care by Choice**

The survey results indicate that over one in four VET graduates were involved in voluntary work and around one in three graduates in housekeeping/domestic work,

with a higher involvement of those outside the labor force indicating that graduates are productive even if they were not participating in the official formal labor force.

Overall, three out of four of the VET graduates were outside the labor force and actually working in nonmarket work. Results varied according to gender, since most of the graduates involved in voluntary work were male (91% to 9% females) and most of those involved in housekeeping and domestic work were female (77.5% to 22.5% males).

As a sum-up, results indicate that VET enabled market and nonmarket work through skills gained, yet social barriers and choice limitation upon females restricted the realization of their capabilities. Therefore, almost all VET graduates (97.4%) are actively engaged in work and sometimes in multiple paid and/or unpaid work.

### **Capability 3: Economic Resources for Poverty Reduction and Well-Being**

Sen (1998) emphasized that enlarging a person's "functionings and capabilities to function" is an essential element in human development and for expanding people's economic, social, and political choices. Emphasizing the use of resources such as income, clothes, food, or other goods to achieve the valued functionings and hence well-being. In our case, the poor and disempowered youth are longing for income to contribute to alleviating their families' poverty, to pursue their own life, and to achieve their plans and aspirations such as starting a new family or starting a new business. Hence, income is not an end but rather a means to achieve the other valued functionings. Resources are added following the feminist economists' discourse.

With regard to achievement, results indicated that over half of the graduates are *contributing to their family income* (two out of three male graduates and almost one out of three of female graduates), which in turn contributed (in addition to other factors) to improved financial status of one in two of the households and sustained financial status for 44% of them.

This finding is important within the context of the impoverishment of the Palestinian people due to the prolonged military occupation. The negative effect of such a context was highly apparent in the lowered contribution of graduates who are marginalized by these context-related factors and limited to family income and in their abilities to reduce poverty.

Another important finding indicated that one fifth of the *VET graduates were able to start new families* upon graduation. More important is the fact that most of the male VET graduates were able to support their new families and almost one in three female graduates were able to contribute to their newly started families, although their contribution was lower.

This functioning is part of the opportunities VET provides and reinforces the argument that poverty is not simply about income but includes *access to economic*

*resources*. Many VET graduates were able to generate resources for poverty reduction, by utilizing their skills to produce items for home use, minimizing the household cost of living, and increasing its resources.

### **Capability 4: Active Citizenship**

Active citizenship is identified by Powell (2014) as linked with inclusion in decision-making, a sense of agency, and the mobilization of resources for change. Here I draw on the concepts of the empowerment and the achievements of graduates in these areas to identify the capability of active citizenship. The empowerment framework is used to define active citizenship through “Power-With” indicators. The graph below illustrates the achievements of graduates of active citizenship due to VET and work.

Results indicate the importance of VET as a route to status and a way to gain respect from the community. This was expressed by the graduates; they specified the use of skills gained and work and income as a means to increase respect and being a resource for their community. Robeyns has also included respect as a main capability on her list; she defined it as *to be treated with dignity* (Robeyns 2003, p.71).

Participation in public life was also achieved by graduates. It was more important for male and female youths in marginalized localities, as percentages reached 87% in marginalized localities, with a 19% difference to the remaining West-Bank areas. This result is reasonable within the context of these localities, since space is squeezed by the occupation measures and people are confined within their own space.

Participation in public action was higher among youths in marginalized localities, especially those near the wall, as there are community actions to protect their existence.

### **Capability 5: Confidence and Personal Empowerment (Power Within)**

**The Power Within – Sense of Agency:** Confidence and personal empowerment encompasses one of the main empowerment elements. This definition departs from Powell’s (2014) definition, as it is linked in this capability list of VET to Kabeer’s (1999) empowerment framework where the “Power Within” is defined as “their sense of agency” (Kabeer 1999). Kabeer sees agency as “more than observable action as it also encompasses the meaning, motivation and purpose which individuals bring to their activity, their sense of agency, or “the Power Within” (p.438).

The results indicate that 80% of the students had developed their “Sense of Agency” or “Power Within” or developed their inner power as a result of their experiences in VET. They developed more confidence in skills and know-how, in

abilities and own-self, followed by communication skills, and, to a lesser degree, in financial capacities, as the graph below indicates.

The achieved agency was higher for females, those living in marginalized localities, specifically in Gaza and adjacent to the wall, and for refugees. This reveals the positive effect of VET on those who had lost their resources due to their context, with VET providing them with new resources through which they could achieve paid and unpaid work and income generation (Further discussion of these empowerments (Power Within and Power With) within the overall empowerment framework is presented in my thesis (2018) and my paper (2017).) as well as have greater confidence (Fig. 5).

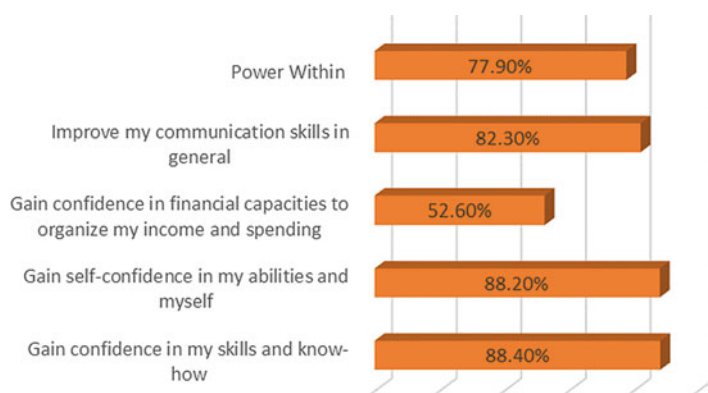
**Having a Range of Futures as Possible Aspirations:** Graduates indicated a range of options, including continuing their education, work, work and continued education, have their own work, work from home, being self-employed, volunteering, doing unpaid caring and housework, or alternating between paid and unpaid work.

### Capability 6: Bodily Integrity, Safety, and Mobility

In the Palestinian context, bodily integrity, safety, and mobility are interrelated, following Nussbaum (2003) and Robeyns (2003).

Palestinian male and female youth are facing various forms of violence as a result of the military occupation, and as noted by the World Bank (2010) report on gender dimensions:

The violence resulting from the occupation has led to loss of life, land, property, and free movement of people, and has fragmented social space, a key source of material and moral support especially for women. (p.13)



**Fig. 5** Percentages of VET graduates in agreement or high agreement to “Power Within” indicators due to VET and work



Shalhoub-Kevorkian (2008) has noted the effect of violence on girls and women commuting to education; she noted:

The results show that the covert and overt acts of political violence against Palestinians has transformed Palestinian gender relations in complex, contradictory, and diverse ways while both militarising and violating their right to education. (p.179)

UNICEF (2016) has documented that the children are subjected to violence when attempting to reach their schools within the marginalized localities. Attacks against communities in the form of closures, siege, isolation, curfews, zoning, etc. also violate the right to move freely and subject all members of the community to various sorts of violence and violations.

The PCBS (2012) National Violence Survey in the Palestinian Society indicated that half of Palestinian families were subjected to direct violence from the occupation or settlers during the period preceding the survey. Domestic violence is also high in the community due to various factors including the effect of the military occupation (PCBS 2012) or, as Abdo-Zubi (2006) put it the “external and internal,” the “militarisation and internal patriarchy.”

Hence, all these young males and females would value having their bodily integrity, being protected from violence, free from fear and violence, and with the ability to move and commute to their VET institutes or work freely.

## **Capability 7: Senses and Imagination – Developing Creativity**

The practically oriented vocational training promotes physical well-being; VET learners have indicated enjoyment of the practically oriented VET.

Moreover, most of the VET graduates that had positive attitudes indicated that “VET provides opportunities for creativity” (82%). Teachers and counsellors in various VET institutes mentioned the artistic sense or talents of students enrolling in certain related vocations, such as beautician and ceramics. In this sense, VET training helped them develop their appreciation for arts and related skills. Creativity and innovation as an outcome of TVET is emphasized by the Palestinian TVET strategy (MOEHE and MOL 2010, p.6).

## **Capability 8: Recognition and Respect**

**Being Treated as a Dignified Human Being, Having Self-Respect, and Not Being Discriminated Against:** To be treated with respect, dignity, and without discrimination came out from various interviews and discussions with students, communities, parents, and teachers, often in terms of granting graduates’ rights in the labor market. Female students added granting equality in the household and the community.

**Better Status to Achieve Equality:** Significantly, most VET graduates (85%) indicated that they aspired to a VET that would provide them with a “Better Status” and (95%) aspired to receive a certificate. These results were largely similar between the groups, indicating that the role of VET aspired to by the graduates was to provide a certificate and a status in a Palestinian community that provides a lot of respect for education and certificates.

**To Respect My Choice of Selecting VET:** This was also part of the discussions that came out from students and graduates, as noted by a female graduate:

We need to show how much we work and tire ourselves; we need to show that we love our vocation to our families to get their respect towards our choice, plans and accomplishment.

**Community Recognition – Steadfastness and Identity Recognition:** Community recognition came out clearly in the Palestinian case and the marginalized localities. This was noted for localities of East Jerusalem inside the wall, where the presence of Palestinians and the Palestinian economy is threatened and localities are shrinking year after year, as noted in the context.

### **Capability 9: Upgrade Skills and Qualifications Throughout the Life Course, Including Continued Education and Continued Upgrading**

The ability of students to continue their education and to have enabling skills for lifelong learning challenged the negative perception by some of the traditional educationalists and some parts of the community that VET is a dead end. As noted through many interviews and discussions, continuing education is challenged by policies, resources, and attitudes. Almost one in four graduates who were outside the labor force were continuing their education during the survey period, that is, 4 years after graduation. Moreover, most of the VET graduates with a positive attitude toward VET (84%) think that “VET provides opportunities for self-development.”

### **Capability 10: Enabled Transition to WOW Through Awareness, Preparation, and Connections**

This capability resembles Powell’s (2014) eighth capability (Occupational Knowledge) with a marginalization lens. The suggested capability adds other relevant resources to “occupational knowledge” for the poor and marginalized for entry into the labor market. It includes linkages to the labor market that enhance connections for the poor and the marginalized as an important resource for entering the world of work. The capability was also rephrased to reflect the need of the marginalized youth for the quick transition into the world of work, in line with international VET literature and recent UNESCO policies.

**Having the Occupational Qualifications for Entry into the Labor Market:** Most graduates (81.3%) expressed “To gain skills that enable me to work” as one of the reasons for joining VET, indicating how graduates perceive of VET as a tool for enabling transitions to the workplace. Most graduates interviewed were very appreciative of the qualification gained, and most of those employed have acknowledged its effect in helping them to enter the labor market.

**Occupational Knowledge and Experience for Self-Employment or Opening a Business:** Results indicated that 7% of VET graduates are employers compared to the national figure of 6.4% and that for youth of 2.3%. It was part of their aspiration; those that wanted to start their business immediately were more pronounced in marginalized localities with fewer opportunities for employment.

**Awareness and Preparation for Transition to WOW:** More occupational knowledge and skills preparation are needed for the marginalized within a limited opportunity context. “Having the learning skills that allow for experiential learning in the workplace,” as Powell (2014) noted, can be expanded to real-life on-the-job learning through training schemes such as apprenticeship training or work-based learning (WBL).

Some of the graduates had participated in WBL schemes through internships, traineeships, and school-based apprenticeships. WBL provided opportunities for employment for many graduates, as 8.1% found employment in same place of training before graduation. These percentages were doubled for females and higher for those living in marginalized localities.

**Connection to Employers and Work-Related Actors – Connections in Finding Employment:** Results indicated that the most common ways of finding employment for those living in marginalized localities, in specific, those adjacent to the wall or in seam zones, were connections coming through training placements, indicating the importance of connections for the marginalized.

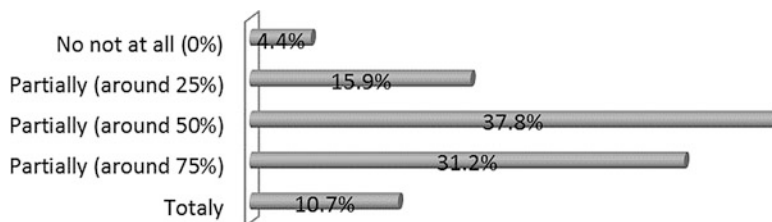
**Transition Period for Employment:** The results indicated that most of the graduates found employment within 1 year of graduation (79%) and 62% within 6 months of graduation. This suggests an easier transition than other Palestinian youth, comparing favorably with national figures (PCBS 2016).

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## Achieved Aspirations and Empowerment

The aspirations expressed by graduates have been listed already as having achieved functionings. This section will examine the achievement of these aspirations as assessed by the graduates themselves. The achievement of aspirations is linked with achieved functionings and empowerment and is a measure of the graduates’ satisfaction with their accomplishments in regard to achievements, well-being, and empowerment.

Graduates’ assessment of their achievement reflected the change achieved in their lives based on their aspirations. Whereas some have fully achieved their aspirations,



**Fig. 6** VET graduates achieved aspirations

others had achieved them partially and are still working to achieve them, while a few did not achieve their aspirations. Graduates noted the structural challenges to their achievements (Fig. 6).

Results indicate that only one in ten graduates achieved their aspirations in full. This percentage increased and sometimes more than doubled, when the capabilities of graduates were turned into functionings, or the aspirations were realized in such a way as to lead to poverty reduction and empowerment and, also, when empowerment was achieved. These results show that graduates from marginalized groups are more inclined to perceive that their aspirations have been met which supports Kabeer's (1999) notion about "empowering the disempowered." In short, the effects of VET are more appreciated by those who were previously disempowered.

**Structural Challenges:** Structural challenges presented an important obstacle to the achievement of functionings, capabilities, and aspirations. The main structural challenges for graduates include mobility, social restrictions, economic restrictions, and others. Part of these challenges is related to the increasing effects of the military occupation, in specific the mobility and the part of the economic restrictions to employment, income, and economic opportunities, while others are related to the decent work agenda. Social restrictions are mainly related to the patriarchal nature of the society and to family responsibilities.

**Achievement of Aspiration Over Time:** A comparison of the results of two of the institutes with same institutes' graduates surveyed in 2011 (Hilal 2012) indicated a decline in achievement of aspiration. These results reflect the increased structural barriers and obstacles faced due to the occupational measures and their effect on the overall context during those years.

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## **Conclusions: VET Contributed to Human Development and Reducing Inequality**

The research findings have indicated that within "a protracted protection crisis" context governed by military occupation and human rights violations, VET is attracting different marginalized individuals, groups, and communities and enabling them to realize some of their functionings and aspirations.

Within such context, graduates were able to express their aspiration to achieve part of their capabilities and functionings according to their aspiration. The results

indicated that the actual achievement of functionings aspired to by the graduates such as employment and income generations increased their self-assessment of achieved aspirations.

Results have also indicated that when empowerment was gained, this increased the achieved aspirations. Achieved aspirations increased due to marginalization variables. This difference could also be explained through Kabeer's (1999) notion of "empowering the disempowered" and hence the personal comparable achievement. As such, highlighting the importance of empowerment measure for the marginalized is borrowed here from GAD theory.

As such the chapter has clearly noted the contribution of VET to human development and to reducing inequality and marginalization through achievement of VET learners' functionings and empowerment.

The chapter has presented the *VET capability list* (which is part of my doctoral work) (Hilal 2018) that is based on Powell (2014) VET capability list, with the inclusion of the marginalization element. The developed capability list (*Powell 2014/Hilal 2018*) could be used as a tool for monitoring and evaluation of VET's contribution to human development.

Finally, the chapter has presented the contribution of VET to human development in a marginalized context, thus adding to the ongoing discourse materialized through the call of McGrath (2012). An added contribution is that it presents a new theoretical framework that includes GAD and political economy within the capability approach, highlighting the importance of the marginalized lens when tackling VET learners and the importance of increased accountability to ensure learners' achievement of their aspiration.

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# Gaining More Than Just Vocational Skills: Evaluating Women Learners' Aspirations Through the Capability Approach

# 19

Rebecca Suart

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## Abstract

Vocational education and training had been a popular choice for women learners in the English Further Education sector. However, policy makers and policy researchers have characterized these women learners as providing a poor return on investment due to their failure to enter immediate employment. As a result, there have been significant cuts to funding. Such policy processes have not engaged with why these women returned to education and what they stood to gain from participation. This major absence is the focus of this chapter. Framed using a capabilities approach, women learners were asked why they had returned to FE and how they were going to use their knowledge and training. Using capabilities as a lens reveals a nuanced and complex picture of how education helps them to expand their well-being, agency, and freedom achievement.

## Keywords

Women learners · Capabilities approach · Aspirations · VET · Further Education

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## Context

English Further Education (FE) colleges have historically offered a variety of vocational (VET) and academic courses to a broad range of learners, including mature adult learners. Until recently adult women learners formed the majority of all learners in the English FE sector; many of these were engaged in VET (Skills Funding Agency 2012). This was primarily due to funding targeted toward reducing social inequality and unemployment. This trend has been reversing since 2009 with stark cuts to adult funding which can largely be attributed to dominant policy discourse for VET which prioritizes human capital approaches that measure the return on public investment (Psacharopoulos 1987). As such, policy research using these narrow values views adult learners by what they are held to lack; this has been more specifically aimed at women who are deemed as failing to meet the employability goals of VET (Jenkins et al. 2003; Jenkins 2006; Blanden et al. 2012). Such an emphasis renders adult learners who do not enter the workforce immediately after training as a “poor return on investment” (Blanden et al. 2012). Yet the voices and experiences of women learners are absent from these accounts, and very little is understood about why women choose to re-engage with vocational education as mature aged learners and what they hope to acquire from doing so.

The voices of women who reenter education at lower vocational levels in the FE sector are relatively scarce (Parr 1996; Wright 2013). They are more prevalent in relation to academic programs such as Access to Higher Education courses (Merrill 2000; West 1996; Waller 2010; Brine and Waller 2004) or basic skills programs (Duckworth 2014; Biesta et al. 2011). Arguably, this reflects the low status of FE and VET within the English education sector, coupled with dwindling learner numbers of mature aged students. Women learners are often framed in the empirical research as struggling to navigate the structural constraints within education (Brine and Waller 2004; Waller 2010; Reay et al. 2002) or within the home (Parr 2000; Merrill 2005; Gouthro 2005; Daniels 2010). Although such barriers are highly relevant for understanding the experiences of women learners, little consideration is given to how (and if) women use their agency to achieve their aspirations. Furthermore, the absence of women learners’ voice in the VET and FE sector renders them invisible in policy debates that need to go beyond employability measures. This chapter outlines how using a capabilities lens to consider learner aspirations offers a more nuanced understanding.

There is a growing body of empirical and theoretical literature in education which utilizes human capabilities approaches (CA) to evaluate inequalities (Walker 2003; Unterhalter 2007, 2012; DeJaeghere 2016). In the VET context, capabilities have been emerging as an alternative discourse to human capital approaches for skills development where learner voice is central (Powell 2012, 2014; McGrath and Powell 2015; Lopez-Fogues 2012, 2016). Capabilities can best be described as an ethical person-centered approach for evaluating inequalities, which prioritizes “human flourishing” (Sen 1999). The central tenets of capabilities are individual well-being, freedom, and the freedom to shape their own development. In the context of VET, capabilities show promise methodologically for empirical work

where learner voice is lacking and for considering learners as empowered agents of their own education (McGrath and Powell 2012; Lopez-Fogues 2016; Tikly 2012). Using narratives from adult learners in the English VET sector, this chapter draws on the capabilities approach to consider learner aspirations and critically evaluate to what extent they are realizable in the current policy context.

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## Theoretical Framework Underpinning This Research

Thus far I have briefly discussed the context and critically considered how the literature informs the central research questions. I will now outline what CA has to offer as a theoretical frame. The capabilities approach is an evaluative framework for social justice and equality that goes beyond some of the narrow economic policy measures highlighted earlier. Even though Sen is careful to acknowledge the importance of economic security, he stresses that capabilities approaches offer a broader framework than instrumental outcomes alone; rather, they value the multi-dimensional and complex nature of individual lives (“[Vocational Education and Training Beyond Human Capital: A Capability Approach](#)” by Bonvin, this volume). Essentially the individual voice is at the heart of its enquiry which seeks to understand what “they have reason to value” and in the process highlights the dissonance between their goals and those held by policy makers. Central to the CA are *capabilities (or the capability set)* which broadly represents what an individual is able to do or be (Sen 2005: 153) from a range of options. Underpinning the capabilities approach are individual aspirations which are the goals or the future they imagine for themselves. Aspirations will be discussed later, but women learners who choose to return to education have vocational, economic, personal, social, and family goals in mind. Realizing such aspirations (and in the process developing their capability set) in education is contingent on the degree of agency an individual has and how they use it, along with the freedom to live the life *they* have reason to value.

The capability approach is particularly suited to this enquiry as it is underpinned by a feminist epistemology. It seeks to challenge inequalities that affect women’s lives by focusing on the complexity and multidimensional nature of women’s lived experiences (Sen 1999; Alkire 2002; Robeyns 2005; Nussbaum 2011; by Hilal, this volume). Although Nussbaum has insisted that a prescribed “capabilities list” is necessary to determine the basics of “a good life” for women, the justification that Sen gives for refraining from using such a list in favor of determining “capabilities” within the context is more appropriate for this research. This is complementary to other feminist research approaches where women’s voices are not only central, but there is a general avoidance of imposing too much structure onto the research (Smith 1987; Reinhartz 1992; Harding 1998;). Capabilities approaches are closely aligned to the thinking of feminist economists who insist that dominant masculine approaches to economics render the important caring and domestic work that women do invisible (Donath 2000). Despite progress toward gender equality in the west, it is important to raise the issue that women still bear the burden of the caring

responsibilities; consequently this impacts on their freedom to live the life they choose (Nussbaum 2000: 146). This is important because a lack of freedom and agency is compounded by women's economic dependence which affects the opportunities they have to leave unhappy relationships (Sen 1999). Education is one way that "active agency" can be achieved by women, giving them alternative choices and the opportunity to become economically independent or increase earning power and thus giving "positive force to women's voice and agency through independence and empowerment" (Sen 1999: 191). Moreover, education is critical for promoting other capabilities or what has been termed a "fertile functioning" (Wolff and De-Shalit 2007 cited in Nussbaum 2011). The CA focuses on the life that an individual has reason to value which emphasizes the social injustices and inequalities they experience. Furthermore, because their individual voice is central, it challenges the ways that policy goals are inscribed upon them, thus treating them as a homogenous group. Using the capabilities approach to frame the narratives in this study enables an ethical, person-centered, agential, and nuanced account of what women learners gain from their studies.

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## The Study

Thus far, I have focused on contextualizing the research and how capabilities could contribute to our understanding of women learners' aspirations. Now, a brief outline of the study follows. The voices and experiences of women learners from the empirical research are central to this chapter; 21 women generously shared their reflections about their life history, educational journeys, and the chosen course of study. The women featured in this chapter were aged over 25 years old (Students aged 25 are classified as "adult learners" by the funding body and have specific funding arrangements.) and on full-time vocational or prevocational courses of study in Further Education colleges in England. The sample was diverse, representing different educational backgrounds, social class, race, ethnicity, religious beliefs, marital status, socioeconomic status, and sexual orientation. Adult women learners came from a wide range of geographical locations which gave some insight into how local context impacts learning experiences, employment, and gendered traditions. Learners were studying on full-time programs leading to specific vocational outcomes (such as hairdressing, nursing, teaching assistant, administration, social care, beauty therapy, or animal management) or on prevocational ESOL (English language skills alongside vocational taster courses).

Life history narrative interviews along with life grids were used (Abbas et al. 2013). This approach facilitated a rich understanding of learners' educational biographies, why they had returned to education and their aspirations. In particular the interviews focused on the extent to which learners were able to use their freedom and agency to achieve their aspirations and how these developed over time. Interviews were conducted with learners at the start and end of their course; some learners agreed to be followed up after their courses also. Meeting with learners over time

enabled them to engage in a reflective dialectic about their educational biographies, developing a greater appreciation of what they had achieved in life.

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## Research Findings and Discussion

Earlier, I gave a brief outline of the concepts of the capabilities approach. The remainder of the chapter will focus specifically on learners' aspirations, well-being, and freedom. Although these constructs are discussed separately, they must be viewed as interrelated.

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### Learner Aspirations

Learners were asked to discuss their aspirations and what they had valued about their VET course in addition to gaining new qualifications. Aspirations are key to the capabilities approach as they relate directly to the extent individuals can use their agency and freedom to imagine a better life (Sen 1999; DeJaeghere 2016 and Hart 2012) or are able read "a map of a journey into the future" (Appadurai 2004: 76). Hart describes it as the conscious and unconscious motivations that are indicative of individual or group commitment toward an end point (2016: 326). A functioning aspiration can be viewed as the freedom to aspire and the capability to achieve from a range of options (Hart 2016). Even though educational aspirations reflect an individual's present and future goals, these are not formed in isolation but in the thick of social life with the needs of self and others in mind (Appadurai 2004; Hart 2012, 2016). Unlike the empirical research by Hart (2012) on youth aspirations, the aspirations of adult women learners have not received such attention, as promoting their ongoing educational attainment is likely to be of less policy interest. Aspirations are particularly important to consider though in relation to this research as they "act as signifiers of what has meaning and value for us" (Hart 2016: 336).

Accounts of how aspirations are formed in relation to education are epistemologically and ontologically complex. Even though Hart acknowledges that they are "future orientated, multidimensional and dynamic" in relation to the social context, her typologies suggest a binary approach where aspirations are described as true or adapted (individual or collective). Although DeJaeghere is in agreement with Hart that aspirations are dynamic and future oriented, she is critical of Hart's typologies claiming that aspirations operate at a more complex level where: "aspirations and agency creates an ongoing dialectic between structures that constrain and potential openings" (2016: 12). Furthermore, drawing on her longitudinal empirical work on young women's educational aspirations in Tanzania, she highlights how agency and aspiration are determined in relation to gendered constraints which in turn make trajectories more fluid than Hart suggests. Also, she rejects the notion that culture acts as an inhibitor for change for women arguing that gendered norms are dynamically changing and women (in the Tanzanian context) are becoming more agential in their own lives. By foregrounding women's agency and aspirations in this way, we

gain a nuanced understanding of how women challenge structural constraints to live the life they have reason to value. The learner biographies and narratives suggest that women's aspirations grow out of a sense of deep dissatisfaction with their lives which many described as a turning point. Even though goals for their future directed learners' investment in their present educational trajectory, their past educational and employment experiences were significant in their present and future aspirations.

Learners' initial aspirations often mirrored policy goals of gaining vocational qualifications and going into more highly paid employment. This was particularly evident when speaking to women where the vocational opportunities were highly specific such as in teaching, nursing, hairdressing, and beauty therapy.

Rosa spoke about how she had worked in youth work and social care but had always wanted to be a nurse. Currently working in the social-care sector, she aspires to achieve more for herself, her family, and her community. She is very focused on training as a means to gaining the qualification outcome, explaining:

Nursing is my heart's desire, to be a nurse. . . . I want to get this qualification so I can do a nursing degree

Similarly, Precious is driven by achieving her vocational aspirations – in her case she is not looking to gain higher qualifications; she just wishes to change career direction. Also working in the care sector, she has always wanted to work with children but lacked basic skills as well as the confidence to go back to education. She explains how having improved her basic skills facilitated her entry onto a course for teaching assistants:

I absolutely love children, it is something I have always wanted to do. I will get this qualification even though it is hard for me [language wise] and work in a school hopefully next year

Achieving the qualification aim is directly related to improving the capability set which is a tangible measurable outcome. Yet learners' educational aspirations were broader and more complex than those of policy makers and funding bodies; rather, women used their agency to overcome personal difficulties such as gaining freedom from poverty, oppression, and abuse. This was not only a priority for themselves but their families too.

Emma explains how she:

. . . wanted to be a dog trainer, something I am good at and they do the course here – they don't do it at many places. That has been really important. It will give me the freedom to move away, support myself and my daughter financially

Similarly, Safina expresses her deep gratitude saying:

I was lucky to get a place here at this college, I mean I came here with no qualifications really. I wanted to be a hairdresser. This will help me towards my dream of opening up a little salon with my daughters and granddaughters

While such aspirations are crucial for freedom and well-being, they are invisible in human capital policy critiques that focus on employability, qualification outcomes, and economic independence. Aspirations in these examples are driven by a desperate need to live a better life than they have been.

As discussed earlier, aspirations for many were synonymous with the program choices that were available. Women learners describe that they had unconsciously chosen courses based on what the local offer was, which FE college they preferred, travel time, cost, course hours, and how they could integrate this into their personal lives. Frequently course choice did not always compliment their overarching goals, but they had taken a “best fit” approach – this reflects the very complex needs of adult women learners who are juggling work, relationships, financial hardship, and child care. Moreover, learners reflected how a lack of qualifications from their compulsory schooling had formed part of their decisions to join specific courses at colleges where they felt they could *fit in* better with the academic aspects of the course.

Chloe selected her course based on the college she felt most comfortable to attend having been on some short courses at the college as part of her recovery from chronic mental health problems. Although she hadn't reflected on the course offer, she said:

I don't know whether I would have chosen this course if I hadn't wanted to come here. I want to be a counsellor or psychotherapist eventually. They do those kind of courses at other [FE] colleges, but I came here because I felt comfortable . . . . I was still very fragile after my divorce and the mental abuse that I had suffered and wouldn't have had the confidence to do it. It might have affected my university offers but I figure some offer is better than no offer at the end of the day

Whereas Kathleen had aspired to do the same course at a different college, she describes how:

. . . . The practicalities of getting my daughter to school or nursery makes this one much closer to go to and that is important. Plus I don't think they would have been so helpful with my grammar and spelling! My lack of qualifications as I missed a lot of school, means that I am probably better off here

These vignettes emphasize how gendered inequalities affect women's freedom and agency to choose their educational trajectory, without being hindered by gendered norms, caring responsibilities, poverty, and oppression.

It became evident that aspirations change over the duration of the VET programs. Occasionally learners chose to pursue a different path on completion of their course than they originally planned or completed more courses to improve their capability set.

Emma's goal of becoming a dog trainer expanded as she realized:

I could be so much more successful if I went into higher education, my options would be greater – I could go into management. I am really pleased I have been accepted onto the Degree in Animal Management here

Women learners often start out with tangible goals and fairly clear ideas of their trajectory (into further education or employment), but this can change as opportunities to study further or in new areas open up. Learners reflect that while they value increasing their chances of employment or gaining a new career, this is only a small part of what they gain, placing more value on expanding the intrinsic personal gains and assert how this has helped them to broaden their capability set.

If in Appadurai's words the "capacity to aspire is being able to read a map of how to get there" (Appadurai 2004), then what support was available to learners to help them achieve their aspirations? Even though women learners could discuss their aspirations at length, some were unaware of exactly which path they needed to take in order to reach their goals. There was a lack of pre-course information in some areas meaning that some learners were unaware that they did not have the crucial entry requirements to progress onto further programs of study. The students who were most clear of the routes that they had to take were those doing vocational courses which gave them access to medical degrees, hairdressing, or beauty therapy. Yet for learners on other courses, achieving their aspirations had been hampered by confusion about what their options were for further education and employment.

Jane joined the advanced teaching assistant's course, but she had not realized how important it was to have maths at GCSE if she were to gain a job. Reflecting:

I wished I had known this before starting the course, it is going to mean I will take longer to get into the workplace. I'm doing it [maths] now but if I fail it could take me another year. . .

Not only did learners suffer a lack of pre-course advice about essential qualifications, they were often unaware of qualification progression routes until the end of their course. Jane noted:

we got to the end of the year and then they told us about an advanced foundation degree and I am confused which route to take I thought all I needed was this qualification?

This lack of clarity about routes into vocations was a common theme, particularly for migrant learners who found navigating the English VET system difficult. This was exacerbated by the lack of availability of English (ESOL) courses which are a prerequisite to vocational programs at FE colleges and universities. They struggle to gain essential advice that will help them to achieve their high aspirations; instead they settle for whatever work gives them the most security and sometimes, in the process, sacrificing their personal goals.

Soha, a migrant from Pakistan, had been learning English and completing a teaching assistants' qualification. She already held a teaching degree from Pakistan but explained:

I have had to start from the bottom, it is difficult – as well as not having good English my degree isn't recognised here. I thought it better to work as a teaching assistant and still be in school than to spend years getting a new qualification. This will give me time to look after my children around work too

Aspirations were frequently narrow and oriented toward working within a particular vocation without necessarily considering long-term career progression and employment opportunities. However, the route toward achieving these aspirations was not always straightforward for a number of reasons. These vignettes emphasize the extent to which women's agency and freedom impact upon their aspirations where their capabilities can be limited or expanded. Some learners' aspirations grew resulting in them becoming more agential in their own lives; this was evident in the ways they spoke of wanting more for themselves and being prepared to work longer to achieve this. Yet all too frequently, women learners were not always aware prior to enrolling on a course and the pathway toward achieving their full aspirations. This resulted in learners taking longer to achieve their end goal or lowering their aspirations; this was particularly the case for migrant learners. Importantly though, in the most part women's aspirations were formed not only in relation to fulfilling self-interests but taking into account those of significant others. While at the heart of individual aspirations is achieving personal goals for women learners, they are contingent on factors such as time, location of course, finance, and the impact on dependents. This for many involves choosing the "best option" which is not always the most appropriate for achieving their highest aspiration. Sadly many of these women have sacrificed their education and career to meet the practical needs of others their whole life.

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## Freedom to Do or Freedom From

Freedoms are a central tenet of the CA, which in essence represents the opportunities a person has to live the life they have reason to value. Freedoms or non-freedoms existed in all sorts of ways for the learners in this research and could be traced back through their biographies. They can be thought of as those impacted on by the private sphere (domestic, marital arrangements, finance, and as a child) and those within the public sphere (social economic and political freedoms). Freedoms represent the real choices that are available to an individual (opportunity aspect) and how individuals (are able to) use that agency and choice (process aspect). In addition, Sen goes on to define political, social, and economic freedoms as "instrumental freedoms" (1999: 38), which are highly relevant to this topic as it directly contributes to the extent a person has to achieve well-being and agency achievement or to live the good life.

The degree of freedom and therefore agency that women have in the private sphere can have a dramatic effect on the life that they are able to live (Sen 1999; Nussbaum 2011), particularly having the freedom to expand capabilities through education. Even in the west where significant progress has been made toward gender equality, multiple non-freedoms within the private sphere continue to thwart women's opportunities. The freedoms of women learners in this study were frequently hampered by bearing the burden of caring and domestic responsibilities; poverty; lack of opportunity; low education; and oppressive relationships. For some, this had affected their formative years in education resulting in educational



biographies that some women described as disappointing. In their youth, many were “young carers” before adulthood, characterized by being partly or fully responsible for domestic and caring duties. This often meant missing out on compulsory schooling or leaving education altogether. Some women reflected on this as a necessary sacrifice, one which was made for the good of the family – sometimes this was done willingly, but not always.

Kathleen missed school for long periods of time as her family belonged to a traveling community. She describes how she missed school:

Because they [her parents] drove us around, they saw education as nothing to them. We went to school when we could but it was never important to us, to be honest

As an adult, now living in the settled community bringing up her daughter alone, Kathleen has valued the freedom of being able to re-engage with education and gain qualifications in hairdressing which she never imagined would be possible. It is important for Kathleen that these qualifications expand her freedom and opportunity to work within a skilled trade.

Safina also missed much of her secondary education, failing her GCSEs (secondary education), because she was required to look after her family:

my mum was not well, coming from a big family, being the second eldest and a girl I had to forget what was happening [at school] and just help out with the house and cooking an everything. . . Then at thirteen my mum came home and said I was engaged, I could not have said yes or no. So I just had to follow that

Fractured family relationships and divorce affected educational freedom in childhood. Emma explains how she carried the burden of domestic responsibilities as her father was depressed and this impacted on her freedom to make friendships:

He was heavily depressed when we came back from the US, so he didn't do much work and that. I had to cook all the time. I didn't have much of a life when I was in high school. I think this made it difficult for me to maintain friendships and I was bullied a lot

In families the burden of educational sacrifices was frequently placed on daughters leaving their male siblings free to complete their education and subsequently gain economic freedom. This was not a culturally specific phenomenon but one that affected a variety of class, race, and ethnicities. This is not to suggest that women should not care for their family or a criticism of cultural norms; rather, these are the reflections of women learners about their own freedoms to learn in adulthood.

Upon reaching adulthood freedom in the private sphere was closely associated with intimate relationships, caring responsibilities, and their economic independence. Women shared stories of living in high-risk situations where domestic violence, suffering emotional abuse, and partners who were involved in criminality were the norm. This was often exacerbated by substance or alcohol addiction, mental health problems, and poverty. This affected the freedom of women with children the most substantially, as they spoke of the added responsibility of caring for and protecting

children in stressful circumstances. Lack of economic freedom due to caring responsibilities, lack of child-care support, unemployment, or low-paid employment combined to have a significant negative impact on women's freedom to engage in education. These issues are complex; some women cited violence, oppression, and fear in the private sphere as reasons for not pursuing their educational aspirations sooner, whereas others explain how education offered a means of gaining freedom from the abuse.

Amy shares how she tried a number of times to re-engage with education so that she could realize her aspiration of working with children in a nursery but:

I had to leave my child-care course [when I was younger] because I was in a violent relationship. ... Unfortunately when I met someone else, I went back to college and was in a violent relationship again! He would always tell me I would make nothing of myself. So I thought not only will I show you [I can do it] I will prove it to myself and I did

Amy considered herself fortunate as she had the support of her family, who were able to help her with child care to facilitate her return to college and offer support with temporary housing during her separation.

Emma was motivated by a combination of wanting to escape from her ex-partner who was in prison and gain better employment opportunities that prompted her return to college:

My daughter's dad is a lunatic. . . I didn't realise until I was having her, so I left him when she was six months old. He is violent and has been in jail ever since. I did lots of jobs that were really demanding and poorly paid. He is coming out [of jail] soon. I want to move to another country [with our daughter] so we are safe. . . . There are opportunities for me in this line of work internationally and that makes me feel empowered

Targeted state provision of education, welfare, health-care, social-care, and child-care support can provide opportunities for women to expand their capabilities. The extent to which women are supported by these *instrumental freedoms* in the public sphere was linked to the freedom that women experienced in the private sphere. The women in this study shared how they had utilized opportunities or instrumental freedoms provided by the state to return to education with a view to gaining freedom from negative oppression (negative freedom). Specialist support and funding from the state made it easier for women like Chloe who had wanted to come back to college for some time, explaining:

I started to have ideas that I could do what I had thought about doing years and years ago. But I put it on hold for the family. Because the relationship at the time was quite a controlling relationship, [this] obviously made my anxiety and depression a lot worse. So when I was able to come into the level 2, for two nights a week I was able to get away from my husband and children and it gave me the opportunity to reflect on how things were at home. Once my confidence was built I became stronger and I was able to leave that relationship. I got stronger thanks to the college

Even when women use their agency to return to education, they often have to juggle low-paid insecure work, full-time study, and precarious child-care support

from family or friends. This was particularly prevalent for migrants who worked in care work on low-paid zero-hour contracts at unsociable times; for many this involved working nights and then coming straight to college/work placement from work. Precious a single parent had migrated to the UK almost 10 years ago and had aspirations of working with children; she enrolled on a course to become a teaching assistant at her local FE college. In order to support herself and her two children, she works night shifts as a carer on a zero hour's contract. She describes the strain that this places on her:

I think it is stressful. Like today I just finished a nightshift at 8.30 am, then I have to come here for 9 am and work again later on a night shift. When I get home tomorrow from work I will go straight to my school placement. Now I have to go home to cook dinner and try to get some sleep

Precious explains that she is desperately seeking freedom in the form of financial security and time to fulfill her parental role in the way she chooses for herself.

Similarly Ana migrated to the UK 3 years ago with her newborn son to live with her mother. Ana enrolled at college first of all to do an essential English language course, before progressing onto an adult apprenticeship in business and administration more recently. She describes her desperate financial situation:

I work two jobs now on top of my college course, because I can't afford to live on the apprenticeship wages with my son – who is at nursery full time. The fees for nursery cost me a lot – we are in debt and rent arrears. I just hope I get a job that pays me enough at the end. I don't want to be rich I just [need] to have enough money to live on!

Although in the short term women learners experienced financial and personal hardship, by exercising their limited freedom and agency, they were aspiring to build a better future for themselves and their children. Their narratives emphasize how crucial it is that adequate support structures are provided for women and their families to live flourishing lives. Sen defines these as “instrumental freedoms” (1999), the support provided by the state for health care, education, child care, welfare benefits, and social care which are critical to overall freedom. In many of the cases observed in this research, instrumental freedom was found to be lacking or acting to disadvantage women in a number of ways. Funding cuts have impacted on the affordability of vocational education, particularly making it difficult for women who were not in receipt of the “right benefits” or had previously completed a similar level of education in their youth found access to courses difficult. There were very long waiting lists for language courses especially; this resulted in delayed progression onto vocational courses and affected integration into the community. In addition, recent cuts to welfare have impacted on women the most, especially single mothers. Policy has driven the urgency with which mothers need to gain employment after having children or face cuts to welfare payments. In theory, this agenda supports mothers back into work through subsidizing child care, yet the most recent increase in child-care funding is only available to those on permanent contracts meaning that women like Precious who are employed on zero-hour contracts do not

benefit from the child-care support. Furthermore, this narrow focus on gaining employment even if it is unfulfilling or exploitative denies women, particularly those who do not have other financial support, the opportunity of “decent work.”

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## Well-Being Achievement

The achievement of well-being is often an unintended benefit of expanding one's capability set. The learners in this study had often suffered or were suffering from complex physical and mental health conditions such as anxiety, depression, and fibromyalgia when they started their programs of study. This is an ongoing challenge for many women like Chloe and Emma as they continue to live stressful lives. Yet they share how learning and having a more hopeful future have helped them to improve their mental health and in turn their well-being. Safina's story acts a powerful reminder of how education can transform well-being:

If I hadn't have come here I would be six feet under by now— I would have taken my own life. I had tried before. I honestly think that coming on this course, gaining skills, feeling worthwhile has saved me from suicide. I was so low and now I feel that I have something to live for again

There were a minority of women who managed to overcome mental health difficulties but described how physical disabilities continued to be a major constraint. Amy has a disability caused by chronic pain with associated depression. Her reason for returning to college was initially to reduce the social isolation she was experiencing. Once she engaged with college and gained the support she needed for her mental and physical health, her mental well-being improved. However, she is concerned about her progression into university to train in youth support work because of her physical disabilities:

It sounds *bizarre* saying this, but if there were people with visible disabilities at uni I would feel happier. I want to be accepted. I don't want to be friends with everybody because that's not real life. I want to be accepted, I want them to accept my disability

She also has concerns of how her disability may affect her future job prospects and employability, but in gaining further and higher qualifications, she has more choices open to her. Amy described how she would not have been able to continue work in a nursery or classroom due to her disabilities whereas having the opportunity to train for a more desk-based support job made returning to employment more realistic for her.

Near the end of their course, learners' reflections on what they had valued about their course revealed how they had valued the improvement to their self-esteem, self-worth, self-confidence, and self-belief. Surprisingly, learners were not conscious that they needed to improve these aspects of themselves or that they would gain such benefits from returning to education. This point emphasizes the multidimensional

nature of what learners can gain both explicitly (qualifications) and implicitly (personal gains) terms.

Chloe was ambivalent about starting a course at college, reflecting how:

It [the experience] has been amazing I don't know how else to say it. If you had have asked me that three years ago I couldn't see past my life. It's helped me to find me

Debbie echoes this narrative; she returned to college having withdrawn from university when she was much younger because she lacked confidence in her ability and this was not helped by negative comments from her family. She describes how coming to college has not only given her qualifications but:

Confidence . . . . Self-belief so even if someone does say to me you won't be able to do it. I can say if I put in enough effort I can do anything

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## Conclusions

So far this chapter has presented the case for using capabilities as a theoretical lens for thinking about what women learners stand to gain from vocational programs in the English Further Education sector. I have argued that the dominant discourse of VET inscribes policy goals of employability and human capital accumulation onto learners, without considering why they return to education and what they hope to gain from doing so. Even though economic security is important for well-being and freedom within the capabilities approach, it extends beyond this as it considers the multidimensional nature of lived experiences. It places women's agency and the freedom to live a decent life at its heart. Focusing on women's well-being and freedom achievement has the potential to offer a more comprehensive view of the multidimensional nature of poverty and how it impacts their lives.

A dissonance between individuals' accounts of their aspirations and policy goals was noted; seemingly, aspirations were broader and more complex than the instrumental policy goals of employability. Although learners' aspirations were formed in response to present and future goals as Hart (2016) suggests, their past experiences were crucial in the formation of their aspirations. This reflected the impact that their negative educational experiences and long-held aspirations for a particular vocation had on their current aspirations. In agreement with DeJaeghere (2016), learners' aspirations were dynamic, emergent, and nonlinear. Women's agency and freedom to choose often resulted in what I have termed "best fit" aspirations, whereby women selected courses while placing the needs of dependents, partners, and financial well-being above their aspirations. Critically though, vocational road maps for adult learners are very often unclear, and there is a lack of pre-course support advice available to them. This significantly affected their opportunities to find "decent work" that is sustainable and regular and gives them freedom to access other support mechanisms such as subsidized child care. Although it has not been debated here, this

calls into question whether spaces on vocational courses should simply be matched to the employment opportunities available to learners. Yet by taking such an approach, education becomes purely instrumental and does not value women's expression of agency and freedom which has all too often been hampered by gendered inequalities.

The capabilities approach offers a broader account of women's lived experiences which aids our understanding of how they are able to use their agency and freedom to fulfill their aspirations. Women learners frequently explained how they had missed out on school as they had to stay at home as "young carers." In capabilities terms, this represents a "lack of freedom" to achieve their capability set (in other words gaining an education) which has implications for their freedom across the life course. Education offered the potential for some of the adult women learners to gain more freedom and agency to improve their lives, by being able to escape from abuse, gain employment, or do something for their well-being. Women's freedom and agency to achieve their aspirations to gain decent work are negatively impacted by issues such as in-work poverty, cuts to welfare and child-care benefits, and insecure work. This is exacerbated by the gendered inequalities they face within the domestic sphere where they all too frequently carry the burden of care and domestic responsibilities often without support. I have argued that this is compounded by a lack of language courses for newly migrated learners who experience these inequalities most severely. The lack of freedom some women face throughout their lives is what makes opportunities to gain skills and decent work so important, yet at the same time non-freedoms continue to hamper women's immediate conversion of qualifications into higher status employment.

Women learners choose to return to education and VET courses for complex reasons; the capabilities lens enables us to unpack what their aspirations are and what they gain from pursuing education in the broadest sense as agents of their own lives. Women learners often spoke of "wanting a better life" not just for themselves but their families too. Gendered inequalities which had blighted many women's lives meant that they achieved more from education than the chance of economic security; rather, they gained freedom to escape oppressive relationships, hope for their future, and became more agential in their own lives. Even when learners were not able to pursue employment immediately, their VET course had impacted their lives in immeasurable ways. Pursuing education had enabled them to (re)claim their lives as they improved their mental health, confidence, self-esteem, and well-being. Learners' children in particular benefitted from this transformation as women felt more confident in helping them with their school homework and dealing with the school. As a result learners had not only raised their aspirations for themselves but for their children too and better understood how to support them through their education. I have argued using the capabilities lens that narrow human capital measures and policy goals ignore what women stand gain from pursuing VET over and above employment. Rather, women's achievement of agency, freedom, and well-being cannot be quantified simply in economic terms nor can the positive consequences it has for their children, families, and community.

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# Capability or Employability: Orientating VET Toward “Real Work”

# 20

Lesley Powell and Simon McGrath

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## Abstract

Interest in the work-readiness of the VET graduate and the economic contribution that they might make has been a concern for much of the past century. This has escalated with neoliberalism to an account of VET that has employability as its central and sole purpose. At the heart of the employability agenda is the individual’s

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responsibility to achieve employability and, in contexts where unemployment benefits exist, to prove that they are trying to achieve employability as a prerequisite for accessing social benefits.

This chapter draws empirically from 30 interviews undertaken with young people living in urban townships in the Nelson Mandela Bay metropolitan in Port Elizabeth as part of the research program of the *Research Chair: Youth Unemployment, Employability and Empowerment* at Nelson Mandela University, South Africa. The research work was initially funded by the Education, Training, and Development Practices Sector Education and Training Authority (ETDP SETA).

Drawing on the capabilities approach, this chapter shows that the employability agenda, with its associated emphasis on income poverty, serves in reality to ignore the multiple capability deprivations that affect South African youth living in low socioeconomic status urban townships. In contradiction to policy narratives that posit employability as a solution to poverty and youth unemployment, the chapter highlights from the lived experiences of these graduates the ways in which the employability agenda functions as a form of structural violence that locks youth into a cycle of poverty and then reinforces this structural violence by persistently and stubbornly insisting that VET prepare learners for a formal labor market that simply has not and probably will never employ the majority of them. Of great concern is the ways in which the employability agenda potentially limits the capacity of VET to expand the agency and active engagement of these young people in informal sector livelihoods and in community development.

In light of the Sustainable Development Goals (UN 2015), which emphasized the expansion of VET systems in developing contexts, this chapter argues that the employability account (and particularly narrow versions thereof) is simply not fit for developing contexts where VET is necessarily targeted toward social equity, the reduction of gender disparities, community development, poverty alleviation, as well as to human capital development and economic growth.

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**Keywords**

Vocational education and training · Employability · Capability approach · Youth unemployment

Very few issues in vocational education and training (VET) have gained as much interest as that of graduate employability. Interest in the work-readiness of the VET graduate and the economic contribution that they might make has been a concern for much of the past century. The neoliberal turn of the early 1980s, however, led to the spread of a new account of employability that exploded onto the policy terrain. In this new account, employability is positioned as key to labor market insertion and as central to both economic productivity and to social policy addressing poverty and unemployment (Maclean and Ordóñez 2007; McGrath 2012; Powell 2012). At the heart of the employability agenda is the individual's responsibility to achieve employability and, in contexts where unemployment benefits exist, to prove that they are trying to achieve employability as a prerequisite for accessing social benefits

(Crisp and Powell 2017). In the employability discourse, the role of the state is to provide access to education and training targeted at employability and, where employment benefits are available, to ensure that unemployment benefits are made available to only the “deserving poor,” i.e., those who have proven their efforts toward employability (Bonvin and Farvaque 2005).

Formal VET historically was closely linked with apprenticeships. Thus, in an important sense, it was targeted at supporting existing employment relationships rather than creating them. The demise of apprenticeships across much of the world (itself a consequence of neoliberalism) (Fuller and Unwin 2014), together with increasingly fractured education-to-work pathways (Evans and Furlong 1997; Ball et al. 2000), has accelerated the preoccupation with VET graduate employability. Massified college systems and new student finance regimes offer what policy has touted as “equality of opportunity” to young people but which has been proven to not provide “equality of outcome” (Field et al. 2007). Rather, the youth labor market is seen as highly competitive, and it is understood that this competition begets “losers” at a far greater rate than it does “winners” (Fenton and Dermott 2006: 205).

This chapter draws empirically from one element of the research program of the *Research Chair: Youth Unemployment, Employability and Empowerment* at Nelson Mandela University, South Africa, led by Lesley Powell and from research work that was funded by the Education, Training, and Development Practices Sector Education and Training Authority (ETDP SETA). We draw here on data from in-depth interviews undertaken with 30 unemployed youth (aged between 18 and 30) living in urban townships in the Nelson Mandela Bay Metropolitan area in the Eastern Cape. The sample was stratified into three equal-sized groups according to terminal qualification achieved: those who had completed secondary school, college, or university. In this study we sought to determine the ways in which unemployment is experienced, understood, and lived; the attitudes that these young South Africans have regarding work in both the formal and informal sectors; and the ways in which they attempt to access the formal labor market and/or make a livelihood in the informal economy.

Drawing on some of the thinking tools of the capabilities approach, we will show that the centrality of employability, with its associated emphasis on income poverty, ignores the multiple capability deprivations that affect South African youth living in low socioeconomic status urban townships. Following Bonvin (2012: 10), we assess the policy framework of employability against individuals’ “capability for work,” i.e., their real freedom to choose the job that they have reason to value. Adopting this broader social justice framework allows us to draw from the experiences of these young people the implications of employability for VET and particularly for a VET system that, in terms of policy rhetoric, is directed toward poverty and unemployment alleviation.

This chapter forms part of a broader body of work that examines the role that VET plays and can play in intervening in poverty and does so by engaging the voice and experience of VET students and youth. In our previous work (McGrath and Powell 2015; Powell 2012; Powell and McGrath 2014), we showed that despite institutional and sectoral inefficiencies and challenges, and notwithstanding the difficulty of accessing the labor market, South African TVET college learners

contradict the negative view held by Foster (1965a, b), Oketch (2007), and Psacharopoulos (1994) of VET in Africa. Instead of avoiding VET, as Oketch suggests is the norm for youth in Africa, or having a negative opinion of VET, these South African TVET college students spoke powerfully and emotionally of the empowerment that the college enabled in expanding their confidence, their self-esteem, and, importantly, their “capability to aspire” to a life that extends beyond that of their parents (or beyond their parents’ cultural capital) (Powell 2012, 2014; Powell and McGrath 2014, 2019).

This chapter draws from interviews undertaken with a different cohort by reflecting the experiences of unemployed youth after graduation (from school, TVET college, or university). By so doing, it serves as a counterbalance to our previous work in that it essentially presents the other side of the coin: while our previous work focused on the aspirations of TVET college learners and the extent to which TVET colleges were enabling or constraining these ambitions, this study examines the actual and real-life experience of graduates. Notwithstanding this difference, both studies draw on youth who live in low socioeconomic urban townships in South Africa, and both cohorts experience multiple capability deprivations that affect their well-being, their flourishing, and their functioning or achievements (Powell and McGrath 2019).

What is also clear is that both studies, coming at the concern from different directions and with research undertaken with very different cohorts, serve as powerful critiques of the employability orthodoxy. Our previous studies, which drew from interviews undertaken with TVET college students ( $n = 80$  over an 8-year period), showed that the employability agenda is far too individualistic to enable learner aspirations to contribute to the development of their communities and is far too limited to address poverty (understood as multidimensional capability deprivations) in any meaningful way or, for that matter, to reflect the aspirations of TVET college learners which “extends beyond that of empty slates enrolling in [TVET] colleges in the anxious hope that they will be filled with the skills needed to become productive future workers” (Powell and McGrath 2014: 224).

The limitations and violence of narrow accounts of employability are equally clear from the present study. Just as with TVET college students, the lived experiences of these graduates critique the ways in which the employability agenda potentially limits the agency and active engagement of these young people in community livelihoods and in community development. Moreover, it critiques the ways in which the employability agenda functions as a form of structural violence by locking youth into a cycle of poverty and then reinforcing this structural violence by persistently and stubbornly insisting on preparing learners for a formal labor market that simply has not and probably will never employ the majority of them. According to SACCI, JET, and NBI (2016) and Papier et al. (2017), between 70% and 45% of TVET college learners will be unemployed after graduating, depending on whether they graduated from a NATED or national curriculum vocational qualification and the number of years post-graduation. Of great concern is that the employability agenda exists as a form of symbolic violence by entrenching a set of aspirations that for most TVET college students are simply not attainable and, to add insult to injury, reinforces this symbolic

violence by convincing these youth that actually it is they who are responsible for and therefore deserving of their fate.

We begin the chapter by providing the research context which highlights the importance of this issue for VET in South Africa and globally. This is followed by a brief review of the employability agenda and its significance. Thereafter, we draw on the lived experience of the participants, which highlights the complex strategies that young people use to make a living and the structural barriers that they confront. In the penultimate section, we examine the implications of these lived experiences for VET and particularly for the employability agenda that underpins VET.

While the focus is on South Africa, the chapter has global relevance as it addresses the role of VET in development. In particular, and in light of the Sustainable Development Goals (UN 2015) which emphasized the expansion of VET systems in developing contexts, it questions the orientation of VET systems by arguing that the employability account (and particularly narrow versions thereof) is simply not fit for developing contexts where VET is necessarily targeted toward social equity, the reduction of gender disparities, community development, poverty alleviation, as well as to human capital development and economic growth.

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## The Context

A reason for establishing the *Research Chair: Youth Unemployment, Employability and Empowerment* lies in the staggeringly high levels of unemployment and particularly youth unemployment in South Africa. Of the 36.1 million South Africans who are of working age, 5.4 million are unemployed, and at least 15 million are not economically active because they are discouraged from finding a job (StatsSA 2015). Such problems are long-standing and all evidence indicates that they are intractable. Intertwined with high unemployment are extreme levels of poverty and inequality. More than half of South Africans (55.25% according to StatsSA 2017a) live below the poverty line (R992 per month, around \$69 US dollars), and one in five lives in dire food poverty (below R441 per month, around \$33 US dollars). South Africa's Gini coefficient is 0.65 (expenditure) and 0.69 (income) (StatsSA 2014), making it one of the most unequal countries in the world. These are persistent and interrelated problems that affect the well-being of millions of South Africans, including the 3.3 million young South Africans who are not in employment or education and training (StatsSA 2017b).

It is important to note that unemployment is not unique to South Africa and neither is youth unemployment. According to the International Labour Organization (ILO), about 192 million are unemployed globally and unlikely to ever enter the labor market (ILO 2018). Heightening the crisis is that this number is likely underestimated as it excludes people who are not actively seeking work, ignores millions of slum dwellers and disregards those who live in developing contexts for whom there are no reliable statistics. The ILO warns that unemployment is amplified in rural and developing countries and that women and young people are disproportionately affected (ILO 2015). Following the international trajectory, South African women, youth, and people living in rural areas are the greatest affected.

Where South Africa differs from the international trajectory is the degree of youth unemployment. In South Africa, the unemployment rate of youth (defined as 15–34 years) is roughly double that of adults, approximately 36% and 16%, respectively (StatsSA 2017b), resulting in South Africa having one of the highest rates of youth unemployment in the world.

The orthodoxy states that unemployment (understood mono-dimensionally, as work in the formal sector) leads to poverty (also understood mono-dimensionally, as income poverty). In the South African context, there does appear to be at least some correlation here. Data from 2014/2015 showed that the poorest 40% of the population accounted for a mere 12.4% of total national income but accounted for 71.9% of the unemployed (StatsSA 2017b). However, the reality is that both concepts are far more complex, and their interrelationship is inevitably also much more complex. For instance, this simple linear relationship between poverty and unemployment ignores the poverty-inducing effects of indecent work and the multi-dimensionality of poverty that affects access to and outcomes from education and training opportunities.

The South African President, Cyril Ramaphosa, has argued that:

To turn this situation [high unemployment] around, our economic policies need to prioritise and focus on South Africa's youth. Our policies must be judged on the extent to which they create more employment and education opportunities for young people. (Ramaphosa 2017)

Policies to address South African youth unemployment are centered on improving employability through education and training, particularly VET and skills development training. In line with President Ramaphosa's emphasis, employability as a policy absolutely "must be judged" not only on the effectiveness of its instrumental implementation but also on its central tenets: "the extent to which [it] create[s] more employment and education opportunities for young people" and, most importantly, on whether such employment and education opportunities are meaningful. In the language of the capabilities approach, it must be judged on the extent to which it expands valued capabilities (i.e., meaningful opportunities and the freedom to choose therefrom) as well as valued functioning (achievements that matter to the well-being of people).

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## The Concept of Employability

Although employability appears to be a conceptual child of neoliberalism, its history is far longer (Gazier 1998). Gazier argues that the first form was "dichotomic employability" that had its roots in centuries-old notions of the "deserving" and "undeserving" poor. In its reworking of such notions, dichotomous employability sees the unemployed as "shameful," lacking in both the intelligence to compete successfully on what is presented as the "level playing field" of the labor market and the discipline and fortitude to persevere through education and job seeking till employment is secured. Elements of this account are clearly still present both in how the unemployed are presented in popular discourse and in the ways that they internalize this shame.

In the 1960s this notion of employability was (partially) replaced by what Gazier describes as "manpower employability." This was strongly rooted in the then emerging human capital approach underpinned by the rational planning of labor markets (termed "manpower planning") which was understood as the best approach to overcoming youth unemployment. While the central role of the state in this process has in some countries been somewhat reduced, the more recent phase of "initiative employability" retains a strong belief in human capital and in centralized skill planning mechanisms, even if these also display strongly marketized elements. What has changed is a return to and intensification of moral judgments regarding the "undeserving poor," which is particularly evident in political economies with meagre social systems such as the United States and in countries such as the United Kingdom that are working toward rolling back the welfare state. In this account, it is the duty of the individual (and also, although to a lesser extent, education and training providers) to ensure that they gain and maintain employment and obtain new employment when required by market forces (to paraphrase Hillage and Pollard 1998). In this sense, employability can be understood as "a set of achievements, understandings and personal attributes that make individuals more likely to gain employment" (Knight and Yorke 2003: 5).

The employability drive is both a manifestation and an outcome of the rapid changes associated with globalization and neoliberalism since the 1970s (McGrath et al. 2010). A shift away from manufacturing and related skills in the North, alongside the rightward movement of parties of the left, has led to a hollowing out of the kinds of skills and jobs traditionally associated with VET, to increased precariousness and indecent work, and to this discourse of employability that puts the blame for unemployment on the deficiencies of youth and particularly the most vulnerable among them. In this way, employability emphasizes individuals' responsibility to develop and transform themselves into employable and "deserving" citizens (Bonvin and Farvaque 2003; Bonvin and Galster 2010; Bonvin 2018).

The validity of the employability discourse in its Northern heartland is thus in need of critique and resistance. Its validity in Southern settings appears even more untenable. Nonetheless, VET discourse in countries like South Africa is thoroughly colonized by this notion, most typically through the formulation of "skills for employability" (cf. McGrath 2012) and "skills for poverty reduction" (Powell 2014). This version of employability locks into the central tenets of Human Capital Theory (HCT) (cf. Bonvin 2018). As we have argued elsewhere, the skills for employability discourse can be seen as part of a broader discourse of productivism. Following Giddens (1994) and Anderson (2009), we suggest that VET is imprisoned in a view that only the economic domain matters (McGrath 2012; Powell and McGrath 2014).

We have already noted the widespread international decline in apprenticeships, which is offset by a sharp rise in public vocational programs that are pre-employment located. An important distinction in HCT is between two types of training: (i) *specific training* which increases productivity within specific firms and (ii) *general training* which increases productivity across all firms and which provides the basis upon which *specific training* might take place. In HCT thinking, the costs of *training* are to be carried primarily by those who accrue the most benefit. As such, the costs of *specific training* are largely to be carried by firms and the cost



of *general training* primarily by individuals. There is some argument for the state to also contribute as there are societal as well as private gains. The outsourcing of *initial training* from firms to the state means that the costs and responsibility have steadily been removed from firms. This together with employers stepping back from *specific training* has resulted in the costs falling on young people (and the state) rather than on employers, as HCT ordains.

The power of the concept of employability, underpinned as it is by HCT, is precisely that it allows a masking of key tensions. These include the tension that exists between the responsibility of the individual (to be employable), the responsibility of the state (to enable employability through education and training and labor market regulation), and the responsibility of the firm (to invest in their current and future employees). It also elides the role(s) of the state regarding economic growth and the well-being of citizens through placing employment, no matter how bad, at the center of social as well as economic policy. A further blurring takes place as NGOs, philanthropies, and community activists often are supportive of the concept as it appears to address the lived experience of youth dealing with unemployment, precarious employment, and the lack of decent work. As Schultheis (2009: 77) puts it:

The concept of employability . . . *thanks to its remarkable ambiguity* . . . has crept into numerous policy statements and programmes aimed at promoting job creation and combating unemployment, is perhaps the concept which most tellingly expresses this idea of human resources that are flexible, mobile, with no attachments and no history [and] always young.

Framed within neoliberalism, skills within the employability agenda are narrowly defined as those required by industry and commodified as an individual asset in a competitive labor market. In spite of its policy and practical purchase, however, employability is deeply contested with a growing literature highlighting the problem with these accounts for human well-being (Powell 2014), poverty alleviation (Powell and McGrath 2014), vocational knowledge (Wheelahan and Moodie 2011), equity (Vally and Motala 2014), and, ironically, also for employment and economic growth (Allais 2012). Underlying this literature is a deeper concern that spotlighting the supply of “skills” serves to deflect and distract from deeper structural inequalities that are the fundamental causes of unemployment and poverty (Vally and Motala 2014).

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## **The Inadequacy of Orthodox Notions of (Un)employment and Employability**

The concepts of employment and unemployment, while useful for statistical comparisons over time and space, are too binary and static to reflect the fluid and complex lived lives of the young people who participated in the study.

In South Africa, the official labor force survey identifies a person (aged between 15 and 64) as employed if they worked for an hour or more in the week prior to the survey being undertaken and unemployed if they did not. In addition, to be considered unemployed, an individual must regard themselves as being able to work,



must desire employment, and must have actively looked for work in the 4 weeks preceding the survey. As Steyn (2016) puts it, “it’s harder than you think to be unemployed in South Africa – even though the unemployment rate has recently reached a record high of 26.7%” (par.1). An individual is considered a “discouraged worker” if they indicate that they have not worked for an hour or more in the week preceding the survey and that they have not looked for work in the four weeks prior to the survey, despite the fact that they would like to work. A distinction is then made between the “narrow” definition of unemployment (excluding the “discouraged”) and a “broad” definition (which includes the “discouraged”). The “narrow” definition conforms to ILO norms. However, the question of who should be considered “unemployed” is highly controversial in South Africa where academics have proven that there is little to distinguish the searching and the non-searching unemployed and that the broad definition of unemployment presents a more accurate picture of unemployment in the country (Posel et al. 2012).

While labor statisticians can see clear distinctions between different definitions of unemployment, neither the broad nor narrow definitions appear of much relevance to the young people with whom we spoke. Rather, their experience pointed toward a series of theoretical weaknesses of this orthodoxy.

## The Quest for Decent Work

The young people appeared to be more closely attuned to the tripartite purpose of employment as described by Sen (1975): the *production aspect* (the outputs of things that are needed), the *recognition aspect* (the self-identity, self-worth, and meaning that comes from being engaged in something worthwhile), and the *income aspect* (the livelihoods earned). Sen argues that not all work provides all three aspects to individuals. Taking the impact aspect alone, young people considered themselves as “unemployed” despite having worked for an hour (and more) in the week preceding the interview, regardless of what statisticians may think.

For example, Khanyisa, a school graduate, had worked for 14 h in the previous week but self-identified as unemployed. (Pseudonyms reflecting the gender and cultural orientation of the person’s name are used throughout the study, and, where necessary, details of their lives are altered to preserve anonymity.) When asked to clarify this, Khanyisa’s response was very clear, and challenging of the orthodoxy.

You can’t call that work! Look, it’s a piece job that one. He pays R20.00 an hour. There’s no contract. I don’t even know when I’ll be working next. Sometimes it’s once a week and sometimes it’s more than that.

Khanyisa distinguished between what he calls “career work,” work that leads to long-term employment in an area that is worthy of being regarded as a career, and what he called “step-ladder work,” precarious work that enables survival while looking for “career work” but that also possibly opens the way to “career work.” When speaking of his current work, he explained that:

It's just a job, a piece job. It's not a career. It's not real work. I can't say that I'm working. This week I'll work maybe on Monday and on Saturday, but it's not even guaranteed. I'm still in the process of hustling for proper work. Something that I can do every day. Even if it's not a permanent job, just so that I know what I am waking up for and so that I can know that there is some place that I have to go to each and every day.

De Jaeghere (2018) examines education and training interventions that aim to support entrepreneurship. She finds that two different types of programs exist. On the one hand are those programs targeted toward poverty alleviation for what she terms “necessity entrepreneurs,” and on the other hand are programs that target job creation and economic growth, directed toward what she terms “opportunity entrepreneurs.” This may be seen as parallel to Khanyisa’s account of two types of work.

Khanyisa’s account reflects the 1.4 billion workers (almost half the global workforce) who are in vulnerable jobs (ILO 2018). These workers have little, if any, access to social protection support, labor protection, health support, work-based education and training, and work safety and are, for the most part, women and youth (ILO 2018).

Khanyisa continued his interview by indicating that for him “real work” would be an internship related to the area in which he had undertaken a post-school diploma. He was less concerned about the salary or the income that might be offered than with being given an opportunity to gain the experience and to prove the skills that he has. As he explained:

I need them because I need the money, but they need me. They haven't realised yet how much I can help them because I know the system that they use. That is exactly what I was trained on. It's just a pity that they didn't take me. I was proposing that they sign me up even if only for a few months and then I can prove myself. I just wanted them to give me a chance, but if you don't have that experience they won't take you unless they've seen that you can do this thing.

Implicit in his statements is an understanding of employment as an activity that engages you daily and that advances you along a “career path” toward sustainable and meaningful work. In this sense, Khanyisa rejects the precarious and short-term work that he is currently doing as employment and considers himself as unemployed.

## Valued Work

The application of the capabilities approach, with its insistence on a distinction between capabilities and functionings, emphasizes the importance of functionings (or achievements) that matter to people and capabilities (or meaningful opportunities) that people have the freedom to choose from and by so doing also on the structural enablements and barriers that affect capabilities and functionings. Importantly, it characterizes a profoundly different ontology of the human being to that encapsulated in Human Capital Theory and related versions of employability (cf. Bonvin 2018). Instead of the focus being on the human being solely as a producer, it is on human flourishing. The commitment to human flourishing

certainly includes what Bonvin and Galster (2010) describe as “the capability for work” but is far broader. As Drèze and Sen (2002: 7) put it, the “bettering of a human life does not have to be justified by showing that a person with a better life is also a better producer.” Langa, who had completed 1 year of his TVET college qualification before having to find work, explained this well:

I need work, yes, but I also do work as a musician, as an artist, as an activist. I’m also a husband and a father. I registered an NGO last year because we want to make a space for young artists to come together and to share their work. I am so many things but when I sit down in front of somebody or when I send my CV off all they see is this poor person who needs a job.

The capabilities approach insists that human beings, including these unemployed young people, be seen as active agents with a multitude of skills that might be invisible to the eye of the employability agenda but which is recognizable when examined through the social justice framework of the capabilities approach. Schultheis (2009: 73) argues this well when he says that:

Within the capability approach, the targeted person functions as active players, responsible for their own lives and equipped with a multiplicity of valuable skills which hitherto were only latent and invisible to the eyes of those who viewed the problem of precariousness from a traditional, a priori negative standpoint. Instead of a catalogue of shortcomings . . . [the capabilities approach then takes the] actual individual, including his or her background, current situation, needs, dreams and expectations as the starting point to determine which personal aptitudes and skills can be mobilised to develop a project for the future.

Every young person interviewed expressed a desire to contribute to their communities. Walker’s (2008: 483) definition of “active citizenship” as “action in the world [and] understanding society and your contribution to society” most aptly describes the responses provided by many of the students. These young people highlight the importance of understanding the challenges facing individuals who live in their community and of contributing to uplifting the lives of these individuals through providing models of success, through encouragement and inspiration and through providing access to skills or to facilities. Many have taken active steps to contribute to their community either by working on or with projects/programs or by speaking to NGOs and politicians to request assistance for a youth development project.

## **The Rise and Costs of Internship**

The orthodox definition also cannot deal with an increasingly important group in South Africa and in many other economies. Interns are typically deeply engaged in work, often get recognition and respect from being engaged in work, but either earn very little or no income from their work or find themselves in work environments where they are learning little other than making coffee, photocopying, and sweeping. One such person is Busiswe, a vocational college graduate. Having completed the compulsory component of her qualification, she proceeded to work

as an intern at a local school. She worked daily at the school for 2 years. During that time, she did not earn a stipend, travel allowance, or any salary of any kind. Now having worked at the school for 18 months, the required period to complete her qualification, she was ready to leave her “employment” and to look for a “proper job.” Unlike Khanyisa, Busiswe has a workplace to attend daily and the respect that comes from making a contribution at that workplace. However, she said:

I can't afford to be employed there anymore. They give me money for taxi fare and I come every day to do all the filing and data capture and I also help with the administration work at the school like collecting the monies. I enjoy the work, but I need to leave because I need money now.

Despite Busiswe's experience, and the experience of thousands of other young people, internships are widely sought by TVET college graduates as they are a required component for the completion of their diploma. College students complete their theoretical component (which takes a minimum of 3 years for NCV students) and are required thereafter to undertake an 18-month internship as a prerequisite for their qualification. Sourcing these internships is mainly the responsibility of the TVET college student as it is they that bear the consequences of having either completed or failed to complete their 18-month internships. Students are supported in their attempts by college student work placement offices that negotiate internships on behalf of the college graduates. They are also assisted by funding that is made available by the SETAs and by the Department of Higher Education and Training. In 2011/12, for example, DHET together with the SETAs supported the placement of 11,953 graduates into internship positions (Powell and Wedekind 2015). Notwithstanding these support structures, Powell and Wedekind (2015) show that the placement of college interns (from both the public and the private TVET colleges) continues to be a problem and that 21,000 students were not placed in internship the year prior to publishing their report. Mandisa, a TVET college graduate, captures this well when she states that:

... for now, I want, if ever I could get, an internship and then work because in order for me to get my diploma I have to get an internship so I can get my diploma in business management.

## **Informal Work**

There has been a long debate regarding how labor market statistics capture informal work (cf. Charmes 1999). Perhaps, due to the specifics of the South African context, we encountered young people who work part-time in the informal sector but self-classified as unemployed either because, like Khanyisa above, they do not regard the work as “real work” as it does not represent work that they aspire to or because they are underemployed.

Langa, a college graduate, spoke for the first 15 min of his interview of the different jobs that he has had and explained that a factory where he had worked for the past 5 years had recently closed down. It was only some time into the interview that he shared what he called the “artist in me.” He explained that he made some of his

livelihood as a music producer. He owns a small recording studio that contains old but solid equipment that he has put together slowly over the years. The studio provides a space in which local artists can cut their demos at a reasonable cost, way below what they would pay at a commercial studio. He described the studio as being fully booked with young artists who are in need of demo recordings but also explained that it was recently burgled, which had been a serious business setback.

Zoleka, a young woman who works as a home baker, explained that she saw herself as “employed in the informal sector” as she “earns enough off the baking” even though this would not feature in official labor statistics as being employed as she does not always work the required 1 h per week. At the same time, she also self-identified as “unemployed” because she was not fully employed. This self-identification also arose from an intention to work in the future for a year or two in a commercial bakery “to see how they do things.” Her long-term goal, though, was to expand her own business. As she explained:

In one way I regard myself as unemployed because I don’t earn enough yet to live off and also because I’m not that busy. I wake up at about 9.00 o’clock and then I clean up and start work. I wake up earlier if I have a big order but most of the time I don’t have to. But I also see myself as self-employed as I’m building up my business. I have a piece of land that we can use to setup the business and I’m hoping to build a place on this piece of land. Maybe I can employ one or two people who realise that money isn’t going to flow in and it will be a good business because here in the township there is no one who is baking. You have to go to the main road if you want to buy cakes.

## The Invisible Work of Caring

The relationship between labor market statistics and care work is another long-standing debate (Waring 1988). Almost a third of the participants reported family responsibilities, either as a parent or for younger or older relatives. In all these cases, they expressed their desire and need to start working but also concern about how they would manage a full-time job while caring for others. In the employability debate, there is no sense of how the state has hindered these young people’s employability by underproviding caring services, nor any sense of the unequal gender burden of caring and its impact on labor force participation. Yet, these responsibilities negatively affect the respondents’ ability to study, their ability to apply for work, and their freedom of movement to attend interviews should they secure such. Busiswe, a college graduate, commented:

I want a job. I’ve been applying because I need a job, but I don’t know what I’m going to do with my nephew when I get a job. My brother must go to work and there’s nobody to look after him.

Izinyoka, another TVET college graduate, finds herself in a dire situation. Izinyoka completed her electrical engineering qualification and then her internship. Although she is a qualified electrical technician, she cannot easily leave her mother to go to

work as her mother needs her to care for her. She has also had real difficulties trying to find work which she has been trying to find for 9 years after completing her internship. She describes this as “not [being] a piece of joy, this sitting at home doing nothing.”

### **Actively Seeking Work and Being “Discouraged”**

The econometric definition excludes all those who have not looked for work in the past 4 weeks. Of the 30 respondents, only 5 indicated that they had applied for any work (or even “looked” for work in the newspaper or on the Internet) in the previous month. The reasons for this are varied and relate to both the resource constraints and the multiple strategies participants used to find work, which differ from conventional and formal notions. Instead, many believed that it is social “connections” through friends, family, and faith that are the key to being successful at securing work. Khanyisa, a school graduate, argued:

You need connections. Somebody who knows you and who can bring you in to the company. Sometimes you find that you do have what it takes to work in a particular area, but if you don't know the right people who can bring you in then you won't get in. Even while I'm doing my jobs at the bar, as I'm wiping a table I'm talking and smiling at people. I'm asking people for connections. I'm thinking that maybe there will be a channel. I'm looking for a channel.

Loyiso, a 27-year-old school graduate, explained that he stopped applying for jobs almost 7 years previously. His main reason was the cost of applying for jobs, mainly of data costs both for Internet searches of job advertisements and for emailing applications. An added cost was the emotional one of sending out applications and of never hearing back from the companies. Loyiso described this process as soul destroying and ineffective as he received no response to the hundreds of applications that he sent out. After much effort, he decided to restrict his applications to:

... asking people who are working if they will assist in getting me a job and letting me know if there is a vacancy at their work. I remind them every time I see them and I give them copies of my CV. I haven't heard anything yet, but I don't think that there is anything otherwise they would have told me.

Loyiso's approach is very different to the approach used by Nobusi, who is also a school graduate. Nobusi is a young mother and, since becoming unemployed 3 months before the interview, was treating applying for a job as a job in itself:

I wake up every day with things that I have to do to apply for jobs. Sometimes I walk from the one side of the main road to the other and go door to door to ask about work. Other times I look on the internet and then I apply. If I see something I finish my application and then I walk from the township to the company to give my application in myself. Other days I apply at job agencies.

Nobusi explained that the previous day she had traveled to the airport to meet with the manager in order that she might submit her application in response to an advertisement for an administration position. Being told that the manager was not available, she made an appointment for the next day when she planned to walk again to the airport (about 1½ h) in order that she could hand-deliver her application. She wanted the manager to get to know her and to see how much effort she had put into the process.

It was clear that the language of “being unemployed” was understood very differently to the orthodoxy. Instead of representing the absence of wage labor as is the orthodoxy, it appeared to represent the gap between aspirations for long-term and sustainable work and the need to engage in short-term, precarious jobs. This points to the need for a much broader conception of what constitutes work and the lack of work.

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## **The Costs of “Winning” or “Losing” in the Employability Game**

### **The Costs of “Losing”**

Sen, when speaking of the multiple ways in which “unemployment batters lives,” argues that “at the individual level the penalties of unemployment can be enormously more serious than income distribution statistics suggest” (1975: 159). He lists these penalties as including the loss of personal freedom and social exclusion, the decline and degradation of skills, and the psychological harm and suffering caused by diminished self-esteem. The moralizing language of the orthodox employability account, and the assumptions that underpin it, exacerbates this, with dire consequences for unemployed youth.

Loyiso, a school graduate, expressed how his unemployment affects him emotionally. When asked how he was, he responded by saying:

I’m good, but actually I’m not really good. What’s good is the fact that I get to wake up, eat and sleep. That I get to live with my mom and my younger brother is good, but ever since matric finished everything has been messed up. I still have to find a job. I have to feed my mother, my brother is still young and he looks up to me. He needs me to do things for him. I’m trying. I’m really trying. I don’t know what is going on in my life.

He described in his interview the hopelessness and helplessness that he feels about his life. He expressed the pressure that he feels to provide for his new son. Unemployment means he cannot do this and so “stops me from being a man.” Loyiso reflected that this is not only an internal process. Rather, he suggested that his mother’s attitude to him depended on his labor market performance:

The only time she gets to be nice to me is when I get a job. When I got a casual job, I earned R1000. I took the money home and that was the only time that she was nice to me. When the contract at the job ended that’s when things went back to normal at home again. It’s very frustrating, sometimes now she leaves the house without leaving anything at home to eat.

Northern notions of dichotomic employability are exacerbated by South Africa's colonial and apartheid legacy with their notion of the "lazy native" which was used to justify the legal exclusion of black South Africans from equal access to education and training, the economy, and social services. In recent years, both President Zuma and one of his ministers repeated this trope of "laziness," which has gained much purchase in the media (see, e.g., News24, 25 March 2015 and Northern Cape, 20 April 2015). Such an individualizing and deficit-laden language deliberately ignores both the structural effects that constrain youth livelihoods and the considerable agency that young people show in seeking to improve their lives. In uncritically working within this paradigm, the VET system is perpetuating a series of structural and symbolic violences against the youth it is supposed to be serving.

The multiple deprivations that these young people experience have enormous consequences for the amount of time that they have available to apply for work, let alone do formal work. The business of living absorbs large amounts of time and energy. Carrying water to their shack for washing and cooking, doing their washing (mostly undertaken by hand) and watching it while it dries so that it is not stolen, hustling for food, and finding someone to borrow money from for taxi fares are all activities that could easily take up a day of activity. Far from being lazy, these young people are working hard, extremely hard, and just barely getting by.

### **The Costs of "Winning" in the Employability Game**

The employability agenda presents employment simplistically as a substantive freedom that allows people to live the lives that they value. While the capabilities approach mainly emphasizes the positive possibilities of work, it is also very aware that work is not always contributive to human flourishing. This is well captured by the 2015 *Human Development Report*:

Many people are in work that restricts their life choices. Millions work under abusive and exploitative conditions that violate their basic human rights and destroy their dignity, such as child labourers, forced labourers and trafficked workers. Such corrosive and exploitative activities shatter human development. And millions of domestic, migrant, sex and hazardous-industry workers make their living in ways that are dangerous, also eroding their well-being. (UNDP 2015: 40)

An analysis of the work experiences of this small cohort of young people shows that every single one who has work experience gained that experience by compromising on acceptable working conditions in ways that were damaging to their well-being. Many of our respondents reported racism, bullying, and long hours. All reported severe underpayment including, in some cases, no payment. This supports Borat et al. (2010: 2) who found that the rate of minimum wage violation in South Africa is "disturbingly high . . . [with] 45% of covered workers paid wages below the legislated minimum, whilst the average depth of shortfall is 36% of the minimum wage." Nobusi said that she worked in the hotel industry for a period but, despite having to



provide for her daughter, eventually had to leave as she just “couldn’t take it no more.” She described her work experience as follows:

We worked every day, weekends and public holidays, for R2 400 [around \$181] and were given four days off a month. We worked from seven in the morning to eight or nine o’clock at night. We stayed there at the hotel because it was far from everything and they fed us. The accommodation that they put us in was dirty, it had no electricity and no water. The food that they fed us was the same every day and often the food was rotten. The bread had fungus on it because they would give us the bread that was left over from the guests from the day before. I tried to stay for the money, but then eventually I had to leave because I couldn’t take it no more.

Despite being employed in a large multinational company which may, in the future, have offered training and career prospects, Khanyisa also chose to leave because he felt his dignity was under daily attack by his manager who humiliated him by shouting at him in front of customers and colleagues (cf. Powell 2014).

Many had experiences with internships. While internships are understood as necessary for college graduates to complete their qualifications, they are also seen as a way in which companies exploit youths from lower socioeconomic backgrounds to work for either a reduced salary or, as in Busiswe’s case, for no salary at all.

The distinction that Khanyisa makes between “career work” and “step-ladder work,” what we’re terming “survivalist work” (or precarious work) and “career work,” is precisely between work that advances and takes one’s life forward and between work that maintains current capability deprivations or, for that matter, enhances these capability deprivations by putting one in situations that do harm to long-term aspirations and perhaps also to long-term well-being. Sehnbruch (2008) determined from her study in Chile that workers regarded what she terms “quality employment” as work that is rewarding, fulfilling, and secure but also work that widens rather than narrows meaningful future opportunities in the labor market.

The capability to work is couched in terms of having available an array of meaningful work opportunities and the freedom to select from these. This is clearly not the experience of these young people. Rather, they are distinguishing between meaningful and decent work: “opportunity work” (hard to secure) and often indecent (but sometimes available) “survivalist work.” For many of the respondents, employment was as much about capability deprivation as it was about achieving wage income and gaining work experience. Existing in a position of vulnerability, as all the youths who participated do, they have little choice but to select between two forms of capability deprivation: unemployment and the subsequent loss of income and other deprivations or exploitative, and often abusive, employment.

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## What Does This Mean for VET?

This chapter ends by addressing the core question of what the foregoing means for VET practice and policy. While the preceding discussion has not been directly focused on VET, the context of VET has been part of the background. The young

people who participated in the study shared core experiences and perspectives with implications for VET that are worth discussing as each raises, from a different perspective, the limitations of the employability agenda in addressing the multiple capability deprivations they experienced.

The first relates to the costs of participating in VET. In policy terms the emphasis has been on expanding educational access through rapidly increasing participation. However, poor students face social and economic challenges that affect their learning experiences in ways that policy has not adequately understood. Some respondents indicated that they dropped out of their studies because the financial costs of traveling to and from college and of feeding themselves while they were studying were simply too much. For one participant this was mainly about transport costs. For another it was about staying out of work for another 2 years and finishing his qualification or leaving to work in a low-level job in the hope that it would expand into a better opportunity in the future. To some extent this choice was also driven by the fact that he had recently become a father and had decided that he needed to work in order to support his child. The point is that youth make calculations on whether they are going to study or continue with their studies. As we explain in greater depth elsewhere (Powell 2014; Powell and McGrath 2014, 2019), these calculations should not be interpreted within the narrow confines of personhood depicted in rational choice theory and nor are these simply about deciding between different pathways or institutions. Instead, it is about how they conceive of VET as a way of advancing their “life projects” (or life goals) where “life projects . . . [represent] an end that is desired, . . . and some notion, however imprecise, of the course of action through which to accomplish it” (Archer 2003: 6).

The second issue arising reflects the way that the employability agenda has orientated VET toward work that is narrowly defined as formal sector work. This stems from the history of modern public VET systems, which is linked to industrialization and in developing contexts also to colonialism. In South Africa, like much of the colonized world, VET was linked to the formation of the modern economy in the early 1900s. Many of the stories presented in this chapter point to an almost complete disconnection between the assumed reality of formal sector work and the actual labor market experiences of young people.

The employability agenda completely ignores the multiple capability deprivations that limit VET graduates from converting “capabilities” (in this case, their qualifications or skills) into meaningful employment. The strongest sense held by these young people was that it was not education and training that enabled jobs, but rather the existence of jobs combined with the ability to access these in the labor market. For most of these young people, this was to be achieved through “people who you know” (social capital) and, of course, into jobs that actually exist. Thus, many of these young people “looked for work” by going to visit friends and family in the hope that they could benefit from the social capital of their network. There was a sense that the best way to access work, rather than “looking for work,” was to be pointed toward work by somebody who could “bring you in.” The work experiences of this small sample suggest that this sense is not totally distorted as the vast majority of the work experiences that these young people shared in their interviews was accessed through networks.

The experiences of these young people highlight clearly the weakness of current VET evaluation. The emphasis is on getting VET graduates into the labor market and measuring progress toward this through employment rates, rather than on the extent to which employment is in itself potentially a choice between two capability deprivations (discussed above). As such, the current policy and public rhetoric assume that employment (no matter how indecent or exploitative) is “good” and completely ignores the quality of the work or the extent to which the work has the possibility to both extend and inhibit capability expansion.

Linked to this as the third concern is the quality of the work that exists. In the absence of a basic universal income or some form of social support grant for unemployed youth, it is necessary for any VET employability agenda to consider work as existing across at least these two dimensions: (i) meaningful decent work which we’ve called “opportunity work” (hard to secure) and (ii) often indecent (but sometimes available) “survivalist work.” It is also necessary for VET institutions to face head on that work, for many of their young graduates, will be the result of selecting between two forms of capability deprivation: unemployment and the subsequent loss of income and other deprivations or exploitative and often abusive employment. Bonvin and Galster (2010) argue that “real freedom” represents the ability to choose to not work for wages that are below a living wage and to negotiate the working conditions of employment and the opportunity to pick from a range of jobs. In short, the capability for economic opportunities that matter depends not only on individuals having the occupational skills and knowledge to access these but also on these opportunities existing in the labor market. The dominant dialogue on this problem focuses on the occupational skills and knowledge of young people (the supply side) but completely ignores the limited opportunities that exist for “real work” in the formal labor market (the demand side). Ignoring these realities, and persisting in selling the lie, “dream hard/work hard and all your efforts will be repaid,” belies the reality and exists as a vicious form of structural and symbolic violence.

Further exacerbating this problem is the insistence that young people complete 18 months of internship training that they are responsible for sourcing. This potentially puts the TVET college graduate into the situation of having to accept simply any position that can count as an internship no matter how exploitative, how abusive, or how limited the actual experiential training component of the internship and no matter the costs. Young people report working for years for no income whatsoever and needing to “afford” the internship as they are required to self-subsidize their meals, their accommodation, as well as their travel to and from their internship workplace.

The fourth implication for VET emerged from those young people who are actively engaged in the informal sector. In these cases, three indicated that they do not wish to go to VET as they did not believe that either the qualification or the learning they would acquire would take their life project forward. This was either because the college didn’t offer programs in an area that interested them or because such programs were targeted toward large-scale industry rather than toward the small-scale production occurring in home industries and community

entrepreneurships. This may be due to adaptive preferences or perhaps an awareness of the slim chances of securing decent work in the formal sector, but for those aspiring to the informal sector, they expressed little aspiration toward formal sector work.

Linked to the above is the distinction made between “learning” and acquiring a qualification. Those who are working successfully as entrepreneurs in their community indicate that they learn all the time. In this sense, their obstacle is not a limit of skill but of being able to access other people who are similarly learning (with the benefits that come from being part of a community of practice) and the limitation of accessing the information (here the biggest obstacle was Internet access and data costs). When Langa was asked what the local college could do to help him take his life aspiration forward, he laughed and said:

The best thing that they can do for me is to make an internet café available with printers and free data. I can go there to do all my learning and my printing. I can also arrange with others who are interested in [the particular occupational field] to meet me there so that we can spend time together on YouTube and Google reading and sharing what we are learning.

Other than providing lip service to entrepreneurship, VET has largely ignored work that happens in the informal sector and also learning that happens informally. While quantitative research shows that the informal sector is not necessarily a first choice for youth from lower socioeconomic contexts (Banerjee et al. 2008), the findings of our study suggest something different. Many of the young people who participated expressed a keen desire to work in the informal sector mainly by “starting their own business” in an area of work that they were interested in. These young people noted the increased independence that it provided, the possibility of creating employment opportunities for others, and the benefits of “not working for a boss” as big advantages of being able to make their livelihood in the informal sector. Notwithstanding this, formal VET in South Africa (and in much of the developing world) has completely ignored the informal sector as a possible employment route (Yamamoto 2012).

The fifth issue relates to the notion of “vocational” that underpins the college sector. Every single respondent expressed the desire to contribute to the development of their community. The VET system, however, is locked into a productivist discourse of work and human capital investment at the individual level that cannot comprehend nor respond to young people’s agency and aspirations that are far more broadly human and collective. While arising out of a very different cultural and historical moment, some of the Northern liberal vocational traditions (of theorists such as Dewey and Kerschensteiner) and indigenous knowledge tradition (see, e.g., Odora-Hoppers 2002) appear to be far more useful than the orthodoxy in their concerns with not just the technical dimension but also the moral, cultural, and social aspects of vocational learning that can make it civic, humanistic, and spiritual.

This concern with the embedded notion of “vocational” goes to the heart of what VET means in developing and in postcolonial contexts and emphasizes the importance of opening debate on what a decolonized VET system might look like. If we

agree with Keet (2014) that it means “‘writing back’ against the ongoing colonialism . . . that permeates education . . . [and] refers to ‘everyday acts of insurgency’ which regenerate indigenous knowledges, epistemologies and ways of life” (Keet 2014: 23), then we can no longer be content with a VET system that grows from an anglophone root and which continues to regenerate itself within the same framework.

Zoleka’s understanding (and life) speaks of this disjuncture as she describes her “vocation” when she talks about her role as a baker in her community:

It’s about spreading love. Spreading God’s love. When someone is born in my community, I am there with my cakes. When someone gets married, it is me who is there. Anything that happens in this community, I am there. So I see my job as bringing joy and also comfort when it’s needed. It’s not only about cakes, it’s about being that joy.

The employability orthodoxy ignores the skills and capacities that these young people have and denies the skills existent in the communities and families in which these young people live. This is a critical area for any decolonizing agenda. Zoleka, for example, had consciously chosen to not study further and to use the opportunity to learn from her grandmother instead. As she describes it:

I gain more knowledge at home and practising than I would at the college. It’s not hard to follow a recipe and to spice it up to make it your own. Most colleges would teach me what I already know or they want me to learn on big mixers and machines. That doesn’t help me. For me it’s about managing my oven and making sure that I get the most profit from the way in which I arrange my oven. It’s about making sure that the small kitchen is always clean and hygienic even if you’re in the middle of a big order. It’s about always being friendly because tomorrow that is the person who will need a birthday cake. You can definitely learn but you always need to find someone who is better than you and who can help you. Right now, and for me, that person is my grandmother. She is also a baker. She used to make money from her baking but she stopped baking because she’s too old now and that’s why I started. She sits in the kitchen with me. She lets me do things and if I don’t do it correctly she will help me.

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## Conclusion

It is clear from the above that while work most definitely matters, the orthodox “skills for employability” agenda simply does not hold within a social justice framework. While it has been presented as a win-win situation for all, the reality is that it has served to maintain unequal access to education, to knowledge, and to work and has done so by doing nothing to challenge the broader structural inequalities that constrain the lives of young South Africans. Moreover, the agenda has served to ignore the decline in secure formal sector jobs and the education and training needs of those living and working in the informal sector.

Despite the good intentions of many who work in VET, through its silence, public VET has become complicit in this structural violence that maintains and perpetuates extreme inequalities and poverty in South Africa and through its symbolic violence

has served to further reinforce it. We recognize that structural and symbolic violence cannot be overcome only by the subaltern developing capacity to “speak for themselves.” Rather, it demands structural change that includes economic, political, systemic, and institutional change. This chapter – together with our previous work on VET (see particularly McGrath 2012; Powell 2012; Powell and McGrath 2014; McGrath and Powell 2019) – exists as one small step toward addressing the invisibility and the dominion of silence around the lived experiences of South Africa’s poorest post-school youth and the complicity of VET in perpetuating this silence and potentially reproducing inequalities.

In conclusion we insist that any VET system targeted at poverty alleviation has to take seriously its obligation of creating pro-poor institutions. What that might mean in terms of its lecturing staff – what they have to know, what they have to understand, and the form of empathies that they would need to embody – is still unclear, and the same is true regarding the curriculum, pedagogy, learner support, and institutional cultures. We do not know what this means mostly because we have not attempted to find out. It is imperative, therefore, that VET begins to take these challenges far more seriously, as they are key to what it would mean to make VET “transformative” of work and society as envisaged by the Third International Congress of 2012. However, at the discursive and policy levels, we need first to break out of the straightjacket of the failed notion of “skills for employability.”

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# A Capability Approach to Entrepreneurship Education: Fostering Recognition and Community Care to Address Inequalities for Marginalized Youth 21

Joan DeJaeghere

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## Abstract

Entrepreneurship education and training have emerged as a set of skills central in many developing countries' education/training policies and in the Sustainable Development Goals (SDGs) for ensuring employment and contributing to economic development in a global, and precarious, economy. In dominant global development discourses, entrepreneurship education and training is nearly ubiquitously framed in neoliberal terms used to address poverty and promote economic growth, but these approaches do little to address the social and economic inequalities that many youth in sub-Saharan Africa face. This chapter puts forth a postcolonial perspective to expand a capability approach used to identify critical capabilities necessary for sustainable livelihoods and well-being. Such an approach considers social and economic inequalities as they affect the education-work nexus, and it reframes notions of work and development around

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well-being for youth in their communities. The chapter then draws on a 5-year study of an entrepreneurship training program for marginalized youth in Tanzania to examine which capabilities and conditions emerged to support their livelihoods, address inequalities, and foster inclusion and well-being. Recognition, being regarded as an equal and being able to participate equally in society, and community care, contributing to and receiving care from others in the community to ensure self and others' well-being, were two critical capabilities that emerged to support their livelihoods and well-being. These capabilities and conditions offer a heuristic for framing and designing entrepreneurship education to address not only unemployment but also the inequalities that underlie the education and unemployment problems for youth.

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**Keywords**

Entrepreneurship education and training · Capability approach · Postcolonial perspective · Inequalities · Youth · Unemployment

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**Introduction**

In a changing global economy with expansion in some sectors and contraction in others, as well as precariousness in employment in many labor sectors (ILO 2015), governments and global institutions have turned toward advocating new knowledge and skills that can simultaneously promote economic growth, reduce unemployment, and alleviate poverty. Changes in the global economy have acutely affected employment opportunities for youth. The global recession of 2008 resulted in high unemployment particularly among youth. The number of unemployed youth grew considerably during the economic downturn between 2007 and 2012, reaching a peak in 2013; the unemployment rate of youth has once again increased in 2016, with 35% of the total unemployed worldwide being youth. While the percentage of unemployed youth in sub-Saharan Africa is considerably lower than the global rate, those employed are not necessarily in good working conditions (ILO 2012, 2016). Presently, the world has the largest youth demographic ever, comprising more than 30% of the working age population in many countries. Even though there has been an overall increase in jobs and employment in many countries, such as in sub-Saharan Africa, youth make up a larger percentage of the population in many of these countries, and therefore, the percentage of employed youth has actually decreased (Elder and Koné 2014). Relatedly, unemployment continues to remain high for certain groups, such as women and those in urban areas, in sub-Saharan Africa.

Unemployment rates are only one measure of a larger set of issues related to education for sustainable work for youth. Many countries in sub-Saharan Africa have had a decade of economic growth, but changes in the percentage of those in poverty have been less apparent. Many youth are considered to be in working poverty – either living in extreme or moderate poverty despite working. Nearly 75% of youth in developing countries who work are classified in working poverty, with this number growing in part due to increasing rates in sub-Saharan Africa (ILO

2016). In addition, fewer high-skilled jobs in the formal labor market are being created precisely at the time when there are a greater number of educated young people seeking employment (Elder and Koné 2014). Thus, obtaining a secondary or even tertiary education does not necessarily translate into a better job with higher pay and more benefits, at least in the short term. While many policymakers and donors use these statistics to argue that unemployment is the most pressing problem for youth today, inequality in terms of educational outcomes and, in turn, access to sustainable work opportunities are also problems. Thus, while skills development and entrepreneurship education have been proposed as ways to address the unemployment problem, these education reforms may not necessarily address the inequalities in employment opportunities or well-being unless alternative frameworks are considered.

The global development agenda, the Sustainable Development Goals (SDGs), has put learning new knowledge and skills for work as a key solution for these complex problems. Donors, such as the World Bank, have also begun to give particular attention to skills training for growing the informal economy and for poverty reduction, in contrast to earlier initiatives aimed at the formal economy (King and Palmer 2006). Entrepreneurship is one set of skills that is deemed useful in both the formal and informal sectors and advocates believe that it is important to teach at all levels of education (ILO and UNESCO 2006). Goal 8 of the SDGs states that entrepreneurship and job creation are key to achieving decent work and economic growth; and Goal 4, the education goal, has as one of its targets to substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship. In the past decade, entrepreneurship education and training has greatly expanded as a policy initiative in the global agenda and in many countries. For instance, in sub-Saharan Africa, Mozambique and Rwanda have national initiatives to implement entrepreneurship education across all levels of education (see, e.g., Honeyman 2016; Chissale 2016).

Entrepreneurship education as proposed in the global agenda and many governments' policies is believed to be relevant for everyone. There is an assumption that such education and training can benefit the economy and help get people out of poverty even though both research and experience show that only a small portion of people will start and maintain profitable enterprises and even fewer enterprises create new jobs. Possibly because of gaps between economic growth patterns and continued high rates of poverty and unemployment, entrepreneurship education and training have been increasingly targeted at youth living in under-resourced communities – one's with a limited formal economy, high rates of food and material poverty, and a lack of other social benefits, including quality education and health care. Given this nearly ubiquitous focus on entrepreneurship education, particularly for youth, it is important to examine if or how it can stimulate employment opportunities, alleviate poverty, and prepare young people for complex social changes in their communities.

The aims of this chapter are twofold. First, the chapter shows how the dominant approaches to entrepreneurship education, if it is to address educational,

employment, and other social inequalities faced by marginalized youth, need to be reframed. A postcolonial perspective is used to inform a capability approach to entrepreneurship – one that gives attention to understanding economic and social inequalities and to achieving inclusion and well-being. Second, drawing on an empirical study of entrepreneurship education for marginalized (not employed nor educated) youth in Tanzania, the chapter discusses capabilities that might be fostered to achieve greater equality and well-being. These capabilities arose from a study of youth's livelihood practices over a 5-year period, and they show how entrepreneurship skills and attitudes were adapted to the economic and social contexts in which they live.

The chapter is organized in the following sections. The next section will briefly examine some assumptions of two common approaches to entrepreneurship education and training – those for economic growth and poverty alleviation – and how they do not necessarily address inequalities. The following section will draw on postcolonial scholarship to consider how economic and social relations perpetuate inequalities, particularly referring to scholarship on education and employment in sub-Saharan Africa. The chapter then draws on an empirical study of an entrepreneurship training program in Tanzania to illustrate specific historical, political, economic, and social conditions that reproduce inequalities and influence youth's educational and economic opportunities. The following section considers how a capability approach can be used to frame the linkages between education, economic development, and social equality differently than the two common approaches to entrepreneurship education and training. The final section discusses examples of specific capabilities that were fostered through the entrepreneurship training programs that allowed the Tanzanian youth in this study to be included in their communities and to secure a sustainable livelihood. This framework and analysis suggests that skills development and entrepreneurship education programs need to give consideration to social relations that exclude youth from meaningful and valued education and work.

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## Two Dominant Framings of Entrepreneurship Education

Entrepreneurship education and training programs have proliferated in the past decade (see, e.g., a review of programs by Valerio et al. 2014; Cho and Honorati 2014), suggesting that entrepreneurship has emerged as a real solution to education-employment problems. While entrepreneurship education and training is commonly defined and taught as a combination of technical and business skills with attitudes and values, such as resiliency and risk-taking – often referred to as non-cognitive or life skills – the groups targeted and the desired outcomes differ depending on whether the aims is to promote growth or alleviate poverty. Until recently, we knew little about entrepreneurship education and training programs for youth, nor whether – and how – they foster job creation or future employment (Chigunta et al. 2005). In addition, the purposes of entrepreneurship education have shifted from those of earlier vocational and skills training programs, from applying one's

knowledge and skills to a job to using entrepreneurial knowledge and skills to create jobs. Entrepreneurship education is also regarded as important for preparing young people to respond to economic and social changes, meaning a changing and precarious economy rather than working long term within a trade or sector of the economy (ILO and UNESCO 2006).

There are two dominant approaches to entrepreneurship education found in development organizations' programs and strategies. The first approach is oriented toward "opportunity entrepreneurs" and aims to foster job creation and economic growth. The second targets "necessity entrepreneurs" and seeks to alleviate poverty. These distinctions between opportunity and necessity entrepreneurs and the goals of economic growth and poverty alleviation are not rigid, and both types of programs teach similar content, but the target populations and overall outcomes may be different. Entrepreneurship education programs for youth cut across these two approaches because they regard youth as not yet opportunity entrepreneurs, but with some potential to be so in the future. These two approaches, their assumptions and desired outcomes, are explained below.

Entrepreneurship education and training programs supported by international agencies, such as the World Bank and US Agency for International Development (USAID), aim to promote economic development and job creation. This approach to economic development is based in a dominant discourse of human capital, innovation, and economic expansion. For example, the US government's Global Entrepreneurship Program states the link between entrepreneurship and economic growth this way: "Entrepreneurship is now recognized as one of the strongest drivers of global job creation, with an important impact on economic growth and political stability" (Bohoney 2011). Supporters of this approach assume that we can teach entrepreneurship skills and mindset to anyone to be an entrepreneur, and that entrepreneurs, with a supportive private sector and business environment, can then create jobs and foster economic growth. But the empirical support for achieving outcomes of enterprise development and job creation is less solid.

This form of entrepreneurship education tends to target "opportunity entrepreneurs" – those who already have business knowledge or experience – and provides them with additional training and seed money. Entrepreneurs in these programs are taught to be resilient, risk-taking, and innovative; business mentors offer support and advice on how to turn innovative ideas into money-making ventures in new markets. These programs may also promote policy change that supports private sector and business friendly regulations. The program content and curriculum, including business knowledge, entrepreneurial skills, such as marketing and identifying value chains, and an entrepreneurial mindset, are being adapted from these programs to teach to youth, including marginalized youth who may not work in a formal labor market or have access to many consumer markets. Those who support and implement youth entrepreneurship programs hold the belief that teaching the business skills and the entrepreneurial mindset will allow youth to create new enterprises and in turn promote economic development. Many programs targeting youth, however, do not provide the necessary economic or social supports, such as seed money or youth-centered financial services or regulations, that young people need to get

started in a precarious economy. As a result, youth (and other marginalized groups) may start a micro- or household enterprise, but their ability to engage in the formal economy or high-value value chains is much more difficult than for “opportunity entrepreneurs,” who are the real targets of these programs.

This approach to entrepreneurship education reflects a neoliberal agenda in targeting individuals to become successful entrepreneurs by integrating them into a global capitalist economy. Governments’ role in fostering such entrepreneurship is relegated to ensuring the freedoms of individuals and delimiting obstacles to private enterprise and growth. But when such programs are taught to marginalized youth who are not given the freedoms or supports afforded to “opportunity entrepreneurs,” such as having access to the formal labor markets or formal financial services, entrepreneurship education and training is used to instill individual responsibility for their economic futures and resiliency in the face of economic instability and uncertainty. There is a disconnect between the assumption that entrepreneurship education and training can address the problem of unemployment by providing job creation and expanding businesses and the reality that most youth will not start new enterprises that are able to grow, at least in the short term. These programs do not often account for high business failure rates; rather, they assume that perseverance will result in eventual success. Still, the assumption persists that by educating youth, they will become entrepreneurs and increase their incomes.

Despite the rhetoric and many programmatic efforts to teach and support entrepreneurship for the purpose of economic growth, a recent World Bank report, *Entrepreneurship Education and Training Programs around the World: Dimensions for Success*, acknowledges that most jobs are created in the in formal economy (Valerio et al. 2014). Valerio et al. (2014) show that programs targeting necessity entrepreneurs – those who have to start a micro- or household enterprise in order to survive – often do not result in improving income, employability, and growth, particularly long-term sustainable growth. The evidence from various studies led the authors to conclude that programs for “vulnerable groups” are a means to poverty alleviation rather than as a means to “[foster] entrepreneurs and entrepreneurship” (p. 83). Thus, a second approach to entrepreneurship education aims to foster poverty alleviation, particularly among youth and marginalized groups. This “pro-poor” approach hopes to ensure the rights of the poor to have a decent livelihood by developing household or small enterprises in order to earn and cover basic needs, and in turn, addressing inequalities. These education and training programs tend to be short-term and nonformal, with most training focused on starting household enterprises or engaging in the informal economy. There is less evidence, however, of the long-term effects of such programs on getting the “poor” out of poverty and having sustainable livelihoods.

Programs targeting youth living in poor economic conditions are often labeled youth livelihood programs that may be directed toward workforce development and employability, and they also teach similar skills and mindsets as entrepreneurship programs. These programs often incorporate an explicit entrepreneurship component to start one’s own microenterprise as an alternative to working in the formal economy (see Butler et al. 2012). For example, the USAID’s Education Quality

Improvement Program (EQUIP) 3 is designed to address youth livelihoods through workforce development, education, and engagement in the economy to improve the school-to-work transition. Their program documents state that it “evolved to incorporate new components . . . [including] entrepreneurship” (p. 135). Preparing youth to work in the informal economy has emerged as the desired outcome for many of these programs, and evidence is increasingly showing this to be more probable than getting employment in the formal sector (Valerio et al. 2014).

These programs target “at-risk” or “poor” groups for training, but by focusing on developing enterprises in the informal economy, they can perpetuate status differences by relegating marginalized youth to the sector of the economy that is most unprotected by government social programs. Proponents of youth livelihood programs claim that targeting “at-risk” youth – those who are out of school or unemployed – not only reduces poverty but also prevents social ills by responsabilizing youth to engage in productive work in the informal economy. In this model, less attention is given to the regulations that affect youth in conditions of poverty in distinct ways, including addressing barriers to securing financial resources for youth who have little access to financial institutions. While there is some recognition by the ILO and the World Bank of the complicated environment in which youth secure jobs, and while they stress that other factors beyond the individual need to be accounted for, a considerable emphasis remains on youth and their efforts to overcome their own poverty (Elder and Koné 2014). In effect, these programs target youth’s skills training rather than labor market reforms and employment programs as the way out of poverty (Robilino et al. 2013). If these dominant approaches – that of creating or expanding businesses for job creation or starting household enterprises to alleviate poverty – do not account for social and structural inequalities that many youth face in order to work and have a sustainable livelihood, how can we reframe skills development and, more specifically, entrepreneurship education programs to consider some of these constraints?

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## **A Postcolonial Perspective for Skills, Work, and Development in Local Economies**

If skills development and particularly entrepreneurship education and training are to address these entangled problems of economic development in globally marginalized economies, poverty alleviation which is not addressed solely through economic growth, and poor quality of education, a vestige of a colonial system that reproduces certain forms of knowledge, then educators and program designers need to consider the political-economic factors that have perpetuated and exacerbated such problems (Vally and Motala 2014). A postcolonial perspective allows us to examine these problems through an historical and political-economy lens, setting the problems of a country’s economic, social, and educational development in dialectical relationship to global economic development and relations. This means, for instance, that an examination of inequalities that keep some people out of the formal labor force is important to consider in policy and program design. This includes examining



economic and trade policies required by international financial institutions that have limited development in some labor sectors or changing education systems, influenced by domestic policies and international aid requirements, that don't allow many to complete secondary schooling.

A postcolonial perspective also calls for critiquing and reframing dominant discourses about development and particularly the assumptions about the centrality of economic growth for development (Escobar 1995). It calls for considering other perspectives and ways of framing development in social, cultural, and moral terms. Finally, a postcolonial perspective does not position one part of the world apart from others, as if it were culturally different, or what Spivak (1990) has called "worlding." This means that the context of Tanzania discussed as a case in this chapter is not unique or distinctly a Tanzanian version of reframing entrepreneurship education. Rather, it offers an example of how to consider the historical, political, economic, and social influences that call for alternative framings of the linkage between education, work, and social and economic inclusion and development. While there are some historical and social conditions that are unique to Tanzania, the use of a postcolonial framework and the capabilities and conditions discussed later in this chapter serve as a heuristic for considering social and economic inequalities and valued well-being outcomes in relation to implementing skills development and entrepreneurship education programs in other contexts.

A postcolonial perspective allows for examination of underlying economic and social inequalities that may have started in precolonial and colonial times and persist in different forms today (Tikly 2004). An underlying cause of the need for skills development, particularly for youth, is that some youth either have not completed their formal education or may not have learned the skills and knowledge required to work in different formal labor sectors. Inequalities in educational participation and quality of learning are a historical problem, and they continue to manifest in educational and learning outcomes today. For instance, a large percentage of youth in sub-Saharan Africa, and more specifically Tanzania, have historically not completed secondary education, which is deemed as a requirement for entering the formal labor market. During colonial rule, the less than 10% of the school-age population who completed secondary education in Tanzania were prepared for positions in the colonial government, and this orientation to secondary education continued even in the early years of decolonization. More recently, global and national agendas call for "Education for All," and the full participation of all youth in basic (including secondary) education. But in 2013, 34% of youth continued onto secondary education, and the completion of secondary education is still restricted to a select group who can pass the exams and pursue higher education, less than 50% of those who study through form 4 (Grade 10) in recent years (United Republic of Tanzania 2013).

By not completing a secondary education, youth in many countries are further excluded from societal membership because they are unable to secure work in the formal labor market. Ferguson (2013) refers to this as "work membership," recognition and inclusion in society based on being employed or participating in wage labor. One of the dilemmas facing many countries in sub-Saharan Africa is that while their economies have grown, the increase in jobs has tended to be in low-wage labor



(Elder and Koné 2014). Therefore, opportunities to work in the formal economy are extremely limited. Ferguson also suggests that analyses of development in sub-Saharan Africa need to account for social inequalities that are interlinked with economic inequalities. For instance, by not completing a secondary education, they are unable to participate in the formal labor market, which further excludes many from other social benefits and relations.

A postcolonial perspective also reframes the idea and outcomes of development beyond that of economic growth and situates meanings of development in local values and contexts. For example, in Mains (2012) examination of young men's post-educational lives in Ethiopia, he found that social relations were important for not only creating opportunities for work, particularly through entrepreneurship and self-employment, but they shaped how these young men, who could be regarded as idle without work and without hope, could be included in society. More than the economic contribution that these men made to their family and community, their social relations with others particularly through reciprocal giving of food, gifts, and social support were critical to their and their families' well-being and to being included members of society. In this example, participation in the economy and society is possible through social relations with community members, and this participation and the resultant well-being was as important as working and contributing economically.

Development in many local contexts must also be conceptualized beyond the overused binaries of "developed" and "underdeveloped," particularly in relation to a global capitalist economy. Gibson-Graham (2006) reminds us that global markets dominate economic relations and development, but they are not the sole types of economic activities within countries. They assert that there are many kinds of markets, but they also argue that our knowledge production and policies tend to privilege global capitalist markets. By conceptualizing markets as a singular global capital economy, we silence community, social, and moral aspects of markets that may not operate with the same norms as global capitalist markets. Therefore, reframing an analysis of skills for development needs to account for different kinds of economies, including the social and moral aspects of economic participation and development. The next section now turns to specific educational, social, and economic inequalities affecting youth in rural Tanzania.

## **Education and Work in the Context of Rural Tanzania**

The colonization and decolonization of Tanzania has had profound effects on the conditions that continue to shape education and work today. Colonization particularly affected Nyerere's approach to nation-building and economic development, based in African socialism, or what came to be known as *Ujamaa* in Tanzania. Nyerere's regime aimed to redress illiberal and, to a degree, liberal colonial governing regimes that had excluded many from education, work, and the fruits of development and, in its place, establish African values and policies in efforts to unify the nation politically and develop it economically without international and colonial

influences. Pan-African Socialism resisted a capitalist market economy that was increasingly evident in political discourses and in economic practices because Nyerere and other African leaders believed it caused inequality and underdevelopment. Attending to social and economic rights, which had been unequally provided under colonialism, was central to Africanization efforts of the early postcolonial governments. Nyerere (1968a) articulated this approach to political and economic inclusion in his writings on *Freedom and Socialism*:

The economic growth must be of such a kind, and so organised, that it benefits the nations and the peoples who are now suffering from poverty. This means that social and political development must go alongside economic development – or even precede it. For unless society is so organised that the people control their own economies and their own economic activity, then economic growth will result in increased injustice because it will lead to inequality both nationally and internationally . . . Political independence is meaningless if a nation does not control the means by which its citizens can earn a living. (p. 88)

Education was a primary tool of the state to foster self-reliance. Education was not only to develop the nation economically but socially and politically. Importantly, education for self-reliance cultivated an ethos among those who were educated to contribute to their community, and reciprocally, that the community would contribute to the education of its members through building and supporting schools and nonformal programs.

The education provided by Tanzania for the students of Tanzania must serve the purposes of Tanzania. . . . It must encourage the development of a proud, independent and free citizenry which relies upon itself for its development, and which knows the advantages and problems of cooperation. It must ensure that the educated know themselves to be an integral part of the nation, and to recognize the responsibility to give greater service the greater the opportunities they have had. (Nyerere 1968b, p. 74)

Nyerere's policies increased education participation, particularly at the primary level, but labor market and economic growth was more uneven. In the 1980s, facing economic and political crises, Mwinyi's new government shifted away from socialist policies toward privatization and decentralization, influenced by the International Monetary Fund's structural adjustment program (SAP). Still, some of the ethos of *Ujamaa* – political, social, and economic development for Tanzanians themselves – live on. Tripp (1997) shows that with the economic recession in the 1980s, many workers' wages collapsed, and household and small enterprises grew to provide for financial needs. In addition, economic liberalization required by the World Bank and International Monetary Fund promoted more privatization, including fees for education and health care (Samoff 1987). Despite these shifts toward expanding the private sector, Tripp (1997) argues that liberalization did not erase a community ethos of social support and development: "Even with increased market activity, the moral-economy rationales have not given way to the more market-oriented ones" (p. 127). While this ethos of community economic and social life in Tanzania has shifted over time and space, youth in our study reflected some of these influences in the kinds of economies and communities they valued.

In the local context of rural northwestern Tanzania (Kagera District) where a nonformal entrepreneurship training program was implemented (2012–2017), various persistent forms of economic and social inequalities affected out-of-school youth in particular ways. First, while education is valued for self-reliance and the work opportunities it purportedly can offer, youth who participated in this nonformal entrepreneurship program had been unable to complete their secondary schooling, often due to a lack of financial support. Being out-of-school left these youth struggling for the identity and status that education gives. For those who do not continue onto or complete secondary schools, further training is necessary in order to secure a livelihood, even in the informal economy.

The economy throughout Tanzania and particularly in Kagera is still primarily based on subsistence agriculture. Approximately 95% of households in Kagera engage in food crop and subsistence agriculture, such as growing vegetables and bananas or raising cattle, and some cash-crop production, such as coffee. In addition, less than 10% of households are employed in their own nonagricultural business, and 5% of the population is employed in a growing industrial sector of mining, manufacturing, gas, and construction (NBS 2014, pp. 113, 120). Kagera has been known as a region long engaged in the international economy, with coffee and bananas as key crops, though their prices are often volatile on the international market. Thus, those who farm these crops are often among the poorest households. Many households in this region live in poverty and are subject to either trading on volatile international markets or making a subsistence living in local markets.

It is important to consider how, then, people can get out of poverty and engage in sustainable work in these economic conditions. De Weerd (2010) examined why some households in Kagera, particularly those that were not assumed to move “out of poverty” given their initial assets, did improve, while others that were predicted to do so did not improve. He found that farmers and traders who improved their wealth and assets had not only diversified earning activities, but they also had strong social networks of people both within and outside the villages allowing them to trade and move food crops across the country. They often worked with apprentices as couriers between farmers and traders. Those whose income and assets grew did not depend on physical capital, but rather the continued trust of their *tajiri* (rich benefactor/boss). In addition, a *tajiri* benefits from the apprentice’s knowledge of local markets; and the apprentice, with additional material support from the *tajiri*, often enters into the trade him/herself. Those who had fewer social networks often ended up in mining or fishing, both of which are less secure earning sectors (De Weerd 2010). These social networks and supports were less common for women, particularly those who were widowed or divorced as most were not able to claim inheritance rights through the husband’s family, thus leaving them more vulnerable to poverty. It appears, then, that consideration needs to be given not only to education or work opportunities but the kinds of social relationships that enable work and sustainable income.

For out-of-school youth trying to secure a livelihood, there are few sectors and trades to engage in, and those, such as agricultural goods or mining, are subject to uncertainty and volatility in national and international markets. For youth excluded

from many social groups, the practice of apprenticeship is critical to not only learning a trade but also getting connected within and outside the community. This case of entrepreneurship education for these youth offers one specific context and set of personal, social, and economic conditions to consider how entrepreneurship education and training can be reframed from a capability approach.

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## **A Capability Approach to Entrepreneurship Education and Training**

Neither Sen's nor Nussbaum's capability approaches are explicitly informed by postcolonial perspectives; Sen's scholarly work does, however, draw on historical and postcolonial perspectives of inequalities in India (See Sen 2009). In contrast, some scholars have argued that Nussbaum's liberal universalism specifically negates postcolonial scholars' critiques of dominant ideologies and ethnocentrism (see, e.g., Charusheela 2008). Nevertheless, there are potential alignments to postcolonial perspectives with regard to their commitment to redressing inequalities in all its forms and in setting capabilities and the achievement of well-being within an examination of economic, social, and personal conditions that are influenced by a history of colonialism. In contrast to the dominant approaches discussed above that frame skills development, and more specifically entrepreneurship education and training, a capability approach draws attention to fostering equality and achieving valued well-being, in addition to economic outcomes (Sen 1992, 1999). Educating for youth livelihoods from a postcolonial informed-capability perspective goes beyond sustaining life on the verge of poverty and tries to create pathways to stable, more equitable, and sustainable earning opportunities and overall well-being in an unequal global economy. Applying such a perspective to entrepreneurship education and training would require that entrepreneurial activities are not limited to, or rely primarily on, the informal economy in order to achieve sustainable development and well-being. Informal economy work is, in essence, economic activity that is unregulated and unsupported by government policies, such as social benefits, that further exacerbate economic and social inequalities (Balwanz 2012).

Applying a postcolonial informed-capability approach to entrepreneurship education suggest what Naudé (2012) has argued: that governments need to create policies to reduce necessity entrepreneurship. From this approach, government social policies need to attend to historical inequalities and ensure that disadvantaged individuals and their households do not have to incur all the financial risks that can result from poor financial service, trade, or labor market policies. Such social policies might include job creation and labor market expansion; wage and labor market protections including equitable access to sectors and social security. These are regulations that are not typically associated with entrepreneurship in its neoliberal form (Balwanz 2012; Naudé 2012). In addition, social policies and programs need to promote greater gender equality, given the gender inequalities that often exist in access to land and credit and, at the same time, the overrepresentation of women in the informal economy. Policies and programs directed at youth would include paid

apprenticeships and employability programs. Without these social supports and protections, informal employment is not an attractive option for future livelihood and well-being. From a capability approach, these policies and social supports are necessary components of entrepreneurship education and training programs that must go beyond individual training to address structural inequalities. As DeJaeghere and Baxter (2014) conclude:

Without governments committed to leveling the playing field, necessity entrepreneurs will not succeed as they transition out of programs and into competitive and struggling market-places. The chance of failure and its associated risks are far greater for youth from households and communities with limited and fragile safety nets. (p. 75)

Naude's (2012) discussion of a capability approach to entrepreneurship does not attend to the role that education can play in fostering aspirations and valued well-being. Beyond macro-level policy changes, a capability approach to skills development and entrepreneurship gives attention to fostering aspirations and valuing alternative futures for diverse youth (Powell 2012; DeJaeghere 2016). Too often, formal education does not promote alternative choices and opportunities for youth, particularly in systems where colonial educational approaches to abstract knowledge and high stakes testing persist. Entrepreneurship education, from a capability approach, might help youth identify what they value for their livelihoods and futures, rather than being something they have to pursue out of necessity, with no alternatives. Such an approach would also foster aspirations that give youth meaning in their lives and not only the pursuit of money. Powell (2012), in her study of South African youth pursuing vocational and technical education, sought to understand what youth valued and why they chose vocational/technical education. She found that "For these students, colleges are not simply an opportunity to access the labour market; colleges are an opportunity to gain satisfying work in workplaces where they will be respected and where they can make a contribution" (p. 21). From this perspective, education and training programs need to account for what young people value for their futures that is more than the economic gains from work.

What kinds of conditions and capabilities would such a framing of entrepreneurship education attend to? The next section draws on an analysis of a 5-year study of youth livelihoods following their participation in a nonformal training program. In this context of rural Tanzania, many youth developed capabilities to pursue sustainable and meaningful livelihoods; two critical capabilities that emerged in this context are discussed here. The intent is not to offer a list of capabilities that ought to be fostered in and through all entrepreneurship education and training programs; rather the value of a capability approach is to understand the conditions and processes that can support well-being and reduce those that constrain choices and opportunities for well-being (See DeJaeghere and Lee 2011; DeJaeghere and Baxter 2014; DeJaeghere 2016). Therefore, this discussion of these capabilities and conditions offers a heuristic for skills development and entrepreneurship education programs for youth in other contexts.

## **Which Capabilities and Which Conditions Are Important for Sustainable Livelihoods and Well-Being?**

Two critical capabilities supported youth's sustainable work and well-being toward a fuller, more complete life and toward greater equality in society. These capabilities are what Nussbaum (2011) might refer to as combined capabilities – ones that include the internal capacity to be or act along with the social, political, and economic conditions that allow one to act upon and fulfill their well-being. Elsewhere, I refer to these capabilities as “social relations” (DeJaeghere et al. 2016), meaning they are formed and enacted in social life and are not individually held or cultivated; in turn, these social relations enhance youth's ability to claim social and economic well-being in society. While I don't draw on Nussbaum's notion of a universal list of capabilities, I agree with her point that capabilities are not only internally held, but are fostered in relation to conditions in society.

One of the capabilities and conditions that was important for youth's livelihoods and well-being was recognition. Recognition, similar to what Nussbaum calls affiliation, was important for these youth to be socially included in society. Recognition includes being regarded as an equal human being, and importantly, that youth have equal worth and the ability to participate in economic and social life. This capability is a particularly challenging one as youthhood is premised on becoming, and not yet being, an adult (Durham 2000), and therefore, youth are often not yet able to participate in the social, political, and economic life in communities and society. This capability was perhaps so salient for these youth because, having not completed secondary school, they felt excluded in their society and community.

One of the ways that youth livelihood programs seemingly foster this capability is through the non-cognitive skills of self-esteem and confidence. These “skills” aim to help young people see and believe in their own value as individuals. But a non-cognitive skills approach falls short because it does not attend to how others value youth and see them of equal value. Recognition, different from self-confidence, is not individually learned or held; it is fostered through changing social relations with others in one's community (and country) that allow for marginalized youth to be valued and included equally in education, work, and social and political life. To foster youth's recognition requires programs to involve community members with youth so that adults see the social and economic value that youth offer (DeJaeghere et al. 2016).

Many youth who participated in a nonformal entrepreneurship education program stated that they acquired greater recognition, even though this was not a direct aim of the program. One young man who had trained to be a mason but also had several other household enterprises stated the changes toward being recognized and included in this way:

My role has changed. I can now participate as a community member. As the person I was – in a low ... situation ... they see that person as someone who cannot contribute to the community. If you have something, they think, ‘this one can contribute’ ... I am now recognized differently from before. They were seeing me, but they didn't see as a person who could contribute to the [community].

This young man gained a new status in the community and he saw himself, and others regarded him, as a community member. Because he was earning money, which he had not been able to do before the training program, being a community member allowed him to contribute to the community. In this sense, recognition has both social and economic dimensions. Another young woman, who had been living on the street in part due to conflicts with her stepmother, recounted a changing role in terms of respect from others and being able to support her family.

Last year was hard; I had to depend on myself and I didn't have any money. But this year I'm doing great. I am respected by people and getting my own money. I am helping my family ... my family is depending on me.

Her social inclusion, in terms of now being respected in the community and supporting others and her family, was equally as valuable to her as the economic gain from her work skills and her enterprise.

This capability did not emerge simply from being educated or trained. Recognition involved being seen as an "educated" or "skilled" person; it also required developing new kinds of relations with people in the community. Youth in this livelihood program were able to develop these relationships through apprenticeships, program recognition, and peers and adults introducing them to potential employers, customers, and other trades workers. Youth livelihood programs do not necessarily develop recognition; if they are to do so, programs must emphasize more than skills needed for work. Programs need to also consider in what ways and how youth are not valued in the community and how they can foster greater appreciation of youth and what they contribute to their communities.

A second capability and condition that was important for these youth's work and well-being was community care. Community care for these youth meant giving and receiving from others in the community as well as a broader ethic to ensure the well-being of all. Community care includes reciprocity, a form of social and economic relations practiced by many in these Tanzanian communities. Data from the longitudinal study showed how this ethic shaped young people's motives for their work, and their decision-making in use of profits. The young woman above goes on to clarify how her skills and enterprise helped others:

I see those [in the community] who don't have work and I am ready to help those who don't have work or I can supervise so I can give him a little money ... So the community respects me as I can support other youth.

Again, this capability is not one that can be individually taught and learned through a training program; it is embedded within the social relations of communities. While reciprocity is typically associated with moral economies (and often assumed to be part of traditional societies) in which a concern for the good of all and the future health of everyone is important, feminists, such as Yuval-Davis (2011) and Gibson-Graham (2006), have argued that care and reciprocity are important for



ensuring social inclusion and economic well-being in diverse economies and societies. Such an ethic helps ensure that one's work and enterprise are socially useful. Treat (2014) assert that there are many ways to make a contribution to society, and "we should not assume that contributing toward the profitability of a business is the only way or the best way – or even necessarily a good way" (p. 183). Relatedly McGrath and Powell (2016), citing Klein, call for "growing the caring economy, shrinking the careless one" (p. 13), economies that take into consideration short- and long-term well-being of self and others. Such community care should not replace social policies, such as health insurance or labor regulations, but this ethos can fill gaps where these policies are insufficient, and it provides a local mechanism for enacting social policies by seeking to ensure that all can benefit from policies and programs.

Community care can be cultivated through skills development and livelihood programs, but it requires concerted attention that goes beyond an individual profit orientation of many entrepreneurship education programs. Programs can start by creating positive group relations among peers by sharing information, ideas, and working together to develop their livelihood aspirations. When many youth from this program struggled to create their own enterprises, this entrepreneurship training program realized it needed to help foster group businesses so that they could support each other to develop related business skills, share customers, and engage with community members, including financial service providers who often did not want to risk lending to individual youth. In addition, programs should give attention to how they support the development of reciprocal and sustainable relationships between youth and community members through internships/apprenticeships and through community groups, such as saving and lending groups that are common in these communities in Tanzania. This youth livelihoods program also emphasized reciprocal and equitable relationships between employers/apprentices and youth by not paying either for their involvement in the program, and instead emphasizing what they gained socially and financially through the relationship. For example, apprentices gained from youth skills, which often allowed them to earn more in their trade, while youth gained new knowledge, skills, and networks from apprentices. One community-based trainer summarized the effects of youth's skills and work in the community in this way:

The community sees the program as having a lot of impact, as they contribute to the community and they employ their fellow youth, also they have helped to even lift up their families . . . it doesn't just help the youth alone, but also the community.

Developing capabilities and conditions of recognition and community care can go some way toward changing community practices, norms, and structures to foster sustainable and meaningful work for youth. These local practices can also be used to enact policies that could further allay economic and social inequalities that affect youth. Without these capabilities, these youth were vulnerable to working in environments where they were taken advantage of, given inadequate pay, and unable to garner the social supports to care for family or those in need.



## Conclusions

Entrepreneurship is one set of skills that is being promoted through global agendas and national educational and training policies in response to a precarious economy, high youth unemployment, and poor quality education. Underlying the problems of unemployment are economic and social inequalities that perpetuate exclusion of many youth from their communities. If such “skills” are to foster sustainable livelihoods, one that foster greater well-being for individuals as well as communities (McGrath and Powell 2016), then donors, policymakers, and educators need to rethink the purposes and mindset taught and learned in these programs. The dominant approaches to entrepreneurship education and training presume that learning technical, entrepreneurial, and non-cognitive skills will enable self-employment, profit-making, and resilience among young people to succeed in precarious economies. But because many young people, particularly in poor and under-resourced communities, are excluded from social and economic life, these approaches to skills development for work need to also attend to the social conditions that exclude youth in society.

Using a postcolonial informed-capability approach allows educators and researchers to consider how social conditions affect youth in a particular program and community. In a nonformal livelihood program in Tanzania, recognition and community care emerged as two important capabilities and conditions to enable livelihoods that promoted greater well-being. These capabilities were critical so that youth’s skills and work were not directed to pathways that have dead ends – those in which they could not make enough money to ensure their and others’ well-being.

Skills development programs that enable social recognition allow youth to be seen and treated with equal value in contributing to and benefitting from their community. In addition, fostering an ethos and conditions of community care ensures that youth’s skills and work are regarded as contributing to the community, ensuring their own and other’s well-being. Community care also attends to longer-term sustainability of their livelihoods by integrating their work within the community and contributing to the social and economic development of the community. These types of social relations, or “skills,” are not commonly included in entrepreneurship education programs. A capability approach to skills development and education programs can reveal inequalities youth face that constrain their ability to participate in social and economic life of societies. Such an approach also helps international development practitioners and educators to design program with consideration of local social and economic relations that shape youth’s work and livelihoods. Program designs would include attention to moral and local economic values, such as reciprocity, in addition to notions of competition, profit, and resilience that shape many entrepreneurship education program designs.

If the skills that youth learn and the work they do are indeed to contribute to the human development of future generations, as called for in the SDGs, then the orientation of entrepreneurship education and training should be toward those social relations and capabilities that foster the social and economic well-being of self and others.

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# A Political-Economy Orientation in TVET's Project-Based Learning Methodologies for Sustainable Development

# 22

Emilia Szekely

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## Abstract

From a capability approach, the Technical and Vocational Education and Training (TVET) component of the global agenda for sustainable development represents a major tool for cultivating the equitable agency capacity of individuals to participate in the labor market and to rethink their reality in and out of work, modify it, and make it more suitable to their desired development scenario.

In this sense, some teachers use project-based learning methodologies to show their students how to formulate and put development alternatives into practice. This introduces students to the experiences of agents of change and active development initiatives.

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This chapter seeks to contribute to these efforts by sharing some conclusions drawn from an empirical research on development initiatives in different countries. They concern some of the challenges and constraints that these initiatives face to be sustainable, as well as the strategies that they use to confront such challenges.

These reflections which teachers could incorporate into their project-based learning methodologies place special emphasis on political-economic factors that influence how objectives are defined and how the development agenda is implemented. We analyze factors that influence the decision-making process, power relations, and the potential of each individual or group to implement and negotiate their initiatives under conditions of equity.

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### Keywords

TVET · Sustainable development initiatives · Political-economy · Project-based learning · Capability approach · Agency capacity

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## Introduction: TVET as a Tool for Cultivating the Agency Capacity of Students Toward Sustainable Development

**Technical and Vocational Education and Training (TVET)** has been greatly influenced by the imperative of sustainability, the qualitative element of the global development agenda. Many education stakeholders evaluate TVET in terms of the skills and knowledge it transfers to its recipients, ensuring them employment opportunities and satisfying the needs of the labor market.

Many others consider that TVET also has potential to aid the forging of a sustainable model of development, by helping the students rethink the world of work so that they can modify it and render it more suitable to their desired development scenario (Fien and Wilson 2005; Maclean and Pavlova 2014; Tsang 2012; UNESCO-UNEVOC 2006). Such approaches have been causing “a shift in focus from short-term to longer-term development needs, from expansion of systems to their transformation, and from contributing to economic growth to an added concern for social equity” (UNESCO 2012, pp. 1–2).

The gradual reconceptualization of TVET, emphasizing the need to improve its **quality** by making it more compatible with the aspirations underpinning sustainable development models, suggests that it can be a useful instrument to cultivate what the capability approach calls people’s capacity for **agency** (Nussbaum 2012; Sen 2000), that is, a person’s actual power to:

1. Make effective use of available development opportunities (education, health, etc.) throughout their lives – according to their own aspirations and needs
2. See themselves as active agents and not only passive beneficiaries – with interests, responsibilities, and initiatives to transform societal arrangements to pursue and safeguard opportunities for themselves and the community

Sustainable development **requires** enhancing people's capacity for agency.

It requires **development initiatives** have the capacity and conditions to create interventions that are actually sustainable.

This is true for the development initiatives of individuals, local, national and international governing bodies, and organizations of all types and scale. It is also the case for initiatives which contribute to this process from distinct domains, for example, in combating poverty, health, education, and environmental protection.

Sustainable interventions require political and financial resources, know-how, work, as well as the socialization of ideas, experiences, and training. This applies not only for initiatives already underway but also for those about to join work teams or formulate new initiatives – the recipients of TVET.

The skills, competencies, and knowledge acquired through TVET programs should include those that foster people's capacity for agency. Such programs should motivate students to learn how **development initiatives** that affect their lives or aim to change their conditions are put into practice, how to identify the political-economic factors that make sustainability difficult, and how to tackle such problems.

Learning from the achievements and difficulties of these experiences will strengthen students' capacity to influence the development process in a more sustainable way, through any of the labor areas they join.

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## Methods Used to Introduce Students to Alternatives for Development Change and Stimulate Agency

TVET educators from different fields (schools, universities, workshops, companies, etc.) use versions of **project-based learning** that link the learning of skills, knowledge, and competencies with civic and critical education. These help prepare students to get involved in the realities and possibilities of the human development field. Normally, this is through studying a problem of social interest, doing research on the problem, writing a proposal for its solution, and sometimes even carrying out an intervention.

One of these methods is service learning, which is based on the assumption that the preparation of students should be achieved through combining service with learning, by working for the benefit of the community. Students are asked to analyze the problems of a community and then devise and implement potential solutions. However, according to Chang (2015), this can become top-down and elitist unless teaching is embedded “with community members and spaces toward collective self-determination” (p. 31).

Other project-based learning methodologies such as place learning, experiential learning, or field trips rarely involve action research work with communities and are usually rather passive. Yet they often share with service learning the conviction that preparing a student to become an agent of change requires that he becomes familiar with the practical, concrete, and subjective experiences that complement what is discussed in the classroom.

Such experiences allow an abductive learning process, constructed from interleaved processes of deduction and induction, in other words, a process that

allows the continuous transition from particular experience to theory and vice versa (more on these methodologies in Buck Institute for Education 2017; Claiborne et al. 2017; Edutopia 2017; Evers and Wu 2006; The Glossary of Education Reform 2013; Wilderdom Outdoor Education 2005).

In this way, schools and vocational training centers around the world formulate programs and activities linked to development initiatives often motivated by national curricular policies (Eurydice 2012; Furco 2010; Skinner and Chapman 1999). These programs (which are of differing duration, depth, and even level of commitment) seek to familiarize learners with the challenges they will face when building viable and sustainable alternatives, generating empathy with the initiatives' ends and preparing them for that vocational choice.

Students from the K.R. Mangalam School in India, for example, were brought to talk with students from a school for disadvantaged children and were invited to donate school supplies to encourage their capacity for charity and empathy (K.R. Mangalam World School 2014).

In Ireland, Schools Across Borders invites students to research issues of local or global interest such as poverty, child labor, and environment. Students then identify development initiatives that work toward solving these problems, establish contact with their leaders (e.g., scheduling online calls), and develop outreach projects among the student community (Schools Across Borders 2013).

In a similar vein, Kids Go Global Canada invites students to access an online platform where nongovernmental organizations that welcome their participation detail their work and projects. Students have to choose an initiative, explore the issues, get in touch with the NGO, and help it get financial support by devising promotional campaigns (Kids Go Global 2017).

The United Arab Emirates Sustainable Schools Initiative promotes hands-on school field trips offered by supporting organizations (public and private) that enable students to apply transdisciplinary and problem-centered approaches to reduce the national environmental footprint (Global Environmental Education Partnership n.d.).

The MediAction Project in Morocco, in partnership with local associations, established five training centers to teach young people mediation and dialogue skills to aid social cohesion (Akar 2016).

Some higher education institutes also partner with development initiatives, offering students the opportunity to practice their skills while serving the needs of those initiatives. Graduate students of the Milano School of International Affairs, Management, and Urban Policy, for example, collaborate with local organizations and communities in New York City. In this way, they put the participatory facilitation and dialogue skills previously learned in their theoretical courses on participatory community development, popular education, and critical pedagogy into practice (The New School Collaboratory 2016). A course at the Ibero-American University in Mexico City used to guide its law students to offer free consultations to civil society organizations on how to manage tax deductibility and, through this, learn about the challenges involved in practicing their profession in this area of development (Fortalece Legal n.d.).

These are just a few examples of the different ways TVET recipients are brought closer to the experiences of agents of change who, through their initiatives, are proposing their own version of what sustainable development should

mean. These approaches seek to reinforce different knowledge, skills, and abilities (empathy, professional development, etc.) that, ultimately, are expected to increase students' **capacity** for **agency** to change the process of development for both themselves and the world, once they are incorporated (or reincorporated) into their working life.

In this sense, these activities and programs would have an important added value for the enhancement of the agency capacity of the learners, if they were also used to acquaint them with the factors that impinge on the agency capacity (power) of the visited initiatives to effectively provide sustainable development alternatives and with the means by which they sort them out.

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### **The Importance of Creating Awareness About the Agency Capacity of Development Initiatives**

As implied in the main international consensus documents on this matter (see, e.g., UNCED 1992, or WCED 1987), **sustainability** is a quality that can describe the global process of development when the initiatives through which it is carried out offer solutions that are:

1. *Integral*: that respond to the different developmental contexts in which they are inserted and where they have an impact both locally and globally (political, environmental, social, economic, cultural)
2. *Relevant for all*: relevant to the needs, views, interests, conditions, and working approaches of the different actors involved, in both present and future generations
3. *Equitably appropriated*: that recognize the right, capacity, and responsibility of the different actors affected by them to decide and control the processes of design, implementation, and evaluation of the initiatives

However, though most development initiatives address issues of interest to the international community (e.g., lack of access to education, pollution, poverty), the challenges they encounter to achieve sustainable results in the terms described above are quite different. Initiatives vary in their roles, responsibilities, philosophies, working approaches, and in the actors involved (with their distinct needs, priorities, interests, and perception of problems). They also vary in the resources and incentives they have available, in the socioeconomic, cultural, and environmental contexts with which they have to contend and in the legal and socioeconomic framework in which they have to operate.

In addition to these contextual structures and factors, the agency capacity of development initiatives to provide sustainable solutions also tends to be constricted by their strong reliance on external financial resources. These, in addition to being scarce, are often accompanied by a series of conditions that limit their authority on the design and implementation of their own projects. For instance, some funders, in order to address their own accountability pressures, establish funding criteria that are not necessarily relevant to the local agents' interests; another example are budgets



that favor certain areas of development to the detriment of others (making it difficult to implement integral interventions), etc. (Blaak 2013; Gillies 2010).

Moreover, the processes of decision-making, management, and implementation of all development initiatives are affected by external political actors and regulations. Often these share interests with and are sources of support for the initiatives; other times, either due to group interests or to the growing tendency to make vertical and standardized policies in order to guarantee minimum gains in the procurement of general rights, the external actors end up forcing the initiatives to adjust their interventions to criteria that are not always adequate to the context of implementation, or are not in line with the values and aspirations of the beneficiaries, making it difficult to implement interventions that are relevant for all. This is what happens, for instance, with many standardized and punitive evaluations that aim to achieve global sustainability goals (Jansen 2012; Mason 2011).

As such, this **political-economic** context often forces development initiatives into a permanent state of negotiation, cooperation, and conflict, during which decisions are taken about the design and implementation of their projects (Leftwich [2006], cited by Kingdon et al. 2014). This, in turn, impacts the sustainability of initiatives.

The political-economic context frequently pushes initiatives to develop ways to compensate for the challenges posed by their **dependency** on external factors and actors by increasing their capacity to:

- (a) Decide what is in their best interest and what is not
- (b) Identify the problems they face, given their specific context, and the available resources – human, financial, structural – to bring about the necessary changes to solve them
- (c) Execute their projects in harmony with the needs of the sustainable development agenda at the global level

Thus, the invention and implementation of these mechanisms are crucial to improve the initiatives' agency capacity (their de facto potential) to solve their problems in a sustainable way (Szekely 2015).

This is why, when TVET students learn about the challenges faced by development agents while formulating and implementing sustainable solutions and with the measures they devise to overcome these challenges, their own capacity for agency is enhanced. They can then transform the labor market through existing or self-created initiatives toward sustainable development.

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## **What to Observe During Project-Based Learning Exercises and Field Trips to Development Initiatives to Create Awareness of Their Agency Capacity**

This section outlines issues that might be observed during project-based learning exercises and field trips to development initiatives, issues that can help students learn how initiatives deal with their dependence on external factors, actors, and resources and build their agency capacity to ensure sustainability.

These reflections draw on the results of a study, carried out between 2012 and 2017 (Study sources of support: <https://wp.me/p8EZH0-Qy>), on the experiences of development initiatives working on diverse areas (rural development, education, environmental procurement, social participation, tourism, etc.) which operate in different parts of the world, namely, The Solar Night Schools Program operated by the Barefoot College in India ([www.barefootcollege.org](http://www.barefootcollege.org)); Amigos de Calakmul ([www.amigosdecalakmul.org](http://www.amigosdecalakmul.org)), Mercado Alternativo y Economía Solidaria ([www.tumin.org](http://www.tumin.org)), Red de Multitruque Tlaloc ([www.redtlaloc.blogspot.mx](http://www.redtlaloc.blogspot.mx)), ChildFund International Mexico ([www.childfund.org](http://www.childfund.org)), Centro de Ciencias de la Complejidad ([www.c3.unam.mx](http://www.c3.unam.mx)), Banco del Tiempo de Guadalajara ([www.lacoperacha.org.mx/banco-tiempo-guadalajara.php](http://www.lacoperacha.org.mx/banco-tiempo-guadalajara.php)), Ectagono ([www.ectagono.com](http://www.ectagono.com)), Fortalece Legal ([www.proyecto fortalece.org](http://www.proyecto fortalece.org)), El Refugio ([www.elrefugiozacatlan.com/index.php/es](http://www.elrefugiozacatlan.com/index.php/es)), and Bosque de los Arboles de Navidad ([www.bosquenavidad.com](http://www.bosquenavidad.com)) in Mexico; Fundación Escuela Nueva ([www.escuelanueva.org/portal1/es](http://www.escuelanueva.org/portal1/es)) in Colombia; and Projeto Saude e Alegria ([www.saudeealegria.org.br/in](http://www.saudeealegria.org.br/in)) in Brazil. The study included bibliographic research, telephone interviews, and field visits, using methods such as observation, open-ended interviews with key agents and beneficiaries, documentary reviews, etc.

Clearly, the diversity of contexts in which these development initiatives operate precludes generalization of the efficiency of their mechanisms used for cultivating agency capacity for sustainable development. However, the experiences of these initiatives allow us to reflect on the challenges they face when creating projects that intend to be relevant for all, integral and equitably appropriated. They also show the kind of decisions that must be taken in order to minimize and resolve their dependency conditions. From these elements, this author formulated a list of topics and questions drawn from these experiences, which are proposed here as a guide for a better understanding of the phenomenon, as a learning tool, for those TVET educators who visit or work in cooperation with development initiatives.

## Self-Awareness and Planning on Agency Capacity

An initiative's ability to deliver sustainable results is greatly determined by the level of awareness that its executors have about its own degree of agency and its potential trans-generational impact. Therefore, the extent to which they have defined spaces, moments or other measures to reflect and take decisions upon these issues, can sharply affect the design of the working model, as well as the allocation, motives and long-term planning of the funds.

### What to Observe?

- Self-awareness on agency level:
  - How aware are the implementing agents of who is actually taking the decisions about the design, implementation, and evaluation of their initiative? For example, themselves, the State, the beneficiaries, and the donors?
  - How aware are they of how the above condition affects the initiative's capacity to solve its problems, both in terms of global sustainability and of its particular conditions?

- To what extent have they mapped the external factors that help or hinder their performance? For example, external evaluations, restricted funds, national legislations not relevant to their local context, corruption practices, related social movements, etc.
- Have they evaluated the level of dependence that the initiative has on those external actors and factors?
- Have they evaluated the resources they have and the strategies they could implement to reduce such dependency? (without undermining others' needs) For example, funds, technical capacity, collaborations, etc.
- **Self-awareness on trans-generational impact:**
  - To what extent does the initiative design its own model, plan the actions, and distribute funds to solve the causes of its target problematic in the long run?
  - Have the implementing agents considered who has the capacity to ensure the effectiveness of their project and working methodologies in the long term and even to scale them up? For example, the initiative itself? The State? The beneficiaries?
  - What role has the initiative chosen to play to make better use of its resources and have a more sustainable impact? For example, a network orchestrator (who forms and coordinates networks of related initiatives), a local capacity builder (who works on strengthening the capacity of beneficiary agents to gradually take the direction of the initiative), a demonstrative experience creator (who formulates model experiences that can be later scaled by the State or another agent with greater capacity), etc.
- **Spaces, moments, and other mechanisms for reflection and planning:**
  - What physical and temporary spaces has the initiative designed to reflect on its agency capacity and trans-generational impact and to discuss and decide on relevant strategies for their strengthening? For example, weekly meetings for strategic planning, annual self-assessments, areas in charge of bringing about institutional analysis and integration, etc.

## **Mechanisms to Ensure Equitable Ownership**

For many development initiatives, enable that all stakeholders can negotiate their design, implementation and evaluation processes in terms of equity, requires them to reduce their dependence on external resources and expertise, and to create structures and techniques that allow and encourage local participation, organization and negotiation.

These structures give the initiative a wide a view as possible of the problems they face. This enables actors to suggest coping strategies and offer feedback to the initiative, aiding its planning, flexibility, and adaptation. They can also help balance global and local needs and deal with both endogenous and exogenous accountability pressures

**Box 1 Alternative Currencies**

Several initiatives in Mexico have chosen to use alternative currencies to reduce their communities' dependence on the national currency (the peso) and to strengthen their capacity to satisfy local needs.

The Banco del Tiempo de Guadalajara established a system for people to exchange services using time as a transaction currency and save their conventional money for other expenses.

The Mercado Alternativo y Economía Solidaria initiative in Veracruz and the Red Multitruque Tlaloc in Mexico City printed vouchers with an equivalent value to the Mexican peso. They aim to encourage local production and economic exchange by distributing an initial amount at no cost to participants, who commit to spend that money on the businesses of other partners, and to receive the alternative currency in at least 15% of the payments to their own products.

The hostel El Refugio in Puebla accepts and encourages the practice of bartering with customers (in addition to paying with conventional money). This allows them to exchange lodging for advertising, solar panels, wine bottles, and even work.

In all these cases, the use of alternative currencies (vouchers, time, direct barter) has helped to minimize their reliance on external resources that do not flow easily through their communities. It has also helped the communities to encourage and strengthen the production of local services and products, with a view to creating a stronger economy for the future generations. Moreover, all initiatives provide a space where participants can discuss and negotiate issues such as the rules for transactions and the members, products, or services that should be included in the project to ensure that the different needs are met (e.g., assemblies, fairs, face-to-face negotiations).

They can provide transparency to the decision-making process. This can increase the trust of the different actors involved (commonly undermined by fear of corruption or abuse). Chiefly, they can help create the conditions for the beneficiaries of the initiative to become agents of their own development: defining strategies, distributing roles and responsibilities, and providing the necessary resources or work to implement the initiative – thereby helping to reduce its dependence on external financing and increasing its possibilities of survival.

To stimulate local ownership initiatives, use a variety of techniques:

- Decentralize the management of their funds and responsibilities.
- Use participatory techniques in the design and implementation of all stages of their projects.
- Promote the creation and strengthening of local leaders and organizations.

- Design feedback mechanisms that ensure that all voices are well represented.
- Encourage the education and technical training of local actors.

To guarantee equality of conditions in negotiations between different agents, initiatives often:

- Create projects of common interest that motivate cooperation.
- Establish trusts involving both beneficiaries and donors to ensure that the different interests in question are well negotiated and respected.
- Systematize the value of the services and resources provided by their communities/actors and use this local resource to, for example, establish parity funds that take into account the value of these contributions.

### **What to Observe?**

- How equitably are the rights and responsibilities shared between local and external actors during the negotiations on its design, implementation, and evaluation?
- What institutional, ideological, and financial mechanisms has the initiative designed to ensure equitable ownership?
- What types of structures and techniques for local negotiation, organization, and participation have the initiative designed or encouraged? How do they work?
- Are there any obstacles that prevent it from being equitably appropriated?
- How does the initiative handle the situation?

### **Mechanisms to Ensure Relevance for All**

A major challenge for development initiatives is to ensure that their interventions are relevant to the needs, cultural values, interests, and working approaches of the different actors affected by them: the immediate beneficiaries, the organizations that support them, the neighboring, national and international communities, and the present and future generations.

#### **Box 2 Local Capacity Building**

ChildFund International works with marginalized children and their communities in over 30 countries through partnerships with local groups and organizations. Its specific purpose is forging the communities' agency capacity to sustain development initiatives in an agreed period of time.

To that purpose, ChildFund invests in hiring personnel that help find businesses willing to refund those operational expenses and invest in

*(continued)*

**Box 2 Local Capacity Building** (continued)

capacity building programs for the communities. The enterprise does this by matching each donation to the initiative by its employees through the “matching gift program” organized by its human resources department.

With this income, ChildFund’s main office operates as a capacity builder, creating and empowering local branches (all as separated civil associations) by training them to get funds, manage programs, establish cooperatives, increase social participation, etc.

The enterprise and ChildFund make an agreement with the community organized as a local civil association, to produce results in a certain period of time (10, 20 years). If there are no results (measured by periodical evaluations), the funding is stopped.

In short, the partnership contemplates an exit plan for both the enterprise and ChildFund’s main branch, with the intention of promoting a decentralized development program with long-term impact.

This is for two reasons:

1. Ethics that seek to extend opportunities for development, to improve quality of life for every person, making sure that the benefit of one does not compromise that of the others – such as the one that underlies the capability approach.
2. Our interdependence has revealed that the fate of every person, community, or nation affects the opportunities of others, including those of future generations – a pragmatic reason.

To warrant relevance for all, specific measures must be taken:

- Actions to adapt global agendas to local contexts and vice versa
- To neutralize vertical policy schemes
- To customize “best practices” to the particular context where they are being implemented
- To plan initiatives taking into consideration the interests and needs of those groups traditionally discriminated against by their communities, etc.

Some initiatives do this by incorporating local knowledge, resources, and motivations into national curricula (with complementary materials, community engagement projects, bilingual education, etc.). This is known as intercultural education. Others focus on detecting and addressing specific factors that prevent certain groups from benefiting from health, employment, and other programs, by forging local participation structures. Still others do so by encouraging the leadership of traditionally discriminated actors, etc.

### What to Observe?

- Who is being benefited by the development initiative?
- Whose interests or needs may be affected by it?
- How compatible is the initiative with the development priorities at a global level and how much with those of the immediate beneficiary community?
- How do exogenous factors (such as donor terms of reference or national legislations) limit the initiative's capacity to ensure the relevance of its interventions not only globally but also locally?
- To what extent are local principles, knowledge, and values taken into account in the initiative's design and evaluation?
- To what extent do the efforts of the initiative facilitate or hinder the way for future generations?

In other words:

- To what extent is the initiative investigated relevant to the conditions and interests of all the different actors affected by it?
- Is the initiative interested at all in having this plural relevance?
- What institutional, ideological, and financial mechanisms has it devised to this end?
- Does anything prevent the achievement of relevance for all?
- How does the initiative deal with the situation?

### Box 3 Participatory Mapping

Projeto Saude e Alegria works with socially and geographically excluded populations, many of them of the caboclo indigenous-descendants group, in the Brazilian Amazon region of Western Para State.

The initiative organizes programs for community health, forestry, education, culture, and communication.

All are designed and monitored through a technique for local participation, organization, and negotiation called participative mapping: community members meet with implementing members of the initiative to draw up a map of their region, bring together all available information to build a geographic database, and make an in-depth diagnosis of local conditions, challenges, conflicts, problems, and priorities.

The mapping serves as a "document of reality" that provides a basis to program the regional development initiatives of both the Projeto Saude e Alegria and the government, to ensure good land management, permit territorial regularization, and promote the sustainable use of resources. It also serves to identify local elements (e.g., objects, animals, topics of interest to the inhabitants) that can be used to adapt textbooks and other educational materials to the local circumstances, making them more relevant to the community's immediate reality.

## Mechanisms to Ensure Integral Interventions

Integral development solutions are more likely to be sustainable than stand-alone interventions. They also help minimize the dependency of initiatives on external resources.

The life of the people and the communities with which development initiatives work is integral: many factors – political, environmental, economic, cultural, etc. – influence both the generation and significance of their problems, as well as the capacity of each person to capitalize the development interventions aimed at solving them.

Comprehensive solutions recognize and address this diversity of factors, as they are aware that neglecting one can prevent people from taking advantage of the service, opportunity, or facility provided by the initiative.

Addressing the different dimensions that affect the target problematics of development initiatives allows different behavior to emerge and reduces the possibilities for the resurgence of the original problems.

Initiatives can strengthen the transversality of their institutional responsibilities and the interrelationships between their programs. This allows mutual reinforcement, and the benefits obtained in some areas can have a positive impact on others. This includes the distribution and sharing of funds and other human and infrastructural resources (which often are easier to obtain for work on certain development areas than others).

For these reasons, several initiatives foster the integrality of their projects by implementing models that provide a set of integrated services (health, education, etc.) and by ensuring a systemic design for their interventions where all actors and factors are addressed.

Other initiatives establish institutional areas specifically responsible for promoting the connection between their programs. Others ally with other initiatives that work with their same target populations, sharing information and resources. Several foster integral interventions by forging mechanisms for different forms of local participation (local organizations, assemblies, etc.), to identify the different factors affecting the problems with which they work in their particular context.

Others seek to strengthen local economies to meet the different needs of their target communities. There are also those that invest the funds collected for a specific individual or group in programs for the integral development of the community to which these individuals or groups belong.

### What to Observe?

- To what extent has the initiative typified its target population (its context, its various interests, and its particular needs)?
- What mechanisms does the initiative use to map the different factors that affect the problem of interest (economic, nutritional, social, cultural)?



- How comprehensively does it address these factors?
- Are there any obstacles that prevent the initiative from assuring the integrality of its intervention? For example, restrictive terms of reference, funding accountability pressures, etc.
- How does the initiative deal with these obstacles?

#### **Box 4 Association of Initiatives (Partnerships)**

Bosque de los Arboles de Navidad (hereafter BAN) is a social enterprise in Mexico's southern state of Puebla whose main economic activity, the sale of Christmas trees, is complemented by a series of programs that seek to promote ecological awareness and conservation, environmental education, and local socioeconomic development.

Two types of collaboration are promoted to satisfy diverse needs and ensure the integrality of the project and, with it, a greater projection and attractiveness without the need to invest extra resources:

##### *1. Close collaboration with other social enterprises, based on mutual benefits*

One offers walks, retreats, and tailor-made talks for companies' employees in the BAN territories, which brings extra resources and publicity. A nearby hacienda offers hotel lodging and camping services, cultural visits to local history and geography museums, parks for the protection of local species, and extreme sports facilities. The hacienda not only offers several of these services for free to BAN customers but also sends its own customers to visit BAN's initiative. In exchange, BAN gives them free saplings from its nursery and discount coupons for the purchase of Christmas trees and offers them talks about the sustainable management of forests and walks through the nursery and the forest.

Another company organizes school visits that are recognized by the Ministry of Education because they are designed to reinforce the teaching of subjects of the curriculum such as science, environmental education (garbage management, rainwater harvesting, etc.), civics, etc. The visits represent an extra income for BAN, who in addition to the talks also gives free trees of the nursery to each student.

##### *2. Collaborations with the local population based on mutual benefits*

BAN provides the facilities for a Christmas bazaar that gives merchants the opportunity to sell their products. Although the income that BAN receives from them is barely enough to maintain the place and does not represent a monetary gain, it increases the attractiveness of the trees sale for the people coming from other parts of the country. The same thing happens with the Christmas food market. In this case the vendors, mostly local, are not charged rent.

*(continued)*

**Box 4 Association of Initiatives (Partnerships)** (continued)

Moreover, BAN gives permission to local collectors to gather and sell the garbage they generated, which in turn helps it to keep the facilities clean. It also gives permission to local shepherds to bring their lambs to pasture, which benefits BAN because in so doing they cut and fertilize the grass where the trees are planted. In addition to these collaborations, which help increase the project's impact by creating environmental awareness in different sectors of the population (companies, schools, families), BAN promotes and scales its model through environmental awareness talks and technical training courses on the installation and maintenance of nurseries, rainwater harvesting systems, etc. This is being offered free of charge to peasants and to the national and foreign organizations that visit its initiative.

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**Conclusion**

Finding solutions for sustainable development is of utmost urgency for each and every inhabitant of this planet, including TVET recipients and their descendants.

As such, it's important that the TVET learning processes incorporate elements that familiarize students with the alternatives of social change undertaken by development agents around the world through their initiatives. They should also acquaint the students with political and economic factors, considerations, and measures that strengthen or limit their agency capacity (power) to carry out interventions that are integral, relevant for all, and equitably appropriated – i.e., sustainable.

Learning how to inquire about these issues through the interaction with firsthand sources will help TVET students to better understand the importance of the global sustainable development agenda, its conceptual and practical implications, and the concrete means and strategies they can incorporate into any working area in which they choose to participate.

This will strengthen their own agency, which will permit them to take advantage of, question, and modify the labor and other societal arrangements that affect their quality of life or, even, to create new alternatives.

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**Part III**

**Planning and Reforming Skills Systems**

***Robert Palmer***



# Financing Technical and Vocational Skills Development Reform

# 23

Robert Palmer

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**Abstract**

Many low- and middle-income countries face strong pressures to expand their technical and vocational education and training (TVET) systems and enhance their quality. Funds are obviously needed to achieve this, but while there tends to be a lot of focus on how much funds are needed (or, rather, the focus is usually on how little funds TVET currently receives), there tends to be much less of a focus on how TVET funds are allocated within the sector and the role that various allocation approaches can have in incentivizing TVET reform priorities (e.g., access, equity, quality, relevance, employment outcomes). This chapter addresses the following key questions: Where does TVET funding come from? How are TVET funds spent? How are TVET funds currently allocated? What roles can financing play in achieving TVET reform and national policy objectives? How can countries create the right environment for TVET financing?

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**Keywords**

TVET financing · TVET funding · TVET financing mechanism · TVET private resources · TVET public resources · TVET expenditure · TVET resource allocation

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**Introduction**

Many low- and middle-income countries face strong pressures to expand their technical and vocational education and training (TVET) systems and enhance their quality, at the same time as facing spending pressures on basic and higher education. As this demand increases, the need for sustainable financing for TVET becomes more urgent. However, there needs to be greater awareness that countries don't just need sufficient and predictable revenue streams to fund training programs, but perhaps just as importantly they need to have in place appropriate financing mechanisms that are themselves strongly linked to achieving reform policy objectives (e.g., of making TVET systems more accessible, equitable, efficient, demand-driven, responsive, and relevant). In other words, countries don't just need to be concerned with raising enough funding to finance TVET reform, they need to make sure that the financing approaches themselves promote the goals of TVET reform.

This chapter aims to address the following key questions with regard to the financing of technical and vocational skills development reform:

- Where does TVET funding come from?
- How are TVET funds spent?
- How are TVET funds currently allocated?
- What role can financing play in achieving TVET reform and national policy objectives?
- How can countries create the right environment for TVET financing?

## Where Does Funding Come From?

In most low- and middle-income countries (LMICs), TVET funding typically comes from three main sources: government budgets, student fees, and the private sector. In addition, other sources might include employee contributions, private donations, income generating activities, and external assistance (e.g., official development assistance (ODA) and official loans). Funding portfolios of TVET providers across countries and across types of provision varies, but in general for the majority of public TVET providers in LMICs, government funding is the most significant source of funds, while student fees are the most significant source of funds for private providers. Meanwhile, training for employees in private firms is almost entirely paid for by that firm.

### Government Funding: Via Grants and Direct Payments

In most LMICs, government funding is the most significant source of funds for public TVET providers. Salaries of most (sometimes all) staff working in public TVET providers are typically paid directly by government. Recurrent costs are typically borne by either an annual budgetary payment or by ad hoc or recurrent monthly grants.

### TVET Funding from Official Development Assistance and Other Official Flows

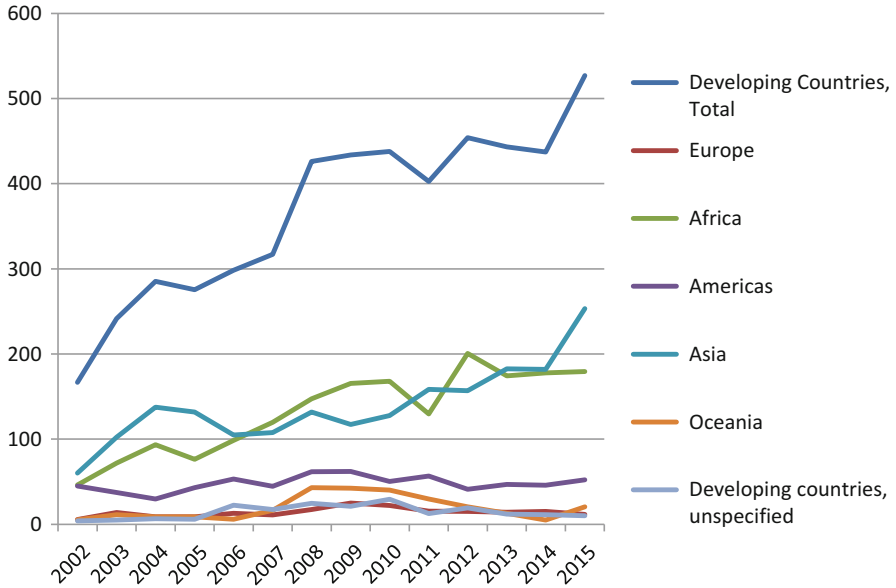
#### Official Development Assistance

Between 2002 and 2015, official development assistance (ODA) to vocational training (“Vocational training” as defined by the DAC’s Creditor Reporting Service (CRS) code 11330 which covers both formal and informal pre-tertiary TVET (OECD 2016). ODA to TVET via the DAC CRS (cf. King and Palmer 2011; Palmer 2015a)) in developing countries increased overall by 215%, from US\$167 million in 2002 to US\$527 million in 2015. Africa and Asia accounted for the bulk of this increase (Fig. 1) and in 2015 ODA to vocational training in Africa and Asia accounted for 34% and 48%, respectively, of all ODA to vocational training to developing countries (<http://www.stats.oecd.org/>).

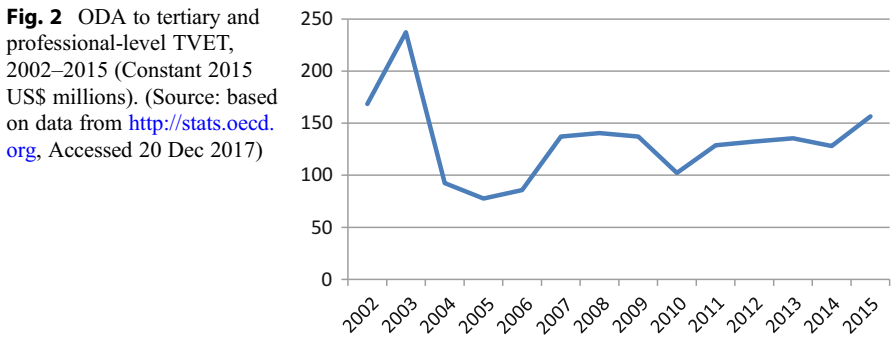
Regarding ODA support to tertiary and professional-level TVET (OECD CRS code 11430 “Advanced technical and managerial training”) over the 2002–2015 period, total disbursements to developing countries were in the US\$100–150 million range (except for a peak in 2003 and trough in 2004–2006) (Fig. 2).

Reliance upon ODA for TVET, most of which is grants in-aid, varies considerably among LMICs; there is a marked difference between the comparatively low level of dependence across most East Asian countries (with the exception, perhaps,





**Fig. 1** ODA to vocational training, 2002–2015 (Constant 2015 US\$ millions). (Source: based on data from <http://stats.oecd.org>, accessed 20 Dec 2017)



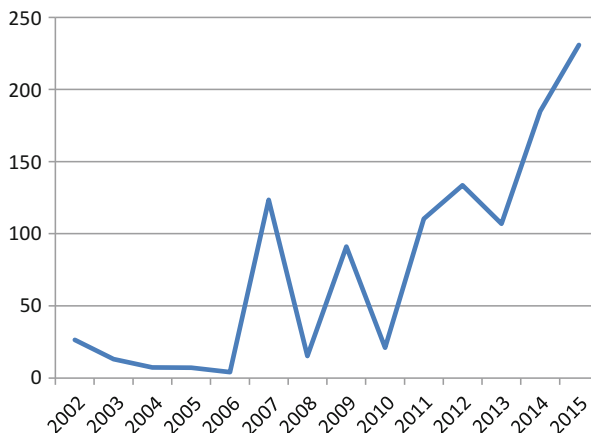
**Fig. 2** ODA to tertiary and professional-level TVET, 2002–2015 (Constant 2015 US\$ millions). (Source: based on data from <http://stats.oecd.org>, Accessed 20 Dec 2017)

of Cambodia, Lao PDR, Myanmar, and Timor-Leste) and South America and the much higher levels in some of the Pacific Island and sub-Saharan African countries.

**Other Official Flows**

Certain types of official sector transactions are not regarded by the OECD-DAC as ODA as they do not meet the ODA criteria and are therefore excluded from ODA tables. These are classified by the OECD as “other official flows” (OOF). OOF are “Transactions by the official sector with countries on the DAC List of ODA Recipients which do not meet the conditions for eligibility as Official Development

**Fig. 3** OOF to vocational training, 2002–2015 (Constant 2015 US\$ millions). (Source: based on data from <http://stats.oecd.org>, Accessed 20 Dec 17)



Assistance, either because they are not primarily aimed at development, or because they have a grant element of less than 25 per cent” (OECD 2018).

OOF to vocational training have increased significantly since 2002 and in 2014–2015 averaged US\$208m per annum (up from an average of US\$20m per annum 2002–2003) (Fig. 3). About half of the OOF to vocational training in the 2014–2015 period went to South America, with 95% of this to Argentina and Colombia (both IBRD loans). About 40% of all OOF to vocational training went to Asia (with most to China, India, and Sri Lanka – a mix of Asian Development Bank and IBRD loans). In Africa, the only significant OFF in 2014–2015 was to Morocco (IBRD loan) (<http://www.stats.oecd.org/>).

OOF to tertiary and professional-level TVET remains relatively insignificant for the majority of countries, despite there being an overall increase from an average of US\$20m per annum in 2002–2003 to US\$42m per annum in 2014–2015; only a handful of countries (in 2014–2015) benefit from OFF to this higher level of TVET, most notably Mexico, Panama, Argentina, and Colombia (<http://www.stats.oecd.org/>).

## TVET Funding from Private Resources

Funding for TVET from private resources can come in the form of students’ fees, enterprise financing, private training provision by institutions, faith-based and NGO donations, and the sale of goods and services. These are examined in brief below.

### Student Fees

Most public and private TVET providers appear to levy fees, but their contribution to overall provider revenue varies considerably between and within countries, and according to type of provider.

## **Enterprises/Industry**

Funding for TVET from formal sector private enterprise and industry can take several forms, including private firm contribution to formal institution-based TVET provision (either in cash or in-kind), private sector funded training funds, and the firm-financed training for own employees (either in-house or outsourced). In addition to formal sector firms' contributions, private enterprises operating in the informal economy are also themselves providers, and self-funders, of training for their employees, though most of such training is (by definition) informal and on-the-job.

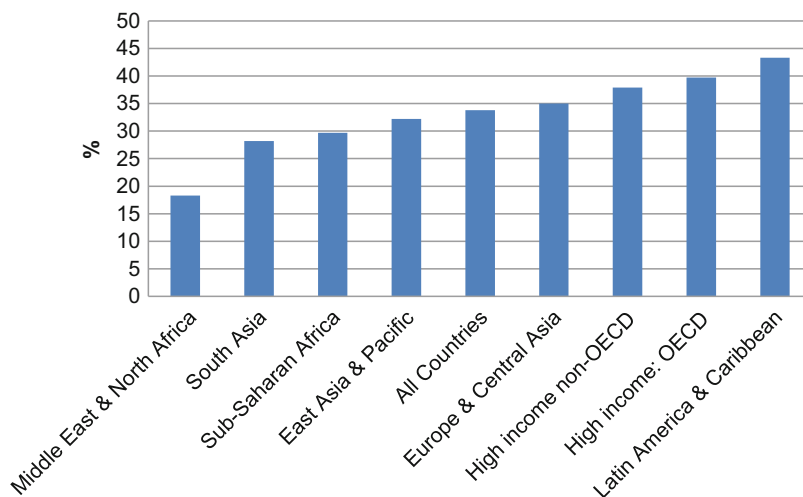
## **Enterprise Contributions to Formal Institution-Based TVET Provision**

Typically, financial cooperation between private enterprise and formal TVET institutes is not significant in many LMICs. However, there is some collaboration between private enterprise and formal TVET institutes but often little indication of the extent or scope of this cooperation. Such cooperation might take the form of student attachments/internships in enterprises (perhaps part of a more formalized "dual training system"), as well as employer participation in curriculum development or participation on institution governance boards.

## **Private Enterprise-Financed Training Funds**

Many large and small LMICs across the world operate private enterprise-financed training funds. Enterprise training funds are intended to provide incentives to increase in-service training of workers within enterprises (Johanson 2009). They are typically financed by an industry training levy, a dedicated tax on enterprises principally used to raise funds for training purposes. They are typically based on a contribution of a certain percent of a company's salary bill, with the levy amount decided either by government (in consultation with industry) or via a more collective agreement. The levy is normally paid by the company itself (not the employee). The broad rationale for them is that: firms receive benefits from training (e.g., higher productivity of a trained worker, increased earnings) for which they should pay at least in part; firms, if left to their own decision-making, may under-train; the incentive for enterprises to invest in training for their employees is lacking when they fear that these employees might be lured away by another firm; and training funds raised from a levy help to provide some predictability in the overall funding of training.

LMIC interest in establishing training funds remains high. In addition, many development partners try to stimulate the setup of such funds in LMICs through an initial injection of external donor financing (e.g., DFID and SDC in Bangladesh). Where such funds are set up as part of development cooperation activities, and where donor funding (grants/loans) makes up the bulk or all of the initial source of funds, long-term sustainability of the fund can be a challenge. Ensuring government ownership and buy-in to the fund during setup is key, as is government's role in identifying sustainable funding sources, and enacting required legislation.



**Fig. 4** Percentage of firms offering formal training, by region/country grouping. (Source: <http://enterprisesurveys.org/>, Accessed 21 Dec 2017)

Where countries do decide to explore the introduction of a training levy, several points could be kept in mind (cf Horne 2014), including the purposes which it is desired to achieve; whether a training levy is apt for such purposes and if so which type of levy; how to build support for a levy among stakeholders, including firms and trainers; the method of collection, its likely feasibility in the local economy, and the cost; the balance between giving a general boost to training with discretion on types of training left to firms and targeting specific training needs; how to build in ongoing review of the scheme and periodic evaluation of results; how to ensure transparency of collection and allocation; and the governance of the levy (who controls the money). For a discussion on private sector training funds in the Pacific, see Palmer (2015b).

### **Firm-Financed Training for Own Employees**

Formal enterprises in LMICs also represent an important component of supply in training markets and directly finance training activities, including through enterprise-based training (in-house professional development, apprenticeships) or paying the fees of external providers.

On average, formal training by firms in high-income countries (38–40%) and in Latin America and the Caribbean (43%) is much more common than the world average rate (of 34%). Meanwhile, formal training by firms in the Middle-East North Africa (MENA) region averages less than 20% (Fig. 4).

The regional averages hide often wide intra-regional variations:

- In the MENA region, only 3% of firms offer training in Jordan, while 29% in Tunisia do.
- In sub-Saharan Africa, only 9% of firms in Sudan offer training, while 55% in Rwanda do.
- In East Asia and Pacific, only 2% of firms offer training in Timor-Leste (the lowest rate in the world), while 79% in Samoa and China do (joint highest rates in the world).
- In Latin America and the Caribbean, only 2% of firms in Suriname offer training (second lowest rate in the world), while 74% in Ecuador do.

### **Training for Informal Sector Enterprises**

International experience shows that the smallest enterprises, especially those operating in the informal economy, are the least likely or least able to be able to provide their own training or to invest in it.

Meanwhile, it is known that informal economies in many – but not all – LMICs are larger than formal economies. For example, as a percentage of nonagricultural employment, informal employment in East and Southeast Asia (excluding China) is 65% – almost identical to that of sub-Saharan Africa (66%) (Vanek et al. 2014).

The sheer scale of the informal economy in many LMICs, combined with what is known about informal training in some regions (e.g., West Africa, South Asia), suggests that in many LMICs in other regions, which have large informal economies, informal on-the-job training and learning is taking place. More research on the financing of training in the informal economies would be very useful.

### **Faith-Based and NGO Donations**

Direct funding from mosques, churches, other faith-based organizations, and NGOs appears to be a relatively insignificant current source of funding for the majority of TVET providers. However, in some LMICs, this understates the essential role that this has played in establishing TVET providers.

### **Sale of Goods and Services**

The sale of goods and services is also a relatively insignificant current source of funding for the majority of TVET providers. There are exceptions to this generalization of course.

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## **How Are TVET Funds Spent?**

### **TVET Expenditure: Recurrent and Capital**

The bulk of recurrent expenditure among most TVET providers in LMICs typically goes on staff salaries and other overhead costs. In many cases, TVET teachers are remunerated from the national payroll, not from TVET institutes directly.

Expenditure on scholarships and stipends as a traditional form of student support is not uncommon and takes many forms across countries (ranging from a subsidy for all to very targeted payments based on clear criteria). Of course this does not apply to all LMICs.

With the majority of expenditure on salaries and running costs, there is often little left for staff development, training materials, buildings, and equipment.

## **TVET Expenditure and Equity**

A fundamental aspect of a successful TVET system is the access it provides to trainees from a wide range of social backgrounds, ages, and geographic areas. The majority of all LMICs are likely to exhibit some degree of inequitable access to TVET, mainly related to gender, geography, and disability – though the severity of this will vary and needs research. Various forms of financial assistance schemes aimed at mitigating disadvantage exist.

## **Expenditure (In)efficiencies: What Unit Costs Tell Us**

Unit costs can illustrate inefficiencies in TVET systems. High unit costs might signal inefficient use of resources or the higher costs to reach certain groups. Differences between cost per student and cost per graduate for some courses indicate inefficiencies related to course completion: the narrower the difference, the more likely that providers are achieving high course completion rates.

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## **How Are TVET Funds Currently Allocated?**

TVET financing mechanisms (Box 1) have the potential to influence the achievement of national TVET reform objectives related to effectiveness (e.g., quality of training and labor market outcomes of trainees), efficiency (e.g., outputs per unit cost), and equity (e.g., the degree to which people from different backgrounds and locations have access to good quality training). This section briefly examines the financing mechanisms that are currently used in various LMICs.

### **Box 1 What Do We Mean by TVET Financing Mechanisms?**

TVET financing mechanisms refer to:

1. The administrative ways funds are allocated, e.g., grants, scholarships, loans, training vouchers, grants from training funds, etc.
2. The criteria applied to these ways – e.g., targeted/untargeted, directly linked (or not) to policy objectives. Financing mechanisms can be strongly linked to achieving policy objectives of making TVET systems more accessible, equitable, efficient, demand-driven, responsive, and relevant.

The diversity, and often fragmented governance, of TVET systems results in a fragmented approach to TVET financing. In many LMICs, the TVET system remains fragmented with multiple government ministries on the one hand and a private training market, firm-based enterprise training and donor-funded ventures on the other. These, and other, multiple sources of TVET funding are allocated to multiple TVET providers via multiple financing mechanisms. Where countries have fragmented TVET systems, with weak TVET governance and coordination arrangements, they inevitably also have fragmented TVET financing arrangements – which lead to inefficiencies.

## **Direct Public Payments to TVET Institutions**

The financing mechanisms used by government to transfer funds to TVET providers can affect institutional behavior and the way funding is used (Johanson and Adams 2004). For example, funding can be based on historical expenditure (e.g., a grant to cover training materials, equipment, logistics, etc.), where no account is taken of performance and grants are simply allocated based on the previous year's expenditures; inputs (e.g., the number of students), with or without incentives to increase student enrollment; outputs (e.g., the percentage of students graduating or achieving a specified minimum standard), where incentives exist to improve such metrics; or outcomes (e.g., the percentage of graduates finding employment or becoming self-employed within 6 months of graduating), again where incentives exist.

In many (perhaps most) LMICs, historical allocation and input-based funding approaches (which are not linked with any incentive) are the dominant modes of direct public operating grant payment to providers, and the ways these function serve to reinforce a supply-driven training model. In other words, “most public funds are transferred and spent without regard for performance. Good performance reaps no reward, and poor performance suffers no penalty” (ADB 2014: 50).

There is little evidence of output-based financing mechanisms being used in many LMICs – e.g., little attention is paid in financial planning or budgeting discussions to course completion rates, unit costs, graduate outcomes, or employer satisfaction – though there are of course exceptions (many of which seem to currently be attached to donor-funded TVET interventions rather than “home-grown”).

## **Financing Policies and Incentives at Provider Level**

Financial system barriers inhibit flexibility, expansion, and sustainability at provider level. Many LMICs appear not to have devolved much financial authority to managers of public training institutions; decisions on spending are centralized, and most providers are unable to retain revenue from tuition or fee for service at the institution.

Where fees contributed by students are not retained by public TVET providers, there are limited incentives at provider level to increase student numbers. Similarly, where providers are not allowed to retain all (or the majority of) profits from the sale of goods and services, there is limited incentive to generate funding from such sources.

By contrast, private TVET providers that retain fee income have a direct incentive not only to increase student numbers but also to ensure that the training delivered is seen as relevant. Similarly, public and private providers that retain income from the sale of goods and services have a direct incentive to generate more such funds.

### **Financing Mechanisms Related to Individuals: Loans, Scholarships, and Stipends**

The existence of student loans to help individuals to finance TVET study appears limited, but there is insufficient information on this to be able to say for certain.

Scholarships and stipends to study TVET exist in many LMICs. While they have some equity benefits, some lack alignment with labor market needs and can come with high actual and opportunity costs.

### **Financing Mechanisms Related to Private Enterprise**

#### **Allocation Mechanisms of Private Enterprise-Financed Training Funds**

It was noted above that many LMICs operate private enterprise-financed training funds, with most of these funds resourced via a levy. These training funds typically have three ways by which accrued funds are allocated (Johanson 2009):

- Cost reimbursement schemes – approved training costs are reimbursed up to limit of levy paid.
- Levy-grant schemes – grants for enterprises to fund training, based on specific criteria (not only levy contributors).
- Exemption-based schemes (also known as train-or-pay) – liable enterprises are exempt from paying the training levy up to the amount they spend of training directly.

Training funds, of course, can be hybrid, using more than one such allocation scheme.

#### **Development Partner Financing Mechanisms and Modalities**

The majority of all development partner financing for TVET across LMICs is in the form of grants (transfers in cash or in-kind for which the recipient incurs no legal debt). Project-type interventions are by far the most common financing modality used.



## Public-Private TVET Financing Mechanisms

Public-private partnerships (PPPs) in TVET (Box 2) serve two main functions, only one of which is directly related to financing. Typically, they serve to:

- Promote cost-sharing: Private sector resources – in the form of direct funding, in-kind support, or direct provision – complement public support for national TVET systems and are a key component of sustainable financing for TVET.
- Increase collaboration with the private sector (e.g., in directing/governance, evaluating) can help achieve TVET policy objectives (e.g., making the TVET system more demand-driven, responsive, and relevant).

### Box 2 What Are PPPs in TVET?

PPPs in TVET refer to collaboration between the public and the private sectors with the objective of developing the technical and vocational skills of individuals. These skills can apply both within and outside of the formal labor force.

#### Types of PPPs in TVET

##### Public support to private training provision

- Public funds, including scholarships, vouchers, grants, and subsidies, are made available to private providers (on a competitive basis) to supply TVET.
- Governments provide public facilities to private providers to supply TVET.

##### Private support to public training provision

- Direct private financial contributions to public TVET system or institutions, including (but not only) as part of corporate social responsibility (CSR) – e.g., scholarships and grants.
- In-kind support from enterprises: Provision of trainee internships and public TVET staff training placements; provision (or donation) of used equipment or training materials.
- Enterprise participation in governance, planning, curriculum, and assessment (at provider/national level).

##### Joint public-private funding and delivery of training

- Co-funding from public and private sectors, and delivery of training by both public and private providers (or public-private providers), often brokered by an intermediary organization

## What Role Can TVET Financing Play in Achieving TVET and National Policy Objectives?

As noted above, TVET financing plays an important role in leveraging TVET reform in desired directions. All LMICs have country-specific objectives and priorities and should consider a mix of financing mechanisms that can help achieve these

objectives, while giving consideration to the country's enabling environment for TVET financing – and the extent to which it will facilitate or hinder the functioning of specific financing mechanisms (see later, this chapter). LMICs should also recognize that as their TVET reform objectives change over time, so their financing mechanisms need to change. Korea provides a great illustration from the East Asia region of how a country's TVET financing mechanisms have changed as national TVET objectives changed (see Lee 2016).

## **Policy Objective: To Use Resources More Efficiently**

**Try to avoid displacing private funding with public funding** – a key concern in any state-supported or co-financed training scheme is to try to avoid paying for something that private individuals or companies would have paid for anyway in the absence of state support (this section draws heavily on Palmer (2015b)).

**Rationalize funding** – efficiencies could be created where funding was rationalized, including via incentives to providers to merge and reduce overheads, or by creating an overarching body to oversee TVET financing. Making better use of existing resources by identifying and addressing current inefficiencies (ADB 2009), including through unit cost and cost-benefit analysis, is as important as trying to increase the overall resource envelope.

**Encourage an integrated training market** – an approach worth considering is for a government to shift from using public finance only to fund public TVET to being a purchaser on behalf of trainees and communities and to view the training providers in the market, public and private, in an integrated way, such that public funds could support both public and private providers. Various financing mechanisms can be used to encourage an integrated training market, including, for example, the use of grants, vouchers, or scholarships that are available on an equal basis to both public and private providers.

**At the national level, the establishment of a national training fund, or a national skills development fund, can also encourage the development of an integrated market** (Johanson 2009). National training funds are typically financed by enterprise levies but may also be based on public subsidies or donor financing. If used strategically, national training funds can help to orientate entire TVET systems in the direction of agreed national priorities. Johanson (2009) identifies three types of training fund:

- Preemployment training funds – to create a supply of well-trained individuals in the labor market
- Enterprise training funds – to increase the incidence of training within firms
- Equity training funds – to train specified target beneficiaries (e.g., unemployed, women, youth, those in the informal sector)

The disbursement mechanisms for national training funds depend on the type of fund. For example, preemployment and equity training funds might typically have disbursement windows that are able to fund various quality-assured providers,

including public and private training institutions, and specified target beneficiaries. The most effective training funds are those that are largely autonomous bodies with strong employer and worker representation and are soundly managed with clear and transparent allocation mechanisms (Johanson 2009). Sectoral, or industry-specific, training funds are an alternative to national (centralized) funding models (Johanson 2009) and may be more suited to contexts where a particular sector is dominant (e.g., tourism, extractive industries) and employers want a more sector-specific arrangement.

**Aligning financial incentives with desired effects through results-based financing.** Results-based financing (RBF) is an approach that can help motivate stakeholders involved in training and post-training support toward achieving specific TVET-related reform objectives. RBF rewards the delivery or achievement of specified targets through financial incentives upon verification that the predefined results have been delivered (World Bank 2015). RBF is also known as performance-based financing when it targets the supply side (inputs and outputs) and sets incentives for providers to deliver good performance. For example:

- Inputs – e.g., per student financial rewards to give incentives to increase the number of students
- Outputs – e.g., incentives linked to the total number or percentage of trainees completing training or to the percentage of trainees completing training from marginalized groups

Another form of RBF is where the financial incentive is solely linked to the outcomes, or results, e.g., incentives linked to the percentage of trainees in employment 3 or 6 months after completing a course or the percentage of trainees who pass a recognized skills test after completing course.

Some LMICs are starting to use financing approaches as a means to promote increased performance and results, though the practice is not common and often introduced or led by development partners at country level.

As noted earlier, most financing for TVET delivery in formal vocational training providers remains supply-driven (unlinked to any performance criteria); funding is provided based on numbers of enrolled students or based on historical expenditure. Such funding approaches do nothing to incentivize improvements performance or results, such as in the quality or relevance of training provision, providers' ability to reach harder-to-reach groups (e.g., women, rural communities, ethnic minorities, people with disabilities etc.), or to deliver specific outcomes.

However, there are a number of limitations and considerations to address when thinking of using RBF approaches (especially output- and outcome-based approaches) to help achieve TVET reform goals; for example, they require reliable information systems, as well as greater provider capacity and autonomy. Such conditions may not be present in some LMICs (Box 3).

### **Box 3 RBF in TVET: Limitations and Considerations to Address When Thinking of Using This Approach in TVET Projects**

#### **Design considerations**

- **Defining “results”** – results should be concrete, measurable, and achievable within a realistic time horizon.
- Linking financial rewards to indicators creates **risks of gaming and/or cheating**.
- **Monitoring and verification may add significant costs**.
- **Government engagement and ownership** – needed to support program sustainability and scalability.
- **TVET provider autonomy** – the level of centralization of the TVET system can be an important factor in the success of an RBF program. Providers need the ability to innovate in order to seek ways of achieving agreed results more efficiently and effectively. Providers also need to be able retain any incentives linked to achieving agreed results. Thus using this modality with public providers in a highly centralized system may be more challenging, and private providers may sometimes be more suited.

#### **Operational factors and constraints**

- **Pre-financing** – most outcome-linked RBF projects require implementers to pay for the program themselves, before they are reimbursed and only when the agreed outcomes are achieved. Pre-financing may prove challenging for some providers, and such an approach may be met with resistance.
- **Capacity building** of service providers and of government ministry staff is key to RBF approaches; such capacity building may cover how to achieve expected results, financial management, procurement, results-focused program design and management, and monitoring/evaluation/verification.

#### **Contextual considerations**

- Some RBF mechanisms rely more heavily on private sector delivery; therefore countries that have more favorable policies regarding public-private partnerships may more readily be able to use such financing approaches.
- Most RBF approaches require reliable information, monitoring and evaluation, and quality assurance systems, which may need to be strengthened as part of any use of RBF approaches.

Source: based on World Bank (2015)

## Policy Objective: To Raise Relevance

**Restructure public provision** – So that public providers have more autonomy, more incentive to respond to local demand, more incentive to perform. For example, input-based financing approaches with the provider allowed to retain tuition fees or incentives to generate and retain income through the sale of goods and services at the provider level.

**Expansion of private provision of TVET** – Governments could encourage such an expansion, for example, by:

- Making TVET scholarships available across the spectrum of quality-assured public and private providers on equal terms
- Offering tax incentives to promote the growth of private TVET
- Setting up a competitive fund with grant windows open to both public and private providers
- Providing indirect public financing for private TVET

**Align TVET scholarships to labor market needs** – Increase the number of TVET scholarships that are linked to labor market needs.

## Policy Objective: To Raise Quality

**Create more reliable funding streams for expenditures related to the quality of TVET** – more predictable flows for expenditures such as the development of occupational standards, training packages, curriculum, and teacher training are needed.

**Use competitive funds to stimulate innovation and quality improvement** (ADB 2014: 44) – both public and private TVET institutions should be able to compete for funds.

## Policy Objective: To Increase Access

**Increased public funding of TVET is an obvious way to increase access** (ADB 2014: 45), either through the supply of more places or targeted fee subsidies. This may not be possible in some LMICs.

**Private provision is a powerful way to increase access among those able to afford it.** “Private provision reduces pressure on public funding to pay for expansion of enrolments” (ADB 2014: 45).

**Input-based financing mechanisms** with the provider allowed to retain tuition fees – as noted above, these can provide powerful incentives to increase enrollment.

## Policy Objective: To Promote Equity

**Improving access to and completion of a quality primary and secondary school education will help make access to postsecondary TVET programs more equitable.** International experience shows that the most disadvantaged young people do

not make it into formal TVET programs as they drop out of formal schooling before entry. For many, affirmative actions in TVET (e.g., scholarships) may come too late to assist disadvantaged students (ADB 2014: 46). Policy makers interested in promoting equity in TVET should therefore also examine financial support policies for disadvantaged students at lower levels in the education system.

**Allocate funds directly to students rather than institutions.** Financial transfer mechanisms that allocate resources to institutions are less effective in closing equity gaps because the institutions rather than the individuals receive the funds. In contrast, programs that support students and their families directly are more likely to be effective in increasing participation (ADB 2014: 46). Giving vouchers to disadvantaged individuals to use in a training institution of choice is one way to do this. In contexts where vouchers are not feasible, incentivizing TVET providers to enroll/graduate disadvantaged students would be the next best option.

**Enhance targeting of disadvantaged students to help them to “catch up.”** This might be through:

- **Better targeted scholarships/fee waivers** – targeted financial support has a key role to play in mitigating disadvantage, and policy makers might consider reviewing their approaches to scholarships, including introducing more targeted approaches based on verifiable criteria, where these do not exist. Ensuring that financial assistance measures have transparent selection mechanisms is also needed (World Bank 2016).
- **Student loans for TVET** – student loans with repayment from postgraduation earnings or mortgage-type loans could be explored on a pilot basis in many LMICs (especially those with large informal economies). However, the administrative and for income-contingent loans, the tax collection capability in LMICs may limit the use of this mechanism.
- **Work and study options** – increasing opportunities for concurrent work and study would help some disadvantaged individuals to access TVET, as they would be able to pay their way through the course. However, this approach is regarded by some as a “rather discriminatory dual-track option” (ADB 2009:12).

## **Policy Objective: To Mobilize Non-state Resources**

**Stimulate private investment in TVET** (the framework for this subsection draws on Palmer (2015b)) – through incentivizing private enterprises to train own workers and contribute to overall reform efforts, encouraging PPPs, and the expansion of private provision.

### **Incentivizing Private Enterprises to Train Their Own Workers**

- **Enterprise-financed training funds** – Many LMICs already have skills development funds that are resourced via private enterprise financing (mostly via training levies), but the experience in at least some of these countries (e.g., Fiji, Jordan, Malawi, Mongolia, Papua New Guinea, Malawi, to name a few) shows that fund functionality is often sub-optimal. Indeed, introducing such training

levies may not be feasible in some LMICs, especially those with large informal economies, e.g., where countries do not have a sufficiently large formal sector to justify the costs or where tax collection capabilities (e.g., to collect payroll levies) are weak (especially for informal firms). Furthermore, convincing employers that a training levy is not just “another form of taxation, to be spent by inefficient government bureaucracy” (ADB 2014), requires clear and transparent processes regarding the objective of the levy, how the levy is collected, and how the funds are disbursed. The best levy systems are those controlled by employers (*ibid*). Simplifying both the (levy) collection and (grant) disbursement methods will mean that employers are not discouraged, e.g., by lengthy procedures and bureaucracy.

- **Tax incentives and education** – Tax regulations and liabilities can affect companies’ decision to train workers (OECD 2014); tax incentives (typically tax credits or tax allowances) can be used as a means to encourage company investment in staff training. However, international experience suggests that tax incentives are unlikely to work well in countries where formal industry is not well-developed (and where small enterprises make up a bulk of all private enterprises) and where administrative or organizational capacity is weak (including tax collection capability) (Dunbar 2013; OECD 2014). This may imply that such approaches are not well suited to some LMICs.
- **Education and training leave in companies.** Mechanisms that regulate periods of temporary leave (paid or unpaid) from the workplace for the purpose of education and training can encourage employee skill upgrading. Where a company gives paid leave to an employee to undertake training, they are making a direct financial contribution. Even where unpaid leave is granted, the company incurs indirect costs (as a result of the employee not being present and the possibility of having to pay for a temporary replacement). As with tax incentives, above, such a mechanism is less suited to small (informal) enterprises that cannot afford staff to take off such time. Nonetheless, for formal medium and large enterprises in LMICs, introducing such regulations – where they don’t already exist – may be a useful step to take.
- **Training vouchers for companies.** Grants allocated to companies in the form of vouchers, which part finance training, can be another mechanism to stimulate private sector investment in training. Training vouchers can be purchased by enterprises at a discounted price to introduce an element of “cost-sharing”; for example, a training voucher worth US\$250 might be sold to companies for US\$125. However, in the absence of targeting, such vouchers may simply be purchased by companies that would have paid full cost-recovery for training anyway.
- **Payback clauses to encourage enterprise-financed employee training.** Payback clauses are essentially agreements between an employee and an employer regarding training that has been financed at the employer’s expense; the employee is obligated to stay with that company for a set period of time (e.g., 1–2 years) after completion of training or else repay all or part of the cost of training. Again, a mechanism more suited to formal and larger companies.

## Incentivizing Private Enterprises to Contribute to Overall TVET Reform Efforts

- **Stimulating in-kind private sector resources.** Marshaling in-kind private sector resources for TVET may be another option for governments to explore. For example, the involvement of the private sector:
  - On TVET institutional boards
  - In (establishing) sector skills councils and TVET coordination bodies
  - In helping to define curricula and determine skill needs
  - With regard to offering internships, apprenticeships, or other work placements for both students and staff of TVET institutes
- **Private sector corporate social responsibility toward TVET.** Tapping into company corporate social responsibility agreements might be one way to access corporate grants for TVET from large formal companies. For those LMICs with extensive natural resources, or where tourism revenue is relatively significant, there may be scope for such agreements including the requirement of private firms to support TVET providers within their sphere of operations (in cash or in-kind).
- **Private investment in TVET capital projects.** Private funding of capital projects for public TVET may be feasible in certain cases, if, for example, the new buildings have a specific income stream associated with them. Dormitory construction is a case in point, if students are to be charged economic rents (Horne 2014).

## Encouraging PPPs and the Expansion of Private Provision

As noted above, PPPs can promote cost-sharing and can also increase private sector collaboration. However, there are some considerations for LMICs to take into account when deciding whether or how to adopt PPPs in TVET (Box 4).

### Box 4 Considerations Whether to Adopt PPPs in TVET

Governments need to create conducive policy, regulatory, and administrative climate in which private financing can flourish alongside public financing. For example:

- The **regulatory environment** needs to facilitate, not hinder, the establishment and operation of private training providers.
- National **TVET information systems** and **labor market information systems** need strengthening so that policy makers can help direct private investment away from areas that already experience public overinvestment and toward areas that experience private or public underinvestment.
- **Quality assurance and accreditation systems** need to be able to regulate and assess agreed minimum standards of public and private providers.

(continued)



#### Box 4 Considerations Whether to Adopt PPPs in TVET (continued)

- **The “private” in PPPs can often mean larger, formal firms;** governments need to encourage intermediaries or associations to bring smaller enterprises into PPPs.
- **Government staff capacity and skills** need to be sufficient to be able to contract private TVET providers.
- **Private TVET providers’ capacity** needs to be improved, e.g., by facilitating access to capital, so that they can deliver quality TVET.
- **Publicly funded incentives**, such as subsidies or tax concessions, are one mechanism to promote the private education and training sector.

Sources: Maclean et al. (2012) and Palmer (2015b)

#### Other approaches to mobilize non-state resources for TVET

- **Retention of internally generated funds at the level of the TVET institution** – the sale goods and services, where revenue is retained is another viable option (see Palmer 2015b).
- **Supply-side financing through tuition fees** – In many LMICs, it is noted that there is only limited scope to increase TVET funding through enrollment fees and that doing so (in the absence of increased targeted financial support) would have negative equity implications for disadvantaged groups. However, in some countries this may be an option, provided that targeted needs-based scholarships or stipends are provided for those that can’t pay. Where cost-sharing is expanded, it has been noted that trainee interest in the quality, relevance, and cost-effectiveness of training increases (ADB 2004).

### How Can Countries Create the Right Environment for TVET Financing?

TVET financing approaches don’t function in isolation of other TVET reform efforts, and governments need to create a conducive policy, regulatory, and administrative climate in which various financing mechanisms can function and where private financing can flourish alongside public financing. This includes (but is not limited to), for example (from Palmer (2015b)):

- **Establishing and strengthening national TVET coordination mechanisms**, where they don’t exist, that can coordinate demand and supply and financing mechanisms to achieve specified policy objectives.
- **Ensuring the private sector has control of allocating funds raised from private sector contributions.** To crowd-in private sector financing, the private

sector needs to be directly involved in creating a better system, e.g., in determining the allocation of funds raised (from private sector contributions), involvement in governance, in developing curriculum, in informing training provision.

- **Decentralizing governance of providers** – where full decentralization is not possible, partial devolution, including, for example, the ability to retain self-generated revenue, might be considered.
- **Strengthening TVET quality assurance and accreditation** – needed to facilitate the functioning of some financing mechanisms (e.g., vouchers or allowing private provider to compete for public funds).
- **Improving TVET information systems** – essential for most financing mechanisms and needed in order to align funding to identified need. For example, careful targeting of financing mechanisms at specific beneficiary groups can help to reduce the percentage of individuals or companies who would have taken the training anyway and paid for it themselves. For careful targeting to take place, it is essential to know which groups (categories of people or enterprises) are currently under-investing in training. Targeting does not only have to relate to which groups or categories of people or enterprises should be the priority, but it can also refer to which types of skills should be the priority. To know this, it is necessary to have adequate labor market information systems.
- **Improved tax collection systems** – tax collection capability is particularly important for payroll levies, income-contingent loans, and tax incentives to companies and individuals.

Lastly, countries wishing to adopt various TVET financing mechanisms need to give due consideration to their country's historical, social, and political contexts and assess how these may act as enablers or barriers to the use of certain financing mechanisms.

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## Conclusion

Agenda 2030 has signaled the increased prominence given to TVET internationally. TVET has been a rising national priority in many LMICs for over a decade. While much of the focus of discussion on the financing of TVET tends to focus on how the resource envelope for the sector needs to be widened (and what effect such a widening might have on the funding the available for primary and secondary general education), significantly less focus has been paid to how TVET funds are allocated within the sector and the role that various allocation approaches can have in incentivizing TVET reform priorities (e.g., access, equity, quality, relevance, employment outcomes). This aspect of TVET financing needs much greater consideration at both national and international levels as countries strive to achieve the Agenda 2030 goals related to TVET.

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# TVET Reform and Qualifications Frameworks: What Is Known About What They Can and Can't Do?

# 24

Stephanie Allais

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## Abstract

Raising skills levels, reforming education and training systems, and improving qualifications systems are among the policy priorities of most countries around the world. A particular concern for many countries is improving the relationships between education and training systems on the one hand and labor markets on the other. Increasingly, qualifications frameworks have been seen as a useful policy tool to achieve these and other goals. Since the mid-1990s, when the first national qualifications frameworks were established in Australia, England, New Zealand, Scotland, and South Africa, interest in implementing qualifications frameworks in other countries has been growing rapidly. In most cases, they have been strongly focused on the reform of technical and vocational education and training. This chapter reflects on 15 years of research into this policy, including two large international studies. It finds that despite limited evidence of success, there is still fairly strong continued support for the frameworks. In some instances, outcomes-based qualifications frameworks have been found to distort education

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and training programs and lead to practical complexities. This is partly because governments have sometimes assumed that a qualifications framework can be a generator of learning and skills, instead of a mechanism for framing *existing* provision. The chapter argues that the continued popularity of qualifications frameworks as a reform mechanism seems to be symptomatic of the ways in which transitions from education to work are in flux in many countries, coupled with fragmented and complex systems of vocational provision in some countries. Even where such systems are not overly complex, they have possibly weakening relationships with work.

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**Keywords**

NQF · NVQ · National qualifications frameworks · National vocational qualifications · Education and work · Technical and vocational education and training reform

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## Introduction

Qualifications frameworks have become a feature of education and training policy landscapes around the world in the last 15 years. They have been introduced with the hope that they can contribute in national efforts to raise skills levels, as well as to improve the interface between education systems and workplaces. It is also hoped that they can assist employers and education institutions to recognize the skills and knowledge that workers have gained at work, which could improve workers' chances to obtain promotion and to access further education and training. Policy makers sometimes introduce qualifications frameworks in the hope that they will be a tool to reform the way education and training are delivered, improve the ways in which people can access education, and improve how people can move from one part of an education and training system to another. In many countries, qualifications frameworks have been introduced specifically to reform technical and vocational education and training (TVET) and to raise its status. Policy makers have hoped that they will give more power to employers and give governments a tool to manage the quality of provision.

What is striking about this policy phenomenon is that despite substantial differences in economic contexts and education and training systems across the world, similar reasons are given by policy makers for the introduction of qualifications frameworks. In addition to the goals listed above, they are seen as vehicles to improve relationships between different sectors of education and training, as well as between different countries, and to support learners to move between sectors and to enter or reenter education and training.

The rapid growth of this policy mechanism has taken place despite a lack of evidence that qualifications frameworks have actually achieved the policy goals described above.

This chapter reflects on 15 years of research into this policy, including two international comparative studies. It starts by presenting the history of the emergence

of qualifications frameworks. This is followed by a brief overview of research findings about the achievements of this policy mechanism. The research findings appear contradictory: policy makers seem to continue to support qualifications frameworks, but there is little evidence of success. What partly explains this contradiction is that qualifications frameworks represent a range of different kinds of reform intervention. Another possible reason for continued support for qualifications frameworks is that they are symptomatic of flux in education/work relationships, although they can't improve them in the ways hoped for by policy makers.

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## The Rapid Growth of Qualifications Frameworks

Qualifications frameworks are a global phenomenon. Currently, about 142 countries are involved in developing frameworks (ETF, Cedefop, and UNESCO Institute for Lifelong Learning 2013). A UNESCO report (Keevy and Chakroun 2015) argues for the need for world reference levels for qualifications. This is despite the fact that as recently as 2004, only five national qualifications frameworks existed, together with a larger number of competence-based vocational education and training frameworks sometimes limited to one or more industry or occupational sector. How did this policy mechanism grow so fast?

In discussions about qualifications frameworks, the term qualification is generally used to refer to any formal credential that recognizes learning of prescribed knowledge and skills. This in itself is a recent phenomenon. Previously, the term qualification was mainly limited to the certification of knowledge and skills acquired for specific professions and skilled trades. Examinations taken at school and university were in the main referred to as certificates, degrees, and diplomas. Qualifications within professions and skilled trades have linked education and training systems to workplaces at least since the nineteenth century in many countries, but, until the middle of the twentieth century, they mainly covered relatively small sections of working populations. These qualifications arose from the specific needs of employers, as well as from control exerted by professions and trades on entry to particular occupations. Because they emanated from different types of work, they were developed with little, if any, connection between them. Most were closely linked either to apprenticeships controlled by guilds or to the specific colleges and other educational institutions providing the programs that led to the qualifications. This is partly why TVET provision tends to be the most complex of all educational provision – and consequently, the main area qualifications frameworks have been introduced to reform.

In the 1970s and 1980s, governments worldwide increasingly were influenced by the idea that education and training could be an important instrument of economic reform. The policy focus in developed countries shifted from full employment through combinations of welfare policies, state spending on infrastructure, and state-driven industrialization (Chang 2002; Crouch 2011) to controlling inflation, regardless of the effects on employment (Harvey 2005). Collective welfare provision started to be reduced in many of the countries where it previously existed, under the

influence of neoliberal economic policy (Crouch 2011). Countries which had never had extensive welfare provision did not build it in this period. Education started playing a prominent role in social policy, as policy makers shifted the onus from governments attempting to create and stimulate jobs to individuals making themselves “employable” (Tomlinson 2009). In this context, it was increasingly believed that economic competitiveness and development were dependent on the skills of the labor force, although with little clear evidence about the nature of skills required and how they would be utilized to lead to economic development. Conversely, weak economic development came to be blamed on the lack of appropriate skills in the labor force in many countries around the world (Brown and Lauder 2001). The notion of an “education/labour market mismatch” became a dominant trope of education policy reform (Brewer 2013). Thus, over the past 30 years or so, considerable focus has been placed on the reform of education and training systems in general, on technical and vocational education in specific, and on the ways in which education and training interact with labor markets (McGrath 2012; Allais 2014).

It was in this context that the idea of *qualification frameworks* covering all qualifications began to emerge. One of the earliest was the English National Vocational Qualifications (NVQ) framework launched in 1987.

The English National Vocational Qualifications were a model for many countries around the world, first in the competence-based training system in Australia and then directly and indirectly (via the Australian system) in other countries. The first fully comprehensive qualifications framework was launched in New Zealand in 1992, and a similar one was launched in South Africa in 1995. These early frameworks drew their intellectual inspiration from competence-based teacher training models that had been established in the United States (Allais 2014). A major idea underpinning these frameworks was that learning outcomes and competences could be specified by employers to create more *demand-driven* education and training, which policy makers hoped would end what they believed were education and training systems inappropriately dominated by education providers. In South Africa, learning outcomes were also seen as a way of transforming the apartheid education system into a more democratic, accessible, and socially just system (Allais 2011b).

The framework in France could also be argued to be an early model of a national qualifications framework. What is currently recognized as a qualifications framework, the National Register for Professional Certifications (*Repertoire National des Certifications Professionnelles*, or RNCP), is to a large extent the same qualification system that has been in place in France for further education and training since the early 1970s. This framework derives from a regulated occupational labor market and strong collective bargaining which has historically enabled the French system to relate qualification levels explicitly to levels in the workforce and has acceptance in further education and training (Di Paula 2015; Allais 2017a). Similarly, the grids which describe qualifications in all countries (as discussed further below) could be seen as early qualifications frameworks. However, as a policy reform mechanism, the term usually invokes a policy mechanism more similar to the models emerging in the English-speaking countries described above.

In the late 1990s and early 2000s, vocational frameworks were developed in Caribbean Island states, modeled on the competence-based training model that underpinned the original British National Vocational Qualifications (Allais 2017a). In the same time period, through the “Bologna Process,” the idea of levels and learning outcomes was introduced as part of a process of aligning higher education systems within Europe (Ravinet 2008; Bologna Process Coordination Group for Qualifications Frameworks 2009). In 2008 the European Union adopted the European Qualifications Framework, which led to most countries in Europe as well as many countries surrounding Europe, countries which trade with Europe, and countries receiving European aid for TVET, introducing qualifications frameworks. This shifted qualifications frameworks out of the English-speaking countries in which they originated.

In many countries, qualifications frameworks or competence-based frameworks have often been limited to TVET systems. Europe shows a different trend, arguably because the idea of learning outcomes and aligning qualifications emerged through the Bologna Convention which was focused on higher education systems. Most European countries are developing frameworks that encompass the entire education and training system, or in some instances the entire system except for the school system. But even where frameworks are comprehensive, TVET is still a factor that needs to be considered separately by researchers. One reason for this is that school and university provisions tend to be relatively more straightforward in terms of qualifications available. The educational provision that exists outside of these systems – at colleges, in workplaces, in nongovernmental organizations, and so on – is generally far more complex and sometimes fragmented. So, in nearly all countries, there is concern with TVET qualifications: a desire to reform them, to improve their quality and raise their status, and to reduce complexity and fragmentation. Further, frameworks often operate differently with regard to TVET than how they operate for school and university qualifications. There is a greater emphasis on developing competence statements for lower-level vocational qualifications than for the qualifications for other components of education systems. TVET is also a specific consideration when examining qualifications frameworks because a major focus of frameworks in many countries is trying to build relationships between TVET qualifications and other qualifications – and in some instances, it is precisely the competence-based qualifications which are developed for TVET that make movement from TVET to higher education difficult (Wheelahan 2009). For all these reasons, examining qualifications frameworks means examining TVET systems in specific.

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## **What Is Known About the Achievements of Qualifications Frameworks?**

There is little published scholarly research on the impact of qualifications frameworks. In 2005 Michael Young (2005) provided an overview of qualifications frameworks internationally, which concluded that all countries implementing



frameworks have faced difficulties. More recently David Raffe's (2012) overview of the research literature argues that while the evidence is still inconclusive, the impacts of qualifications frameworks have been less than expected, have often taken many years to appear, and have been negative as well as positive. The remainder of the limited body of published research tends to corroborate these general positions, either discussing problems experienced or expressing concerns and reservations (Bouder 2003; Ensor 2003; Granville 2003; Keating 2003; Phillips 2003; Raffe 2003, 2011, 2012; Young 2003, 2005; Bohlinger 2007, 2012; Brown 2011; Lester 2011; Lassnigg 2012; Méhaut and Winch 2012; Allais 2014; Hupfer and Spöttl 2014; Gössling 2015; Pilcher et al. 2015).

Two comparative studies of the impact of qualifications frameworks were commissioned by the International Labour Organization. The first compared qualifications frameworks in 16 countries (Australia, Bangladesh, Botswana, Chile, Lithuania, Malaysia, Mauritius, Mexico, New Zealand, Russia, Scotland, South Africa, Sri Lanka, Tunisia, Turkey, and the United Kingdom excluding Scotland) (Allais 2010). The second attempted to examine more specifically the labor market impact of frameworks in six countries (Belize, France, Ireland, Jamaica, Sri Lanka, and Tunisia, as well as the regional framework in the Caribbean) (Allais 2017a). Both studies suggest that there is limited evidence of success but fairly strong support for the frameworks. The 16-country study concluded that qualifications frameworks have not provided a quick fix or simple solutions to the complex problems facing countries in relation to education, skills development, and employment. Some minor positive impacts were found, particularly in Scotland (Raffe 2011) and to a lesser extent Malaysia (Keating 2011). The follow-up six-country study had similar findings. It argued that many of the frameworks were hardly functional; there were mixed views from employers; and there was little evidence of increased mobility across education systems.

The one area in which frameworks seem to have achieved the most success is in getting different stakeholders to communicate better with each other. What this could imply is that the *process* of introducing a framework and getting people from different kinds of education institutions to talk to each other more about what their programs involve, as well as getting people from education institutions to talk to people in other sectors of society, might be more important than the policy which is ultimately developed.

The disconnect between empirical evidence and policy-maker aspiration in researching qualifications frameworks could partly be the result of the nebulous nature of frameworks. Pilcher et al. (2015) argue that it is almost impossible to evaluate these frameworks because there is no way of developing a clear yardstick for measurement. What also makes it difficult to make sense of the research into qualifications frameworks, as well as of advocacy statements for qualifications frameworks, is that different countries seem to use the term to describe rather different reforms (Allais 2011a). Understanding exactly what policy makers mean when they talk about introducing a qualifications framework is complex. The following section discusses some of the different understandings of what a qualifications framework is.

## What Is a Qualifications Framework?

The simplest way of understanding a qualifications framework is as a nationally accepted framework or grid of levels and/or qualifications and qualification types, sometimes for all qualifications and sometimes for specific sectors. Diagram 1 below shows such a framework, describing qualifications in Ethiopia.

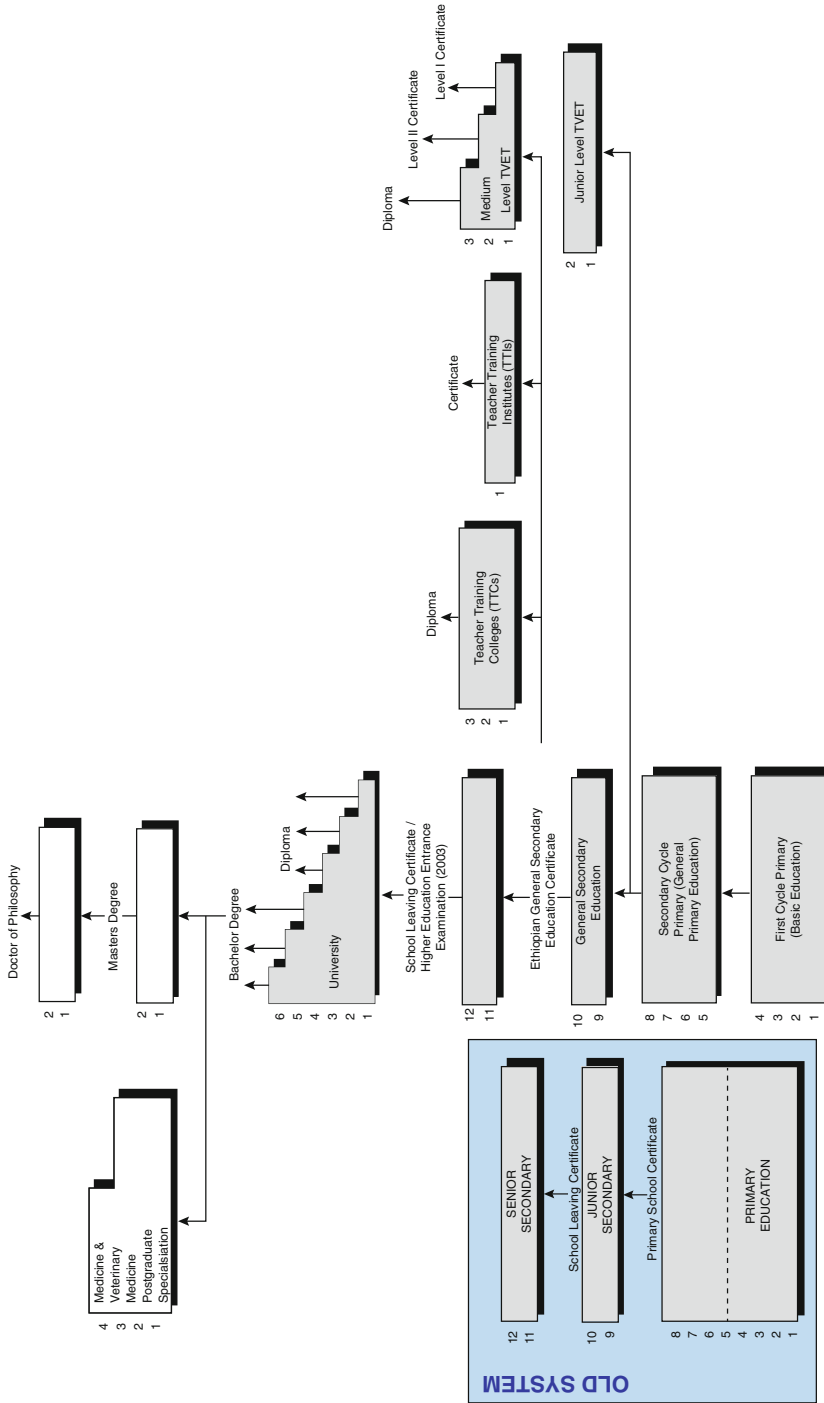
Diagram 1 shows the main qualifications that are offered in different parts of a national education and training system and how they relate to each other. Seen like this, a qualifications framework is not a new thing: most countries have some classification of the main qualifications available. However, even at this relatively simple level, creating a single framework for a country is not simple to capture in a single diagram. One issue is that relationships from one qualification to another are not always straightforward. When a country has a large amount of different types of qualifications on offer, relating them to each other can be very complex. If the institutions involved in provision are not involved in the process, and if they have autonomy over admissions and/or if there are limited places available for a particular course of study, a framework may show on paper that there is the possibility to move from one qualification to another, but the opportunities for students to actually follow this path may be limited.

Another issue which is often highly contested is the degree to which and ways in which qualifications are equivalent to which other qualifications. Here the idea of levels comes in – an idea which is not clearly captured in the grid above. One of the changes that has been introduced through the idea of qualifications frameworks is to superimpose a set of qualifications such as seen in Diagram 1 onto a grid of levels, as seen in Diagram 2 below.

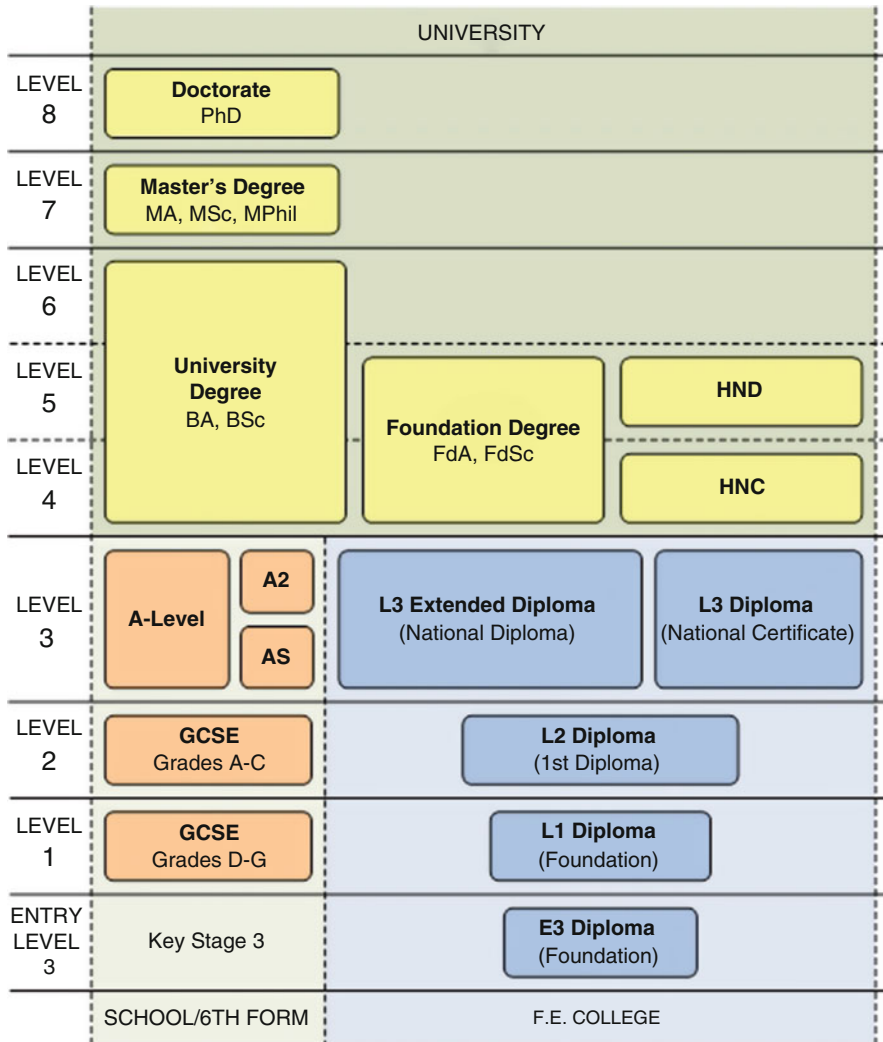
Diagram 2 shows not only the different types of qualifications available but also which level in the national system each type of qualification is on. When two qualifications are placed on the same level, there is the implication of some degree of equivalence or comparability among qualifications at the same level. However, as discussed below, what this possible comparability actually means in practice is complex.

Most frameworks today have levels, with the numbers of levels varying between 5 and 10, depending on whether or not the framework is for the whole education and training system or only a part of it. It is through this notion of levels that policy makers hope to raise the status of TVET qualifications. The idea is that once a qualification is placed on a specific level, it will be clear that it is in some substantive sense equivalent to other qualifications at that level. However, simply having levels does not remove contestation about which qualification belongs at which level, nor does it automatically ensure that qualifications at the same level are really valued or believed to be equivalent in any meaningful way.

To develop a shared understanding of what each level means, most qualifications frameworks have “level descriptors.” These are intended to capture in a generic way the kinds of knowledge, skills, and abilities that qualifications at the respective levels are supposed to represent. Level descriptors are intended as a guide for clarifying equivalence and rationalizing qualifications systems. They are also seen as



**Diagram 1** Qualifications in Ethiopia. (Source: Baudy 2008)



**Diagram 2** The UK qualifications and credit framework. (Source <http://www.accreditedqualifications.org.uk>, accessed 29 Nov 2017)

mechanism to increase transparency of qualifications systems – the ways in which qualifications are understood by the outside world – because they are intended to help everyone to know what it means when someone has obtained a level 2 or a level 6 qualification. They should also, in theory, assist to ensure that qualifications are broadly “comparable.”

Again, the reality proves far more complex than as a policy aspiration. Consider Box 1 below, which provides examples of level descriptors from qualifications frameworks around the world.

**Box 1 Examples of Level Descriptors****Six types of descriptors in Tunisia**

The qualifications framework in Tunisia has six types of descriptors of learning outcomes: complexity, autonomy, responsibility, adaptability, knowledge, know-how, and behavior.

**Five “characteristic generic outcomes” in Scotland**

The Scottish-level descriptors specify “characteristic generic outcomes” for each level (except level 1) under five headings: knowledge and understanding; practice (applied knowledge and understanding); generic cognitive skills; communication, ICT, and numeracy skills; and autonomy, accountability, and working with others. They were developed based on preexisting descriptors for the different sectors.

**Eight “domains” in Malaysia**

Malaysia has eight domains of descriptors: knowledge; practical skills; social skills and responsibilities; values, attitudes, and professionalism; communication, leadership, and team skills; problem-solving and scientific skills; information management and lifelong learning skills; and managerial and entrepreneurial skills.

**Ten types of “competencies” in South Africa**

South Africa has ten for the higher levels of its qualifications framework: scope of knowledge; knowledge literacy; method and procedure; problem-solving; ethics and professional practice; accessing, processing, and managing information; producing and communicating of information; context and systems; management of learning; and accountability.

**Concise and detailed descriptors in Lithuania**

Levels are defined not only by competences but also by types of activities. There are concise and detailed level descriptors. Concise descriptors are for general information purpose, and qualification levels may be described briefly. A concise descriptor of level includes characteristics of activities, content and acquisition of qualification, opportunities for further learning and qualification development, and types of the recognition of qualifications. Comprehensive descriptors are for the usage for different experts (designers of VET curricula, experts involved in the assessment of competences and awarding of qualifications, experts responsible for the recognition of qualifications acquired abroad, etc.); levels are described comprehensively with detailed indicative characteristics of the level of qualifications. Descriptors of levels are based on two parameters. Each parameter contains three criteria.

**Ten “indicators of professional performance” in Russia**

In Russia, ten most important indicators of professional performance were identified to formulate descriptors – work with information, reflection, ability to learn, business communication, responsibility, motivation, setting

(continued)

**Box 1 Examples of Level Descriptors** (continued)

up goals, independence, ability to teach, and breadth of views. The development of the abovementioned indicators from level to level of education makes the main content of descriptors. Descriptors were developed according to the following accepted rules:

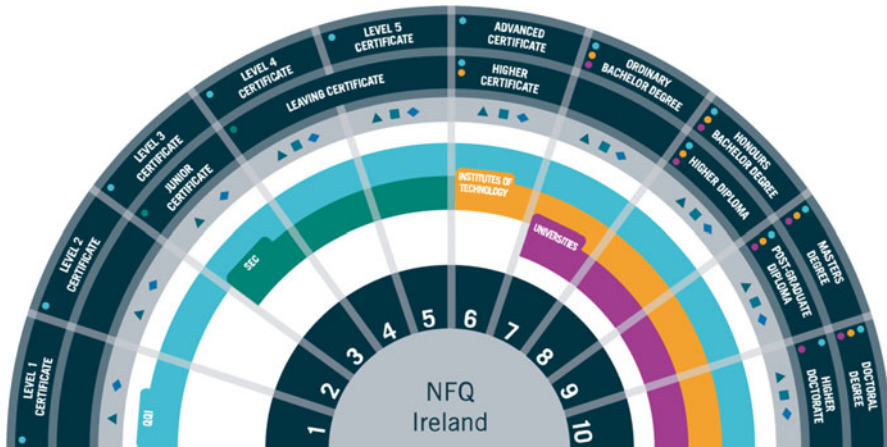
- A descriptor at each level has to be independent of other descriptors. Only at the place of transfer to a higher level, a descriptor has to correlate with the descriptors of higher and lower levels.
- Descriptors have to be defined in the affirmative grammar form.
- They have to be concrete and clear; words with abstract lexical meaning can't be used ("good," "narrow," "acceptable," etc.).
- They can't contain professional slang; they have to be understandable for nonprofessionals.
- They have to be formulated in a short form to provide clear understanding of the essence of the given level.

Source: Adapted from Allais (2010, p. 78)

When one reads the level descriptors from different countries around the world, it is fairly quickly apparent that they are complex and not particularly easy to understand, thus immediately raising questions about their role in improving "transparency." The reason for this is that it is not straightforward to capture in an abstract generic form the kinds of things that specific qualifications aim to teach. The many different types of categories for level descriptors are in itself an indication of the difficulty of an attempt to capture what an educational "level" means. Markowitsch and Luomi-Messerer (2008) provide a fascinating discussion of some of the complexity involved in developing level descriptors in Europe, showing not only how it was difficult for policy makers to agree on terms but also that once terms were agreed on, they were not necessarily interpreted in the same way by different people in different contexts. More recent research conducted in Ireland shows that there was contestation about what it meant when a qualification was allocated to a level, and the extent to which qualifications on the same level could and should be regarded as equivalent to each other (Marock 2015).

On top of this visible complexity, there is little empirical evidence that level descriptors have enabled decision-making about the location of qualifications on frameworks, or about credit transfer, with the exception of Scotland, where there is some limited evidence that they have assisted with professional judgments (Raffe 2012). It seems likely that decisions about which qualifications belong at which level are likely to be based on the relative power of institutions, as well as already accepted implicit levels within the country, particularly where high-stakes decisions are involved (Allais 2010).

Another issue with levels and level descriptors is that they are seen as a ladder, or a hierarchy. The framework in Ireland, shown in Diagram 3 below, is represented as a fan, in an attempt to escape this kind of representation.



**Diagram 3** The Irish National Framework of Qualifications. (Source: <http://www.nfq-qqi.com/>, accessed 28 Nov 2017)

The visual representation of the qualifications on offer in Ireland attempts to move away from a hierarchy and the presentation of qualifications as a simple ladder which can be moved up.

So the above discussion shows that there are many different ways in which qualifications in a country can be graphically represented and related to each other.

But qualifications frameworks are also more than representations of qualifications on paper (or in cyberspace). They include systems, institutions, and relationships between institutions. In some instances, qualifications frameworks have been introduced with and through the creation of new institutions, such as through laws which create qualifications authorities – for example, in Botswana, Mauritius, and South Africa (although South Africa later amended this, to create legislation for the framework in its own right). Not surprisingly, qualifications frameworks as well as the jurisdiction of qualifications authorities in some countries have overlapped with or been inconsistent with other laws and regulations of education and training as well as work (Allais 2010).

In some countries, a central part of the introduction of a qualifications framework has been the creation of new structures to develop competency standards, occupational standards, or outcomes-based qualifications. This has mainly been the case for qualifications frameworks focused on TVET, where the policy aim has been to get industry to lead these processes, to create industry-specified standards which are not linked to specific educational institutions or curricula. The original frameworks in South Africa and New Zealand are exceptions because, in their initial forms, structures separate from education institutions were created to develop learning outcomes for all education and training qualifications, not only for TVET qualifications. Both of these frameworks collapsed in their initial form and have been substantially changed and simplified (Phillips 2003; Allais 2007a, b; Strathdee 2011), and there is little evidence of success even for frameworks focused only on TVET systems, either in terms of

improving the involvement of industry in qualification design or in improving the employment prospects of graduates from the new qualifications (Allais 2011c, 2017a). Generally, employer involvement is limited and trade union involvement practically nonexistent. In many countries, in practice, the work of designing outcomes or competency standards is outsourced to consultants. Further, outcomes or competence statements tend to proliferate over-specified, detailed, unwieldy, narrow documents which are supposed to be the basis for assessment (Wolf 1993, 1995; Young 1996, 2009; Gamble 2004a, b; Wheelahan 2008; Wheelahan 2010; Allais 2012a, 2014). In some instances, this has led to newly designed competence standards or qualifications not being used at all and, in others, to narrow forms of assessment which drive fragmented learning experiences, or to the marginalization of the knowledge that learners can acquire (Allais 2007b; Wheelahan 2010).

Another issue which policy makers focus on in many countries is the use of qualifications frameworks to support recognition of informal skills. Policy makers in developing countries in which there are small formal regulated labor markets have been particularly interested in how frameworks can assist workers in the so-called informal sector (e.g., Young and Allais 2013). There are two separate issues to consider here, from a research perspective. The first is the extent to which frameworks helped people to have their skills documented. The second is whether or not obtaining formal certificates or recognition has helped their prospects in the workplace or has assisted them to access formal education. There is very little, if any, published research on either issue. Colardyn and Bjornavold (2004) provide a descriptive overview of the various systems which exist within Europe and show successes in some countries in terms of systems for the recognition of skills, but with limited reference to how qualifications frameworks have or have not assisted this endeavor.

The 2010 ILO study of qualifications frameworks in 16 countries found some small-scale examples of recognition in Australia, Botswana, Chile, Mexico, Scotland, South Africa, and Sri Lanka, but the numbers were small – in general not more than a few thousand individuals (Allais 2010). There was even less evidence about the value of such certificates to the individuals concerned. The Chilean study showed that the worker organizations involved in pilot programs had positive views about their experiences and that the workers felt proud of their certificates. However, the certificates were not always recognized by educational institutions. In Botswana, through the vocational qualifications framework, standards were developed for traditional dancers, and a group of traditional dancers were assessed, found competent against the standards, and given certificates. However, given that they were already working as traditional dancers and were not given access to any other training or educational programs based on the acquisition of these certificates, it was hard to see what advantage it gave them, other than a sense of accomplishment, as in the Chilean case.

What is missing in this area is research which can quantify what the problems are in terms of people not being able to access work, promotion, or further learning and the extent to which obtaining a certificate will solve these problems. For example, the problems may be that courses are too expensive, or that training is not available, or that individuals don't have enough time off, or that despite having gained some skills on the job, they lack the educational background – for example, literacy and



numeracy – to actually cope in formal learning. Further, in countries with small formal labor markets, certification is unlikely to be a requirement for employment or promotion. It could be the case that skills can assist self-employed people to be more productive, although even here there is a lack of clear evidence (Adams 2009), but in any case, the issue then becomes one of access to education and training.

Qualifications frameworks have also sometimes been introduced as mechanisms to reform the delivery of education and training – often with a focus on privatization, which was particularly the case in the reform of vocational education through learning outcomes in the United Kingdom (Wolf 2002; Young 2009) and competences in Australia (Whelehan 2008, 2009). This is often linked to accreditation mechanisms and systems, as well as proposed changes in assessment systems. The hope is that the outcomes-based qualifications or competency standards will be a benchmark against which institutions conducting assessment or providing education and training can be contracted and evaluated or quality assured. This idea has proved particularly problematic in the developing world, where the assumption that bureaucracies which are performing poorly in terms of delivering training are well positioned to contract it out and evaluate the quality of provision seems to have no basis (Allais 2007c).

The above discussion shows that clearly, there is no single policy mechanism that is represented by the term “national qualifications framework.” This creates difficulties in terms of linking the claims made about qualifications frameworks with evidence of success. However, one clear distinction is between frameworks that are seen as a *generator* of learning and skills and those that are seen as a way of framing *existing* provision. It is clear in the latter role that more successes can be seen.

Some researchers have developed typologies and classification systems, to try to organize different qualifications frameworks into categories (Raffe 2003; Tuck et al. 2004; Young 2005; e.g., Raffe 2009; Allais 2007b, 2010, 2011a). These typologies are useful when they highlight how different frameworks are from each other. They are less useful when they are seen as “models” that policy makers can select, source, “plug in,” and expect to create changes in their educational landscape (Allais 2017b). Because there are so few frameworks which are fully developed and implemented, the typologies run the risk of creating the impression of a well-established policy mechanism. For researchers, it could be argued that typologies are theory-heavy based on very limited empirical data. Further, policy reforms which look quite similar on paper can take very different forms or play very different roles in different contexts. What adds additional complexity is that this area of policy tends to be dominated by jargon which can become complex and opaque to outsiders, thus making people less likely to want to or be able to contribute to debates.

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## Conclusion: Symptom or Solution?

Given the weak evidence in favor of qualifications frameworks achieving the policy goals associated with them, why have they become such a growing educational phenomenon? I suggest that the emergence and popularity of qualifications frameworks should be seen as a symptom of underlying social phenomena.

Higher education enrollments globally have shifted from a fraction of a percent of the age cohort in 1900 to about 20% of the cohort by 2000 (Schofer and Meyer 2005). Levels continue to rise, with some countries approaching 80% of young people in higher education, if nondegree programs are included (Collins 2013). Rising educational levels affect education/work relationships and place more pressure and higher expectations on all parts of education and training systems. Researchers have used the term “education arms race” (Livingstone 2014; Halliday 2015) to describe the phenomenon whereby individuals are obliged to obtain ever higher qualifications in order to get a foothold in the labor market, even when such qualifications have no bearing on the actual work done. This inevitably leads to difficulties for those aspects of education systems aimed at preparing people for mid-level work. Add to this picture widespread acknowledgment that qualifications are a weak proxy for skill (e.g., Guile 2010) and the fact that qualification inflation is weakening this link. Work is changing rapidly, and the ways in which labor markets are structured are also changing. Youth unemployment rates are high and rising.

In this context of changing labor markets and changing workplaces, building and sustaining TVET systems become increasingly difficult, and, as discussed above, in many countries, it was extremely fraught already. It is almost impossible to build strong training programs that prepare people specifically for constantly changing jobs; countries in which work has historically been more fragmented or less regulated have tended to have weaker TVET systems (Allais 2012b).

In short, the continued popularity of qualifications frameworks as a reform mechanism may be symptomatic of new disconnects between education and work which are aggravated by qualification inflation, rising youth unemployment, and declining occupational labor markets, particularly in contexts where vocational provision is complex and fragmented (In Allais (2012, 2014), I provide some other possible explanations). And qualifications frameworks may continue to be popular because they promise to offer simple solutions to these very real and complex problems and give some feeling of agency to policy makers in beleaguered education and training systems.

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# TVET Financing and Employer's Ownership in Skills Training for an Emerging Workforce 25

Santosh Mehrotra and Ashutosh Pratap Singh

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## Abstract

The mismatch between the demand and supply of skills is a global concern. The private sector, being the principal user, has a critical role in skills training. However, in many developing economies, e.g., India, the role of the government is more prominent than the formal private sector. This tends to create a

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supply-driven TVET system, rather than a demand-driven one. The private-sector involvement is limited to private-sector training partners and does not really bring the employer's skin in the game holistically for skill development.

Employer ownership of institutions to impart skills can be a key differentiator and provide competitive advantage for a country's skill base. The moral hazard problem of employers (of "I train, you poach") is a key impediment for employer ownership, one of the ways to address this moral hazard problem is the proposed "reimbursable industry contribution" (RIC). Other key methods for enhancing ownership can be by internships or on-the-job training (e.g., apprenticeships), technology contribution, gifting/sharing of machinery and equipment to vocational schools, first right on phased-out equipment and machinery (before being scrapped), providing experienced trainers, designing curriculum, and finally ensuring assessments are as per their needs.

Skills are the software of business and the industry its hardware. The hardware is only as good as the software makes it. The formal private sector understands this software best; it knows when to repair, how to update, and what its future requirements will be; hence, a more intensive and holistic role of the private sector in skill development is required.

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**Keywords**

Employers · TVET financing · Private-sector participation · Skill development skin in the game · Skill India

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**Introduction**

In a global race for talent, skill mismatch and shortages are a key concern; a pressing need is felt to have the right strategies and ownership of stakeholders to fulfill the skill needs of individuals and industry and fulfill the overall development goals of the government (WEF 2014).

Changing workforce demographics, demographic advantages and disadvantages of different countries, protectionism, and rapid automation are trends impacting macro policy on skill development. Jobs and skills (UNDP SDG, Goal 8 2017) rightly dominate the development agenda of most countries, and hence solving the crucial problem of "who should be in the driver's seat for skill development" is the key to the productivity of youth, firms, and countries.

Individuals and industry are the principal beneficiaries of skill development, which leads to their improved efficiency, output, and incomes. Hence, it is only natural to expect that the role of individuals and industry in the skill development ecosystem would be highest among all stakeholders. However, in many developing economies, the role of the government is more pronounced than that of the primary customer/beneficiary. Governments concerned with the lack of participation of the industry respond by acting with a welfare mindset, swimming in waters where they do not belong and barely understand. While there is a focus on reducing government's role in most business activities to improve efficiencies, it is ironic that there is

an enhanced role of the government in skill development. Over the years, a key input for private economic benefit – skills – has slowly been turned into a welfare measure. A case in point is India where government investments into skill development are skewed to more than 99% (CAG, GOI 2015) of the total spending for skill development in India. A government-financed technical and vocational education and training (TVET) system is a supply-driven system, which may lead to youth being trained in irrelevant skills, over-training/under-training, or training not leading to jobs. A demand-driven system that is financed and managed mainly by employers (with the government playing a policy-making, a regulating, and a gap financing role) is likely to avoid these problems.

Industry often complains that (a) not enough trainees are emerging from the VET system, (b) the quality of training institutions is so poor that the trainees either are not employable or have to be retrained by employers, and (c) skills which are provided do not match the specific skill needs. However, in day-to-day work, businesses pursue the primacy of policy priorities in land, taxation, capital, etc. as means of business incentivization, and the intangible “skills” come later on.

Most developing countries after independence adopted a state-led import-substituting model of industrialization, with the state often playing the role of a capitalist in the absence of a large entrepreneurial class with access to capital on the scale required. Accordingly, the state-led vocational education and training system (VET) was similarly put into place. That system survived for over half a century. This period was also marked by an expansion of the formal employment, but on a scale nowhere close to that required, given that the numbers joining the labor force looking for work was much larger. The result was the growth of a large and growing informal sector, with similarly rising informal employment among those who left agriculture in search of nonagricultural work, or those with a modicum of general education/technical education who sought work in industry or modern services. In this informal sector, all skill development took place on the job, given that the skills required for the technology in use in such informal employment were of a low order. This is the kind of economy that is normally found in most developing countries, to a larger or smaller degree. The share of informal employment may vary between regions in the developing world (share of informal employment in total employment in Latin America and the Caribbean is about 50%, in East/South East Asia about 60–70%, but much higher in sub-Saharan Africa (80–90%), and in India 93%), but the system of VET is not hugely different in the main, given that (including the majority of upper-middle income countries of Latin America) the existing, entrenched skills funding model emerged at a time when a state-led model of industrialization prevailed in countries, but today's globalized and fast-changing economic realities need better models to ensure local populations have skills and job opportunities (Johanson 2004).

Developing countries, while wanting to leapfrog, riding on the demographic dividend are characterized by low level of education in the workforce. For example, in India, estimates suggest (based on its Ministry of Statistics and Programme Implementation, Government of India – National Sample Survey 66th round, 2009–2010) that 49% of the workforce has primary education or less (27% of



which are illiterate), 16% are middle school educated (up to class 8), 19% are secondary schooled (i.e., up to class 10), and only 8% are graduates and above. Therefore, how does it vocationally skill/upskill/re-skill a workforce that predominantly has little education becomes a key question, to the extent that even acknowledging and recognizing their skills through some form of recognition of prior learning is a daunting challenge. Basic education provides a base to impart skills; skills have three dimensions (Mounier 2001): cognitive skills, a foundation of general skills for general citizenship such as literacy, numeracy, and general educational competence; technical skills, needed to perform particular tasks for pay, such as recognized trade or professional skills; and behavioral skills, personal skills to perform as an employee, usually subordinate roles in the production process or the provision of a particular service which is a crucial step.

Before taking steps to respond to the skilling challenge of this second decade of the twenty-first century, developing countries need to keep in mind two sets of challenges they face simultaneously. One, most of them have a significant informal workforce, in self-owned enterprises, tiny enterprises, or microenterprises. The workforce here has low levels of education and similarly low levels of vocational skills. Two, the developing economies have a dynamic, technologically advanced, relatively capital-intensive (though small) formal sector of enterprises, where much higher levels of education and skills are required (in sub-Saharan Africa, this sector is mostly foreign-owned, though not so in South Asia). Navigating the pitfalls of creating a skill development ecosystem that caters to the needs of different types of enterprises, with varying levels of technology, is a huge challenge for policy makers.

In countries where the size of the labor force is rising well into the next few decades (especially in South Asia and sub-Saharan Africa), young entrants into the workforce will be unable to meet the new challenges of a globalized labor market in the absence of growing levels of skills. For aging populations like Singapore and Japan, the need for a competitive workforce will further increase already high levels of skill-based immigration. Clearly, demand-aligned skills financing forms the only pivot for realizing such skill needs in the countries from where such emigration is originating.

The main thrust of the argument of this chapter is as follows. As compared to the Germanic model, the Anglo-Saxon model provides less opportunity for employers to be involved in skill development, in other words, less opportunity to have “skin in the game.” For countries that have adopted the Anglo-Saxon model, e.g., India, there is a good case to increase employer ownership by ensuring employer ownership in each pillar (schools, colleges, vocational training organizations, ministries implementing training, in-plant training) of the TVET system; this can be achieved through a combination of hard and soft means, for example, a financial contribution from employers that is reimbursable on fulfillment of training (proposed as the reimbursable industry contribution (RIC)) and in-kind contributions (e.g., by providing technology). We make a case for more concrete private-sector involvement by these methods to address the skill and job problem.

This chapter is organized as follows. Section “[Anglo-Saxon and Germanic Models of Skills Financing and Their Applications in Developing Countries](#)”

examines two models of skill development that seem to prevail across the globe, which are also being adopted in the developing world: the Anglo-Saxon and Germanic models. Section “[Case Study of India](#)” analyzes the case study of India (which has effectively followed the Anglo-Saxon model). Section “[Reimbursable Industry Contribution: Initiating a Means to Increase Private Skin in the Game, Quantitative Expansion, and Quality Improvement](#)” examines the proposed reimbursable industry contribution as a key tool for employer ownership and provides steps to implement it. Lastly, section “[Private Sector Contributing In-Kind and with Technology](#)” discusses in kind and soft approaches for employer ownership, e.g., contribution by technology.

## Anglo-Saxon and Germanic Models of Skills Financing and Their Applications in Developing Countries

In respect of private-sector participation in TVET, different countries in their own unique context and requirements use two broad models – the Anglo-Saxon and the Germanic models (Table 1).

**Table 1** Summary of the contexts of development of TVET in the two models

Anglo-Saxon model	Germanic model
The production relationship is characterized by nonintervention approach to the market process	The production relationship is community based with trade unions, employers, and government working together in a tradition of reciprocal responsibility
Primacy of economics	Primacy of society
Freedom takes precedence over security; additionally social security was developed later in the nineteenth/twentieth century	Social security was developed early and more completely in Germany
Skills in Anglo-Saxon model <ul style="list-style-type: none"> <li>(a) Are an individual attribute or property</li> <li>(b) Are associated with tasks and jobs rather than occupations set within an industrial context</li> <li>(c) Are associated with physical/manual mastery or ability</li> <li>(d) Have no particular association with a knowledge base</li> </ul>	In Germanic model, Kompetenz (competence) consists of <ul style="list-style-type: none"> <li>(a) Fachkompetenz – expert knowledge</li> <li>(b) Personal kompetenz – one’s own potential and to develop one’s life plans</li> <li>(c) Sozial kompetenz – social relations to realize personal competence</li> </ul>
The Anglo-Saxon model has a narrow interpretation skills	Skills are based on Beruf (occupation). It has the following: a body of systematically related theoretical knowledge (Wissen) and a set of practical skills (Können). It factors the social identity of the person who has acquired these skills

Source: Derived from Bercusson et al. (1992), Mückenberger (1998); p. 37 et seq., and Clarke and Winch (2006)

## Germanic Model

Nations like Germany have shown that employer ownership of skill development can be a key differentiator and a competitive advantage for a country's skill base. They have avoided building a TVET system that is supply-driven and government-led (which is too often a problem in many developing countries) and developed a demand-driven, formal industry-led model. In Germany 86% of the total cost of VET in Germany is met by the private sector, with only the remaining 14% coming from the government.

Germany's TVET system has been heavily based on apprenticeship that has evolved over centuries. Over time their reputed TVET system has transformed into a very flexible and stable system. The graduates are highly skilled and enjoy increased labor market access and incentives. Both the industry and the trainee gain in an economically stable and profitable situation. Loyalty to a company means the return on investment of training has already been paid with two-way benefits.

Germany's TVET system has great appeal, unlike most other countries where TVET systems lack attractiveness. In Germany, TVET covers between 50% and 60% of an age cohort. The reputation of TVET institutions' graduates is excellent, and their job opportunities with corresponding high salaries lead to the attractiveness of the system. The most important feature of the system is the role that companies play – it is basically a company-driven system. The companies share 75% of the costs of training, while 25% comes from the government, which allows apprentices and trainees to be paid a salary that increases from year to year. Modular qualifications were introduced in order to make it easier for young people to enter training and gradually progress in qualifications. They are aimed at socially disadvantaged young people and those who find learning difficult (ADB 2013).

The TVET system allows permeability along several pathways, and students can also switch from one channel to another, such as from TVET to general education or vice versa. Another unique feature is the task sharing among companies, industry chambers, public institutions, and TVET schools. The TVET system is very integrated; students spend 1.5 days in school and 3.5 days in actual workplaces. The Employment Opportunities Act of 2010 introduced training bonus, a financial subsidy that decreases the cost of initial vocational training and is provided to employers that offer additional training places for young people (UNESCO–UNEVOC 2013).

In sum, the Germanic model is characterized by two main qualities. One, the state delivers the framework and support for VET, and, two, occupation is the organizing principle for VET. It delivers a curriculum, the didactics and methods of learning and the institutional setting. Actors negotiate and organize VET with a holistic approach.

## Anglo-Saxon Model

In the Anglo-Saxon model, the state plays only a marginal role for VET qualifications. It is a liberal model like in England and the dominion countries

(Australia, New Zealand, Canada). The qualifications are supposed to be made by the private sector with little or no intervention of the state. In implementation however, it is seen that the development of qualifications is outsourced to consulting companies, and hence it is not made by the industry itself; at best they are consulted and provide desk validation to these qualifications.

Bilateral donor agencies (e.g., of Australia, the UK) through their governments have shaped the model and promoted its spread among Anglophone ex-colonies in the developing world.

The concept of Germanic occupation plays only a marginal role for VET qualifications in the Anglo-Saxon model. The liberal model of England and France and such Anglo-Saxon countries has a more modular approach instead of a holistic approach like the Germanic model.

Education in Africa, Asia, etc. has been influenced through an extended period of colonization. For the last 10 years or so, the Anglo-Saxon countries, following the example of England and Scotland, Australia, and New Zealand, have been implementing vocational qualification frameworks not only in their own but introducing them in many African/Asian countries as well. The borrowing of these foreign qualification models to be implemented in general education systems in Africa and many Asian ex-British colonies does not bode very well for the future of skill development (ADEA et al. 2012).

We take the example of India in the next section, which is predominantly an Anglo-Saxon one for a more thorough analysis of the model.

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## Case Study of India

The case of India is provided below to provide a detailed analysis of the key issues on employer ownership and financing of skills. There are five pillars of skill education in India: (a) vocational education in schools and higher education, (b) vocational education by National Skill Development Corporation's (NSDC) private vocational training partners (VTPs), (c) public and private industrial training institutes (ITIs), (d) in-plant training by companies, and (e) the skill development schemes of the various 16 ministries of the Government of India (GOI).

Post-liberalization of the economy, while the private sector has thrived and grown, their involvement in skill development has not grown proportionately. Overall the general tax revenues are used to fund public and private VTPs. The government funds all preemployment training in India for every pillar of the VET ecosystem. The Ministry of Human Resources and Development (MHRD), GOI, funds vocationalization of education in the secondary school system. The Ministry of Skill Development and Entrepreneurship (MSDE), GOI, funds vocational technical institutes called industrial training institutes (public ones) and regulates the private ITIs. Sixteen other ministries of the Government of India fund their own skills training programs. The National Skill Development Corporation is funded completely by MSDE till now, which in turn funds the private VTPs and also

provides for training costs through a government program called Pradhan Mantri Kaushal Vikas Yojana (PMKVY).

In India, the Right to Education Act, 2009, makes 8 years of schooling compulsory. Vocational education in schools is offered optionally in classes 9–12, mainly for employability aimed at the service sectors. This vocational education is roughly based on India's National Skills Qualification Framework (NSQF), initiated from early 2014. The NSQF consists of ten levels. Levels 1–3 in service-oriented courses are running in 3006 schools to go up to 6,000 schools (by end of 2017). The total students enrolled is 225,000 (MHRD, GOI 2016). This effort is not entirely new. School vocationalization has been tried before without notable success, and still the intent and the practice of the current school vocationalization differ; but whether it is limited to guidance or real work skills is not clear. However, vocationalization in schools has brought private training providers to a very limited extent to the school ecosystem.

Vocational education in the higher education system is at its infancy with the primary motive being to remove the terminal character of early vocational education and to provide for vertical mobility. Bachelor in Vocation (B.Voc) courses have been introduced in 150 colleges in India. However, the long-standing traditional divide between skills and education still remains in society, and there are clear disconnects between skills and knowledge.

The second pillar of India's VET system is the industrial training institutes (ITIs). The Craftsmen Training Scheme (CTS) implemented by the industrial training institutes (ITIs) is run by government as well as private institutions. A total 13,105 (government 2,293, private 10,812) historically formed the foundation of the vocational system in India. While vocational education in its current form is relatively recent, the ITIs have existed since the beginning of the 1960s. They provide training primarily for manufacturing job roles. Industry has also supported/adopted ITIs; in the last decade, World Bank funding was provided to modernize ITIs. However, while there are regular industry complaints of nonrelevant curriculum, it must be noted that the ITIs have modified curriculum twice over the last 6 years even while industry ownership has not been too prominent (Mehrotra 2014). The presence of private ITIs does not reflect the participation of the employer but only indicates the business opportunity for private service providers in skill development. An attempt to create Industry Management Committees (IMCs) to run the ITIs has had moderate success. The ITIs offer long-term courses but are overshadowed in the numbers trained by NSDC VTPs who churn out more numbers; however, this is only the case because the latter offer short-term course not exceeding 4 months in length. However, studies suggest that ITIs remain the best that the industry has today for hiring of skilled workers (Mehrotra 2014).

India's National Skill Development Policy 2009 adopted a demand-driven sectoral approach to skill development and envisaged participation of employers in a key role in articulating and meeting skill demand. The NSDC was created as a "market maker" to catalyze private investment. A National Skills Qualification Framework (NSQF) was created, which envisaged a common standard for skill development across the country, consistent with a demand-driven skill development. However, employer adoption of NSQF has been limited as noted in a recent report (MSDE, GOI 2016) of the

Government of India. Sector Skill Councils were created as “employer-led bodies,” but they were all incubated with government funding from NSDC, with negligible contribution by employers. The peripheral employer involvement and ownership by actual employers (as opposed to private training providers) are reflected in poor placement percentages and courses not often used, even though they are supposed to have been prepared with industry’s supposed “involvement.”

In the NSDC-funded PMKVY (the flagship Pradhan Mantri Kaushal Vikas Yojana), the trainees are provided with short-term training. Training providers are affiliated by Sector Skill Councils (SSCs) which conduct both classroom and practical training as per industry-recognized National Occupational Standards. The certification is done by independent assessing bodies accredited by SSCs and the placement done by sectoral employers. The total training capacity is 2.4 million per annum (after about 5 years of operation of the scheme, including its predecessor STAR). The NSDC intended as a public-private partnership, which had a vision of private ownership, has not delivered and still depends on government funding. The NSDC VTPs were funded for a skills training business model, but no market-led model is followed, and they are dependent on government funding. NSDC was supposed to conduct skill demand gaps studies, but such studies as have been conducted are inadequate and cannot be relied on for planning. NSDC gives targets to SSCs, which were supposed to be industry owned. NSDC’s targets to training partners are based on splicing its own targets (provided to them by the Ministry of which NSDC is a part). More than 1,850 qualification packs, prepared by consultants, are too narrow and not understood well by stakeholders. Trainings happen on convenience and budget of the VTP not based on demand, resulting in skewing to training for job roles with little capital costs. With a fervent chase for numbers, the quality of training has deteriorated, and the short-term training is not translating into jobs. Youth, now armed with a government skill certificate, are now shifting the blame onto the government.

The fourth pillar of the VET system is the training conducted by other central government line ministries. Each ministry has its own skill targets and own programs and budgets for skilling. The Ministry of Skill Development and Entrepreneurship is the nodal Ministry for Skill Development. However, in addition to MSDE, there are 17 other ministries/departments, which are conducting vocational training. In 2015–2016, of the total trained, 58% was accounted for by MSDE, while all other ministries combined together trained 42% of the total students.

The last pillars of the formal VET system are enterprises themselves, or at least those firms that conduct in-house industry training. However, this is done only by large enterprises. Not surprising that a World Bank survey of enterprises in India found that only 16% of enterprises in 2009 conducted such training, in comparison to 85% in China (Mehrotra et al. 2017). In India the small and medium enterprises hardly train at all, but they form the majority of all registered firms. The lack of a training culture in the enterprises which value getting work done over getting work done in a proper manner has compounded the skills problem in India.

In-firm training financing is, according the same World Bank survey, confined to merely 36% of formal Indian firms. This is in contrast to 52% in Russia, 51% in Brazil, and 51% in Mexico. The important question as to why firms in India (and

many developing countries) prefer not to provide in-firm training can be best understood theoretically as a “moral hazard” problem combined with a “free rider” problem. For instance, firm A bears the cost of setting up the infrastructure needed to provide training, as well as hires professional staff to provide the training, while firms B, C, and D do not. Therefore, firm A runs the risk of losing its trained staff to its competitors. Firm A faces, in other words, a moral hazard since the free labor market is such that other firms will free ride upon its investment. As a result, no firms are willing to make the investment in in-firm training. Moral hazard becomes a generalized problem of all firms.

Another form of financing is corporate social responsibility (CSR) governed by an Act and applicable to only companies with an annual turnover of Rs. 1000 crore (146 mn USD) or more. The Act encourages companies to spend at least 2% of their average net profit in the previous 3 years on CSR. However, the provision in the Act is “indicative,” not mandatory.

CSR is a very suboptimal solution; classifying skill development in the category of CSR activity assumes that skill development is not directly profitable or beneficial to the company in its core business. Many large companies are already undertaking skill development activities, as the company requires skilled manpower that no one else can provide. Putting skill development into the category of CSR enables such companies to transfer the costs of normal skill development activities the firm was running in any case earlier and pass them now as CSR activities, substituting for other equally worthwhile activities (e.g., health, sanitation) eligible for CSR under the new 2% requirement. Besides, since this law is for companies with an annual turnover of Rs. 1000 crore (146 mn USD), that means it is not applicable to medium-sized companies, let alone smaller ones, entrenching the current position that small and medium enterprises are not conducting training. Finally, since skill development is an activity that will be undertaken by the company for meeting its own requirements for skilled people, the training hence may be overly specialized and may leave the trainee not particularly employable if he was to move jobs.

## **The Huge Challenge Posed by India’s Growing Labor Force**

The reason why the above ecosystem and its financing method will not be able to meet the current and future needs of India’s rapidly growing labor force is twofold. One, it is not growing as fast as the labor force is growing (and which will grow even faster in the future); two, it is not training workers, potential or current, to the quality required to meet the evolving industry needs as India’s economy, which is the fastest-growing large economy in the world that is rapidly diversifying its product and production technology range.

India’s demographic dividend will peak by the 2030s, with the additions to the labor force increasing between now and 2030 and then falling thereafter. However, the financing, largely hitherto dependent on government and more recently multi-lateral financing (World Bank 2017), will not be adequate. The predominant skilling option that has been provisioned by the National Skill Development Policy 2009 (and its revision in 2015) for the four million youth who entered the labor force



since 2012 has been the short-term courses through NSDC. These courses focus on narrow skill sets (MSDE, GOI 2016) and hence have limited utility; better holistic high-quality training to a large number of new entrants is required. The number of new entrants will increase beyond 4 million per annum to about 10 million by 2025 and even further to 12 million per annum by, as more young people get educated (MSDE, GOI 2016). Given the growing education level of these youth, they will not join agriculture but look for nonagricultural work.

In addition, there will be those leaving agriculture looking for work; between 2004–2005 and 2011–2012 as many as five million people per annum on average left agriculture, and similar numbers will continue to leave agriculture for the next 15 years or so, all looking for nonagricultural workers. All these older workers abandoning agricultural work will need to be trained; otherwise, the quality of the workforce cannot improve. But the kind of training to be imparted to them will be different than for those young with education who are fresh entrants into the labor. Finally, there are the already unemployed (2% of the labor force, according to the Ministry of Statistics and Programme Implementation, Government of India –National Sample Survey (MOSPI, GOI 2017), 2011–2012 (NSS 2011–2012)), who will need jobs and hence may need better training than they currently have. In other words, the skilling challenge is huge and will only grow. Hence, the need for more funds and a new financing model for India for skilling has acquired paramount importance today; a reexamination of the financing model of government-alone financing for the skill ecosystem is in urgent need for a revamp.

Voluntary financial commitment from employers has not worked out. The past government-only funding model has lost its relevance. Much more funds are needed for the growing numbers to be skilled, and the government alone cannot meet these costs. The government has other commitments, especially financial requirements to improve the quality of both school and tertiary education, which has experienced massification, with a precipitate decline in quality of learning. Building a skill ecosystem to train poorly educated youth is like building a house upon a sandy foundation.

It has become clear in this process that putting employers in the driving seat in SSCs can only happen by employer-incentivized participation in the financing of the system. However, there is a limit to the extent of general tax revenues that can be mobilized for skill development, given the need to keep the fiscal deficit under control on the one hand and the multiple very important drafts on resources from health, education, and infrastructure investments, which is the responsibility of the state.

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### **Reimbursable Industry Contribution: Initiating a Means to Increase Private Skin in the Game, Quantitative Expansion, and Quality Improvement**

From the above discussion, it is clear that unilateral financing by the government does not meet the sectoral employer skill needs. For all these reasons above, operationalizing a National Training Fund with employer participation with a



meaningful economic rationale is required. One of the key ways to bring all employers onto a common platform for skills financing by addressing the moral hazard problem (“I don’t skill my workers as you will poach them, and vice versa”) is a “reimbursable industry contribution” (RIC). It is a hybrid financing mechanism linking financial benefits for employers to elicit key compliance for skill development and a more intensive employer role. The normal mechanism of such “skin in the game” for employers is where industry makes a financial contribution, which is a reimbursable percentage of the payroll bill. This goes into an earmarked fund for training purposes, over which industry ideally exercises control. Industry benefits when it conducts in-house or preemployment training, since they are reimbursed the costs of such training, at least partially.

Such hybrid financial mechanism can provide a steady and protected source of funding for training, particularly in the context of unstable public budgets. In 62 countries of the world, payroll training levies are the principal source of financing for training funds and have been part of their system for many decades (e.g., in Brazil since 1942). Early training funds (e.g., Brazil) tended to be single purpose aimed at financing preemployment training. Others are focused on expanding the volume of in-service training within the enterprises. There are 17 countries in Latin America (including Brazil), 17 countries in sub-Saharan Africa (including South Africa), 14 in Europe, 7 in Middle East and North Africa, and 7 in Asia that have such similar funds (Johanson 2004).

The systematic use of industry financing by such a large number of countries with good skill development systems is encouraging. However, they can be improved and incentivized further by remodeling into a proposed “Reimbursable Industry Contribution to demand side needs.” The RIC should be applicable to any registered large, medium, and small private and public enterprise. To ensure demand-linked skilling, sector employer bodies would need to capture the skill needs of the industry by an online submission of a “requirement of skills” and “annual training plan” agreed by the employers with the sectoral employer body, through consultation formally conducted by them. This would be a part of the submissions for reimbursement in the RIC framework. The RIC is intended to work on the basic principle of “you pay, you benefit.”

Global evidence suggests that such RIC financing mechanisms work with private sector being able to manage the contribution. The government control is seen as inefficient and bureaucratic, and the private sector does not find worthwhile the time and effort to access such funds for skill development. This is a very important concern. However, this concern can be addressed by the private sector being in complete control of the allocation of funds. For example, sectoral training funds (as in Brazil) enable industry to completely manage the funding, without government control. The huge advantage of the private sector managing the levy and the training is that there is better alignment of the skills with private-sector needs. This has remained a major problem of the skill ecosystem for the last half century. The sectoral employer body will be the channel for grant management, mandatory grant, continuous learning grant, and an apprentice grant.

## Proposed RIC Model Implementation

The RIC collected can be passed on to the sectoral employer body in proportion to the contribution of their industry members. It is proposed that 20% of the funds can be used for training for the unorganized sector. Such funds could particularly be used in clusters to ensure that their skilled manpower needs are met. The remaining 80% of the funds collected could be used by a sectoral employer body for reimbursements to members as per training plan, for their sectoral body administration and for grant-based funding for small registered enterprises in the organized sector. But this training should be for fresh entrants to the labor force, on project basis only. The rationale for only proposing for fresh entrants is to focus on providing some mechanism for new workers to get started. For current employers, the fund proposes to be used for providing a framework for training but not actual training. The RIC amount could also be used for financial support to learners (to compensate for training leave for workers, lifelong learning opportunities, stipends after training to support apprenticeships, etc.).

The use of funds must be targeted for industry and only for skills required by the industry; self-employment must not be funded by the RIC, as employers provide funds. Funds cannot be diverted to other sources but should be tied to the needs of firms. The RIC will ensure that, as opposed to the current measurement of the performance of sectoral employer body against skewed simple enumeration of output against training targets, the sectoral employer bodies are evaluated by real impact made: actual training plans received, total reimbursements made, and numbers trained and counseled for placement, under the RIC.

The TVET ecosystem (based on the demand side of work) has not matured in many developing countries because of the dependence on government financing and due to lack of participation from employers (as brought out earlier); hence, there is a risk that RIC may be misused or misrepresented by large employers with already existing training capacities. Hence, before implementation, there is a need for a baseline to recognize current level of training in the industries to ensure a baseline data is established for numbers currently being trained. RIC funds should be utilized for reimbursements for training over and above those currently being trained. This will provide all small, big, and large employers a new level playing field. The reimbursements would link to incremental improvement from the baseline and not on the absolute training capacity. This provides employers an incentive to augment existing capacities and ensures that we do not have deadweight training later on. So the levy will be on incremental improvement from current level.

The RIC provides an institutional framework for a steady revenue flow to the sectoral employer body to focus on their strategic objectives. They would be freed from mobilizing resources from here and there, and the rational separation of assessments that has encouraged conflict of interests would also be achieved. The RIC discussed in this chapter is a focused model that provides fresh young labor market members to training program which is owned and run in line with real-time demand needs. It is a hybrid financial instrument, incorporates best practices for industry involvement from across the world, and can be adapted to national specific conditions.

One of the key purposes of the RIC is to ensure adequate financing for qualification frameworks across the globe. Companies would need to follow qualification framework courses to claim reimbursements. With the adoption of RIC in countries and the alignment of sectoral employer bodies on training on qualification framework courses based on International Standard Classification of Occupations (ISCO) codes, there will emerge a global compatibility and help in global migration policies.

The RIC should ideally be an online system that provides for levy calculation, collection, and reimbursement. The entire system could be linked to a real-time labor market information system to ensure financial allocation from the sectoral funds collected under the levy addresses real-time skill needs. There would be monitoring of training quality and content by the ombudsman/national regulator, and a national assessment board should do the assessment and certification at the end of the trainings.

The RIC can benefit the large firms directly. But the small firms may not be able to claim reimbursement since they do not have the financial capacity to undertake enterprise-based training; hence, it is important to ensure that small firms particularly from the unorganized sector who do not have cash flows for training are provided training vouchers, which they can redeem, from nationally approved training providers.

When the government funds the training, the involvement of employers is peripheral. They neither share their requirement of skills with the government nor participate in setting training standards, in-plant training, assessment, or placement. It has been observed that when the employers contribute to training, their intensity of involvement increases many folds in all aspects of training.

A National Training Fund (NTF) at the federal level, e.g., National Skill Development Fund (NSDF) in India, can be created to be an institutional repository of the RIC. The fund will be used for the entire VET system across the country and be managed by sectoral employers by way of sectoral employer body. The sectoral employer body will need to collect credible data from industry through mandated provisions. The government has a key role in being a provider of information about the impact and effectiveness of the RIC.

If the above proposed RIC was to be implemented, government funding should not drop by any means. Government funds from all relevant ministries would also need to be also deposited in the National Training Fund. This would be beneficial, as it would enable planning on a national and sectoral basis, end fragmentation and duplication, and rationalize funding. This would ensure that a holistic mechanism would be put in place for financing skill development across the entire country. In this manner, the government role for social equity-based skills financing would be more effective, and its financial contribution can be more effectively used for disadvantaged groups, women, and the unorganized sector. These are focused purposes due to high inactivity rates of women in workforce in developing countries and would further their meaningful participation in the economy.

### **Key Success Factors for RIC**

Firstly, the RIC would be possible only when we close other suboptimal solutions (e.g., CSR). This has been explained in earlier pages based on the rationale that

classifying skill development in the category of CSR activity assumes that skill development is not directly profitable or beneficial to the company in its core business and hence diverts from the core purpose of improving productivity of the company and a job to the youth.

Secondly, RIC provides a direct link to a monitoring framework linked to a financial goal. Productivity is by far the single most important outcome of skill development and hence can clearly be monitored by the difference made to labor productivity. RIC pushes us to consider this more pragmatically. In the current supply-driven system, this measurement is not well established particularly in developing countries. Efforts to measure quantitative impact in terms of improved productivity is limited and unscientific, and monitoring mostly relies on qualitative testimonies which appear to have impact but are not meaningful to track overall progress at scale.

Thirdly, RIC opens up the skill development domain to not just be an isolated effort in human development. The link with migration policies, job creation policies, labor reforms, wage improvements, and so on can happen best when we have the systems that can talk with each other in terms of data and financial resources. This will give a holistic place for skills in overall development.

RIC ensures that employers cannot complain anymore since it is they who set and run the agenda and their in-house training systems are incentivized for more impact. RIC-type measures make planning of skilling more data centric. For countries in advanced stages of realizing the demographic dividend, the window of opportunity is too small, and more investment for skills that aligns with the sectoral demand is needed. While government has a key role, industries must be provided with the right mechanism for acting on their skill concerns. RIC provides a sustainable mechanism to substantially increase the number of students trained by the industry dramatically.

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## **Private Sector Contributing In-Kind and with Technology**

### **In-Kind Contributions**

Other key methods for enhancing employer ownership can be by internships, on-the-job training (including apprenticeships), gifting/sharing of machinery and equipment to vocational schools, first right on phased-out equipment and machinery for educational institutions before being scrapped, providing experienced trainers, helping design course curriculum, and finally ensuring assessments are as per their needs.

### **Technology Contributions**

The quality of skills provided can be dramatically improved by the use of technological aids. Since the private sector is the early adopter of technology, it can be a primary means of technology infusion in training tools, monitoring, and assessment. Technology's key role has been felt by political parties who now provide smartphones and tablets as electoral freebies to attract the young people and by

governments trying to provide free laptops and designing tablets to meet costs on scale for the large number of youth. Software companies like Tata Consultancy Services have experimented with computer-based functional literacy to improve adult learning in numeracy.

Industry can help through other ways to provide access to technology for skilling. Technology can help in making personalized and adaptive content and curricula and provide for open educational resources, communication and collaboration tools, and interactive simulations and games. In particular, for skill development computer-aided simulation models that mimic real-life processes can reduce costs providing that simulated work environments can deal with resource availability constraints and augmented reality (AR) and virtual reality (VR) technologies can better learning outcomes. The students and trainees learn difficult concepts easily and interactively through immersive AR-VR and 3-D gamification methods.

The ever-increasing Internet and mobile penetration in India has meant that industry can leverage technologies to capture new demand and supply and build a highly scalable learning networks and platforms.

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## Conclusion

As compared to the Germanic model, the Anglo-Saxon model provides for less employers' skin in the game of skill development. For countries that have adopted the Anglo-Saxon model, the case of India clearly shows that there is a good case to increase employer engagement by ensuring their ownership in each pillar (schools, colleges, vocational training organizations, ministries implementing training, enterprise-based training) of their TVET system. Employer ownership can be achieved through a combination of hard and soft participation, i.e., a financial contribution that is reimbursable on fulfillment of training referred to as the "reimbursable industry contribution (RIC)" and in-kind contribution, e.g., by providing technology, etc., respectively. Skills are the key to overall economic development and the software of business. The hardware is only as good as the software makes it, and the private sector understands this software best; it knows when to repair, how to update, and what its requirements of the future will be; hence, a more concrete private-sector involvement through the methods proposed can provide better job opportunities to youth and skilled manpower for industry.

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# Governance of Labor Market and Skills Intelligence as Driver of VET Reform

# 26

Konstantinos Pouliakas and Antonio Ranieri

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**Abstract**

Blending the worlds of education and of work via continued reform of EU vocational education and training (VET) systems has become a key priority of EU policies, especially in the aftermath of the 2008 global crisis. But the objective of strengthening feedback loops between VET and the labor market, most notably via adaptive information systems based on robust labor market skills intelligence (LMSI), is intrinsically dependent on putting in place an appropriate governance infrastructure. Effective skills governance should facilitate stakeholder interaction and promote policy implementation and system learning. This chapter discusses the root of coordination failures, including asymmetric information, externalities, and strategic complementarities in information acquisition that impedes skills governance at both agent and policy levels. It proposes a novel skills governance framework that can be used by policymakers in diverse countries to identify “foundations” of well-functioning labor market information systems. Understanding how skills governance systems in countries are structured, interactions between different parts of the system, and the underlying behavior and motives of social actors is an essential prerequisite for ensuring that well-informed, labor market-relevant, VET reforms can be implemented.

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**Keywords**

Labor market intelligence · Skills governance · Skills mismatch · Coordination failures · VET reform

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**Introduction**

The gradual strengthening of vocational education and training (VET) policies in the European Union (EU) over the last two decades has facilitated continued reform of national VET systems and has significantly affected the scope and priorities within which they operate. Although the situation varies considerably from country to country, there are now clear indications that the Copenhagen-Bruges process, launched by the Copenhagen Declaration (2002) and revised by the Bruges Communiqué (2010) and Riga Conclusions (2015), has had some positive impact in most European countries (Cedefop 2015a).

Key target areas of the VET reform process in Europe (Box 1) have included the facilitation of greater transparency, quality assurance, and permeability of national qualification systems, as well as the wider recognition of the role of work-based learning, including apprenticeship schemes. A key ambition of these policy levers has been to influence the extent to which qualifications, knowledge, skills, and competences acquired by learners and workers strengthen their employability and, ultimately, to foster mobility, innovation, and productivity growth in EU economies.



**Box 1 European Education and Training Tools and Reforms**

Key European education and training tools and reforms implemented over the past decade include the development of the European Qualifications Framework (EQF), Europass, and European Quality Assurance Framework for VET (EQAVET); there are also common European principles and guidelines on learning outcomes approaches, validation of nonformal and informal learning, lifelong guidance and counseling, and the development of a blueprint for sectoral cooperation in skills anticipation and matching and of a digital skill and job coalition. Following the Council Declaration on the European Alliance for Apprenticeships (EaFA), important efforts have also been made to strengthen the quality, supply, and image of apprenticeships in Europe. A new proposal from the Commission for a Council Recommendation on a European Framework for Quality and Effective Apprenticeships has been recently launched by the European Commission.

In the challenging economic climate that followed the global financial crisis, the objective of strengthening links between VET and the labor market was introduced for the first time in 2008 as a key priority of EU cooperation in VET (European Commission 2008). This “new” objective reflected the need to respond to the employment crisis that was emerging in many member states and, more generally, to make VET systems more adaptive to the continuous and accelerated transformation process of EU economies in a global context.

Developing tools and systems to promote better skills anticipation and matching to labor market needs is identified as a core part of this strategy (European Commission 2010, 2016). In doing so, EU policymakers appear to be well aware that developing a labor market and skills intelligence (LMSI) infrastructure entails a significant governance issue. Good governance is a precondition to ensure optimal information sharing and better use of LMSI in the design and reform of VET policies. A number of policy efforts have therefore been initiated or further developed in recent years, aimed at not only the collection of better LMSI, but, crucially, ensuring that such LMSI can be translated into meaningful policy action (European Commission 2015).

It is the central premise of this chapter that strengthening feedback loops between VET and labor markets in EU countries is intrinsically dependent on putting in place appropriate institutional structures and governance processes that may facilitate stakeholder interaction based on reliable LMSI signals. More effective VET policies do not only require the development of robust LMSI systems but also a well-established skills governance infrastructure that ensures meaningful stakeholder involvement.

Skills governance however tends to be inhibited by marked coordination failures affecting VET and labor market actors. The “chicken and egg problem” of skills matching (employers do not hire because people lack relevant skills; people do not

train because of a lack of job opportunities) cannot be solved in isolation neither by market-led or centralized approaches. New or redefined institutional arrangements for empowering intermediary bodies, as well as adequate and targeted provision of financial and nonfinancial incentives and other complementary measures, should form the backbone of a country's skills governance system.

Before considering the different types of LMSI employed in EU countries and requirements for facilitating skills governance based on LMSI, section "[Challenges for VET Reform](#)" reflects on important challenges affecting the VET reform process in Europe. It considers macro trends as well as informational barriers erected during the implementation of VET and labor market reforms. Section "[Coordination Failures in LMSI and VET Governance](#)" subsequently considers different types of coordination failures that impede the responsiveness of VET to labor market and wider economic and social developments. Section "[LMSI and VET Governance](#)" then discusses the critical role of LMSI for overcoming such coordination failures and describes an analytical framework that policymakers may use to strengthen the skills governance process in their countries. Section "[Conclusion](#)" concludes.

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## Challenges for VET Reform

### Economic and Social Megatrends

VET policies and systems are confronted with structural challenges that were intensified as a result of the recent financial and economic crisis. Most of these challenges predate the crisis and can be traced back to long-term drivers of economic change.

Demographic changes, notably the aging of the European population, and recent migration trends have implied growing turnover within labor markets but also rising inter- and intra-country labor mobility (Eurostat 2015). Globalization has increased fragmentation of production processes and is expected to continue to link jobs across borders (especially in the common market), affecting not only types of jobs but also tasks required per job (Becker and Muendler 2015; OECD 2017). Technological progress, automation, and organizational changes within the context of a global information society continue to produce significant changes in labor demand (Frey and Osborne 2013; Vivarelli 2015; Arntz et al. 2016). In particular, ongoing digitalization, the Internet of things, artificial intelligence and machine learning, collaborative online platforms, and so forth are expected to affect how and where work will be carried out (WEF 2016; Cedefop 2017a). Similar effects will be produced by other important policy challenges, including the shift toward environmentally sustainable ("green") production methods (a top priority for the EU).

What all these megatrends have in common is that they entail a continuous and accelerated process of economic transformation. They have been and will continue to dramatically change the industrial and occupational employment

structure of European economies, with increased demand in some sectors and specific occupations and decreased skill needs in others (Berger and Frey 2016). But these trends also change the way we work, rendering some skills obsolete while placing renewed emphasis on new skill sets (Cedefop 2017a). All such changes will confront European labor markets with an increasing need for upskilling, as well as the development of new skill profiles and qualifications.

European citizens seem to be well aware of the extent of the abovementioned challenges. Data from the European skills and jobs survey (Cedefop 2015b, 2017b), carried out in 2014 by the European Centre for the Development of Vocational Training (Cedefop), revealed that about half of EU workers think it is quite likely that several of their skills will become outdated in the following 5 years, presumably due to accelerating technologies and skill needs in their job.

### **Awareness, Attractiveness, and Accessibility to VET Policy Reforms**

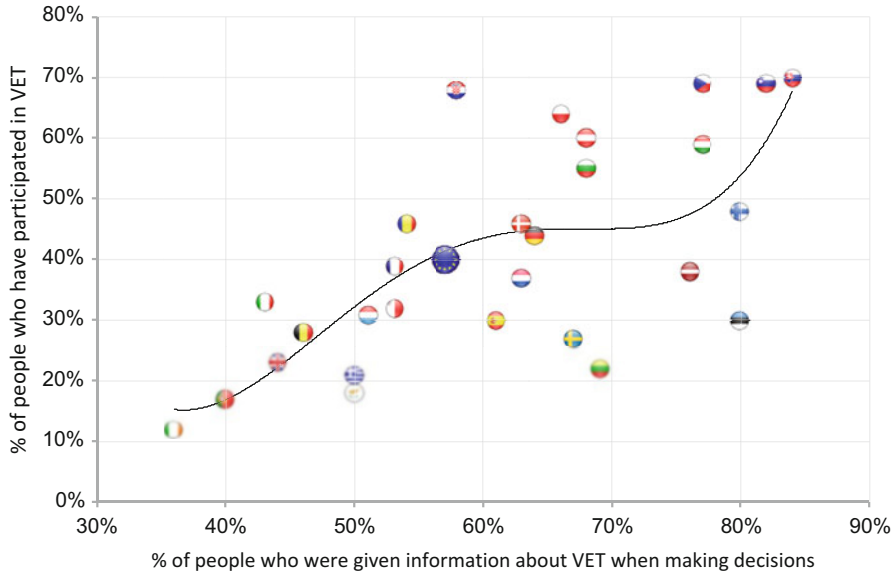
While the potential role of VET policies in addressing the above drivers of change is widely acknowledged, a pervasive challenge faced by VET systems is their lack of attractiveness and low relative esteem in which they are held by employers, individuals, and often policymakers.

As indicated more recently by the first Cedefop European Public Opinion Survey on VET, which interviewed 35,646 respondents (aged 15 and over) in June 2016 from the 28 EU member states, about 7 in 10 VET graduates at upper secondary level agree that general education enjoys a more positive image than vocational education in their country (Cedefop 2017c). This holds despite the fact that a large majority of VET graduates (86%) acknowledge they have learned skills needed by employers in their country and that the overall chances of finding a job if completing vocational education are better relative to general education.

The survey shows that low VET attractiveness is closely linked to imperfect knowledge and awareness of the benefits of VET (e.g., communication about returns on VET courses) and of improvements introduced by ongoing VET reforms (e.g., increased permeability between general education and VET learning pathways).

Figure 1 demonstrates the marked variance in the extent to which EU citizens had received information about VET at the time of making a decision about their upper secondary education. More importantly, it shows a positive correlation between information received and participation rates in VET at upper secondary level.

The relationship above confirms that the effectiveness of VET policy levers also critically depends on the awareness of their existence and potential benefits, which is associated with take-up by end users. A 2014 Eurobarometer survey had already made apparent the relatively low awareness of European tools among citizens (European Commission 2014). For instance, only 9% of citizens in the EU28 area said they know the European Qualification Framework (EQF) level to which their qualifications correspond, and only 15% were aware of the Europass CV, the most



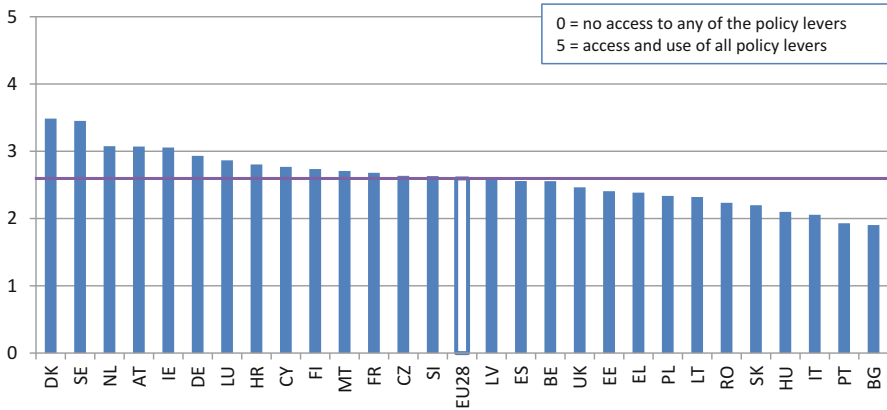
Source: Cedefop VET Opinion Survey (Cedefop 2017c)

**Fig. 1** Relationship between provision of information and participation in VET at upper secondary level, 2016, EU28. (Source: Cedefop VET Opinion Survey Cedefop 2017c)

widespread of European instruments for documenting acquired knowledge, skills, and competences.

Drawing on microdata from this Eurobarometer survey, Fig. 2 displays the outcomes of a summative index that captures the extent to which EU citizens can potentially access and use five relevant policy levers linked to VET reforms, as included in the survey. Although incomplete, the analysis captures a relatively broad spectrum of the prevailing initiatives related to VET reform policies in the EU, namely, recognition of qualifications and various learning experiences acquired in other EU member states, formal validation of different skills and competences within a new qualification, access to career guidance services, and use of information about education and training or career opportunities. Even though this index provides a rough indication of the extent to which citizens are aware of and inclined to use some EU tools integral to the VET reform process, it clearly shows marked differences in accessibility across EU countries.

Cedefop and Eurobarometer surveys provide just few pieces of evidence on the potential role that better labor market information can have in improving VET policy attractiveness and effectiveness. Most of the evidence available on VET reforms and their effectiveness still tends to be based however on qualitative expert inputs and is typically noncausal (Cedefop 2015a). It remains a challenge to decouple the independent influence of VET policy levers on labor market outcomes, given that they are not context- and policy-independent and are typically shaped by a country's socioeconomic and historical context.



**Fig. 2** Access and use of VET reform policy levers by EU citizens, 2014, EU28. Notes: The figure illustrates the average number of (max five) policy levers of VET reform that citizens in each country have simultaneously accessed or used, as described below: (i) recognition of qualifications, qualifications from one's own education or training system can be recognized (i.e., used for work or further education) in other EU member states; (ii) recognition of learning experiences, various learning experiences in another EU member state (studying, working, traineeship or internship, studying online with an institution located abroad, working remotely for a company located abroad) can be recognized within one's own country; (iii) validation of nonformal and informal learning, a combination of skills or competences acquired in different ways (education, VET, and work experiences) can be used to obtain a qualification; (iv) career guidance, citizens have access to a career guidance service; (v) skills intelligence, citizens look for information about education and training courses (including offers of work-based learning such as internships, traineeships, or apprenticeships), career prospects, and recognition options for their skills or qualifications in other EU member states (Source: Authors' analysis of microdata from Special Eurobarometer 417)

While these are common challenges for many policy areas, significant governance issues arise in the specific case of VET and its links with the labor market. These reflect the difficulty of coordination among a number of diverse institutions (higher education, IVET, adult learning) and actors (learning providers, students, employers, workers, social partners, public employment services, policymakers) and highlight why addressing coordination failures is increasingly considered a key strategy of the EU VET reform process in years to come.

## Coordination Failures in LMSI and VET Governance

A characteristic feature of EU VET policy is its multidimensional, multilayered, and multi-stakeholder decision-making process. Since its formulation, the Lisbon Strategy brought together diverse and partly conflicting objectives, including

competitiveness, innovation, employment, and social inclusion. To make Europe the “most competitive and dynamic knowledge-based society in the world,” the ensuing Copenhagen process aimed at improving performance, quality, and attractiveness of VET in Europe through the development of common tools and principles, mutual learning, and the involvement of all relevant stakeholders in the process.

The difficulties of policymaking in such a complex policy background can hardly be overstated. It does not come as a surprise that VET reforms in Europe have tended to be inhibited by nontrivial coordination failures (Box 2), even across countries characterized by a variety of VET governance models (Hall and Soskice 2001) and in well-functioning education and training systems (such as Sweden, see Lindell 2004).

### **Box 2 Coordination Failures in a Game-Theoretic Perspective**

Coordination problems arise when a game has multiple (Nash) equilibria and all players have a common interest in avoiding a non-equilibrium state. To achieve an equilibrium state, agents must come to understand one another’s intentions. Communication can facilitate coordination, which may also sometimes be achieved with the aid of extrinsic signals that have come to be associated with the actions of others.

Coordination failures arise when the inability of VET actors to coordinate their choices leads to inefficient outcomes for all parties, as compared to what would be achieved through cooperative behavior. For instance, both people and firms may refrain from investing in education and training because the return on investment in training largely depends on the investments of others, overall raising uncertainty (Leuven 2005). This may underpin the classical “chicken and egg” problem in labor markets, whereby a substantial share of employers report skill shortages while, at the same time, workers complain about skills underutilization (Cedefop 2015b; Cappelli 2015; McGuinness et al. 2017).

In the case of VET policy, and specifically when it comes to LMSI, coordination failures may take place both at agent and policy levels (Almeida et al. 2012). Key drivers of such coordination failures in LMSI and VET governance include asymmetric information, information externalities, and strategic complementarities in information acquisition (Table 1).

At first sight, coordination failures at the individual level could be theoretically addressed by a central planner analyzing demand and supply of skills. It could identify skill gaps and mismatches and consequently shape VET policy by providing the right information and incentives to individual agents. However, decentralization of VET policies in the EU is not only a political (and administrative) necessity but reflects wider stakeholder needs. This is particularly apparent when it comes to LMSI because of two main reasons.

**Table 1** Drivers of coordination failures in LMSI and VET governance

Individual/market level	Policy/centralized level
Higher transaction costs due to information gaps increase labor market inefficiencies (matching process) and frictional unemployment; they reduce population participation rates and inhibit firms' hiring decisions	Lack of specific information and foresight (sectoral, occupational, local/regional, etc.) does not ensure that individual agents' needs are taken into account and feed into VET policy strategy and actions. This reduces responsiveness of VET policy to labor market needs and the ability to identify areas where collective action is more cost-effective
Information asymmetry gives rise to adverse selection, moral hazard and holdup problems, fostering misallocation of labor, and productivity losses	Lack of structured and regular interaction between the central-/state-level representatives and representatives of the world of work and businesses may generate nonmarket failures (internalities, moral hazard, path dependency, inefficiency, "turf wars" between different public bodies, etc.) that reduce cost-effectiveness of VET and skills strategies
Due to information externalities and knowledge spillovers, employers and workers do not take into account complementarities in the payoff function when choosing their skills investment strategy (Cooper and John 1988). This gives rise to myopia and free-riding behaviors and thus to low skill-low investment traps	In the absence of systematic feedback loops and interaction with relevant stakeholders, skills strategies tend to be set among all possible actions instead of confining them within the realm of feasible actions (constrained by individual actors' beliefs/preferences, actual investment opportunities, etc.)
Lack of information on labor market trends and skill needs at the aggregate level (local/sectoral, national/international) reduce firms' capacity to shape their recruitment and skills strategies, taking into account strategic complementarities with other actors. This increases individual risk-taking and uncertainty of investment in training	Lack of two-way flow of relevant information reduces trust between stakeholders and their willingness to accept compromises and strategies with longer-term horizons. As a consequence, opportunities for mutually beneficial cooperation may be lost Given the multiple and partly conflicting objectives of VET policies and the diversity of stakeholders' interests, the lack of a clear LMSI governance structure may give rise to biased allocation of incentives, rent-seeking behaviors, commensalism, as well as risks of decoupling between beneficiaries and those who bear the costs of public VET policies

First, elaboration of coherent short-, medium- and long-term skills strategies, based on sound analysis of labor market signals, requires a wide spectrum of data and information. This includes qualitative and contextual information that can be effectively collected and interpreted at the level of homogenous entities (geographical, sectoral, occupational, etc.) and by agents more familiar with the specific circumstances of their labor market(s).

More importantly, without a shared and clear structure of LMSI governance, one that involves intermediary nongovernmental actors and bodies, there is no guarantee

that information collected at a central level is correctly translated to actual knowledge and effective decision-making, by overcoming coordination failures and minimizing negative externalities likely to occur at the policy level.

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## **LMSI and VET Governance**

### **Labor Market and Skills Intelligence Tools in Europe**

Acknowledging that robust LMSI is crucial for addressing different sources of market and policy coordination failures, numerous policy efforts have been initiated or intensified in recent years aimed at the improvement of national skills anticipation and matching information systems. Although information gaps can only partly explain failure in coordinating individual agents' decisions, information systems may reduce uncertainty and bounded rationality affecting learners' and employers' choices, promote labor market mobility, and overcome biased hiring practices by firms. Provision of informed signals on the returns to different learning pathways may simultaneously increase workers' incentives for training and employer's willingness to upgrade production strategies (Booth and Snower 1996; Redding 1996). It may also foster better skills matching (WEF 2014; McGuinness and Pouliakas 2017). Data on future skill needs may contribute to better aligning diverse stakeholder priorities and interests under a commonly accepted future-oriented strategic platform (ETF-Cedefop-ILO 2016).

Reliable LMSI is usually a key ingredient for revising or updating education and training provision in Europe by providing information about desirable course funding/allocation (Bulgaria, Cyprus) or the development of new VET programs and apprenticeships (Austria, Belgium, Denmark, France, Germany). It also feeds into the design of employment and activation strategies by informing or updating occupational standards (UK, Czech Republic, France, Portugal) or the design and revision of training for unemployed and employed workers (Spain, Portugal, Belgium). Moreover, migration policies (UK) and other sector-specific policy goals, such as the transition to a greener or digital economy (Cyprus, Germany), are often in need of reliable LMSI, particularly in relation to occupations that are identified as being "in shortage" (OECD-ILO-Cedefop-ETF 2014; OECD 2016).

Many different approaches and tools of LMSI are hence applied across Europe to measure and/or anticipate skills and labor market trends, ranging from conventional labor market analyses (standard employer and household surveys) to large-scale quantitative employment projections or adoption of skills foresights and other qualitative methodologies (ETF-Cedefop-ILO 2016). In some EU member states, such approaches tend to focus on the macrolevel (e.g., national economy) whereas for others at the meso- (e.g., region, sector) or microlevel (e.g., households, graduates, employers). The time frame covered (short, medium, or long term) may also differ, as are the predominant data sources used (e.g., national accounts, labor force surveys, vacancy data) and the regularity of updates (e.g.,



annual, every few years, ad hoc). Some initiatives aim at better describing the current state of play in the economy or in a given sector/region, while others focus on long-term projections and imbalances of changing skill needs and labor force stocks.

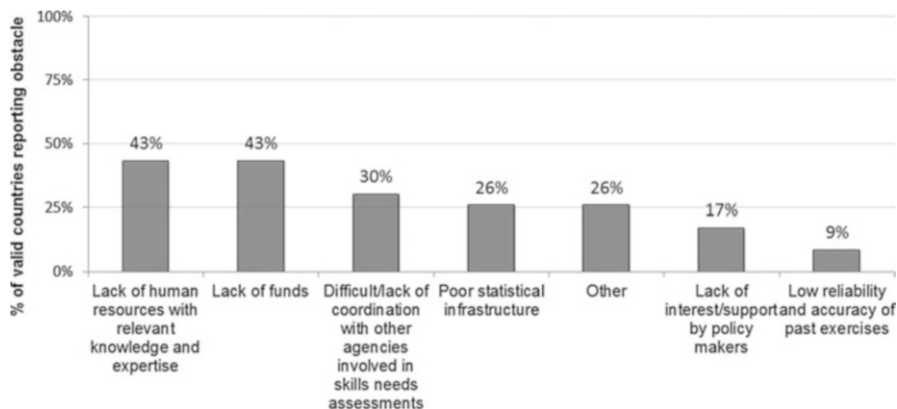
In addition to strengthening survey-based data sources extracting information on skill requirements using a task-based approach (Handel 2017), innovative Big Data or real-time labor market intelligence techniques have been increasingly developed in recent years to measure and decouple emerging skill needs. This includes digital web crawlers that scan across online job advertisement portals and/or individuals' online profiles and resumes (Kuhn 2014; Kurekova et al. 2015a, b; Deming and Kahn 2017). Real-time LMSI complements traditional instruments by filling gaps in existing knowledge of employers' skill requirements, including emerging occupations, newly demanded skill profiles (both generic and occupation-specific), and new qualification/certification requirements. Significant difficulties in the analysis, representativeness, and generalizability of Big Data across labor market populations and economic sectors exist. Nevertheless, the advantage of such data is the possibility of analyzing employers' contemporaneous skill needs (including emerging occupations, newly demanded skill profiles) or detecting individuals' job search strategies in a cost-effective way without the time lags found in traditional administrative and survey data sources.

Generally it is purported that different LMSI techniques complement rather than substitute each other and that best practices are those that attempt to combine quantitative and qualitative elements in order to develop a more holistic understanding of trends (ETF-Cedefop-ILO 2016). For instance, while current skill needs assessments and in-depth sectoral foresights are often easy to set up and execute and can offer greater depth to identifying emerging skill needs, they can only offer an impartial view of the economy and may capture marginal views in terms of emerging skill mismatches (ibid 2016). By contrast, large-scale skills forecasting models may offer a comprehensive assessment of current and future skill needs but are bound by their assumptions and uncertainty about complex economic interrelationships.

## **Governance of Labor Market and Skills Information Systems**

Even though several EU member states have recently initiated or intensified their policy efforts in this area, it is crucially acknowledged that the sole provision of timely LMSI does not suffice for translating it into tangible policy action. Responses of ministry representatives at a global survey of skills anticipation/assessment practices, carried out in 2014/2015, reveal that the challenge of coordination failures is considered a major barrier by EU countries surveyed, second only to lack of resources (Fig. 3).

Addressing coordination challenges is therefore a crucial step in attempting to reform VET systems in alignment with labor market realities. However, the use of



**Fig. 3** Obstacles to the (further) development of LMSI exercises. Notes: Based on the responses of representatives of Ministries of Education and/or Labour in 23 EU countries. One response per country is retained. The figure depicts the number of countries that identified the specific obstacle as a percentage of the total number of EU countries with valid responses to the survey (Source: Author's calculations based on OECD-ILO-Cedefop-ETF 2014)

timely LMSI for the purposes of striking stakeholder cooperation in updating VET curricula, (re)designing training programs, revising (sector-specific) qualification frameworks, and/or incentivizing and funding VET programs is often inhibited. Such intelligence is not always actually disseminated, validated, and streamlined into meaningful policy actions (Sanderson 2002).

Cedefop's reporting on VET policies (2010–2014) shows that even though a growing number of member states regularly monitor employability and labor market transitions of their VET graduates, in many countries, this information is not actually used to inform VET provision (Cedefop 2015a). VET programs, standards, and curricula take account of transition and employability data only in half of the EU+ countries. Only “some of the Nordic countries and the Netherlands have systems with strong feedback loops” (ibid. 2015a).

“Skills governance” (Box 3) is hence increasingly considered to be a necessary precondition to address coordination failures that may prevent LMSI from being effectively transmitted to all relevant actors, subsequently inhibiting the speed and effectiveness of VET reform (Green 2013; OECD 2016).

The skills governance process typically involves diverse education and training, labor market, and other social actors. The constellation of stakeholders involved in commissioning and producing LMSI tends to be quite heterogeneous – in some cases, central authorities such as Ministries of Labour or Education or Public Employment Services spearhead the initiatives, whereas in others it is employers, social partners, VET providers and/or NGOs who produce their own data and information (ETF-Cedefop-ILO 2016). Good skills governance therefore requires the setting up of purposefully implemented institutional frameworks and procedures (financial incentives, regulations, and

digital platforms) to foster feedback loops between VET (sub-) systems and labor markets (Cedefop 2013).

### **Box 3 Definition of Skills Governance**

A skills anticipation and matching information system refers to the process of producing and building on available labor market and skills intelligence with an aim to provide an informed basis for economic development via targeted skills investments by an individual country. “Skills governance” refers to the process of involvement of stakeholders from the public, private, and third sector, from different economic sectors and geographical units, in generating, transmitting, and using skills intelligence for implementing and steering education and training policies. It is comprised of formal or ad hoc institutional bodies, incentive structures, and other procedures in place for steering education and training provision and assuring the quality of training in accordance with available skills intelligence. It comprises a negotiation perspective, which represents the needs of the education system and of the labor market from a short-term, medium-term, and long-term perspective.

*Source:* Author’s elaboration on European Commission (2015).

Different countries are characterized though by different modes of skills governance, which can influence the degree, speed, and penetration of LMSI signals in the policy decision-making process (Meulerman 2008; Robichau 2011; Cedefop 2013; Burns and Koster 2016). These are usually determined by a country’s historical evolution path and sociopolitical context and are embedded in national collective bargaining and welfare regimes. In reality in most countries, different types of governance models are likely to coexist or evolve over time.

Countries with hierarchical (or statist) governance models largely rely on a top-down and regulated approach, in which specific ministries dominate. Although this ensures tighter links between LMSI and policy responses, striking stakeholder consensus becomes more challenging. In market-based (liberal) governance, governments mostly assume an “overseeing” role, seeking to foster competition in public service delivery via contracting-out and performance-based funding. In such a model, independent agencies are more likely to lead the design of LMSI exercises. This can facilitate stakeholder trust but often suffers from weaker translation of LMSI outcomes to policy action and fragmentation of methods and findings. Network-based governance models (including participatory or coordinated approaches) seem best-suited to establish shared consensus among social co-actors. They can foster negotiating and brokering of different interests by placing social partners in the driving seat or in consultative roles, although free-riding problems and insufficient ownership of LMSI design and outcomes are common issues.

Regardless of its form, skills governance is fraught with the challenge of satisfying many diverse interests and accommodating a wide range of stakeholders. Due to the multitude of diverse bodies involved in the process, some may be inclined to be involved in “turf wars,” especially in case of overlapping of competences across various ministerial portfolios (e.g., initial VET, adult learning, employment policy, economic development). The multi-actor landscape may sometimes produce conflicting research outputs and studies, based on incomparable methodological approaches and statistical taxonomies, as it often responds to different target audiences and serves alternative policy priorities (Hantrais et al. 2015). As a result, suggested policies and initiatives may run counter to one another and foster policy incoherence.

In many countries, the skills governance process tends to be loosely coordinated without a clear definition of the role, tasks, and responsibilities of the different actors involved. This often raises complaints from the social partners claiming that their voice fails to translate into actual policy “influence” (Kriechel and Vetter [forthcoming](#)). Stakeholders at the subnational administrative level (regional or local authorities) are also frequently neglected when discussing the findings of LMSI analyses, inhibiting the “reach” of the information to a wider spectrum of potential beneficiaries.

For all aforementioned reasons, the development of a coherent policy reaction and VET reform underpinned on sound labor market intelligence may often be delayed or diluted.

## Strengthening Skills Governance: An Analytical Framework

To overcome such obstacles and move toward a collaborative approach to collecting and using LMSI, appropriate governance settings need to be put in place that will ensure long-term commitment and a synergetic policy outlook among all relevant stakeholders (Greer et al. 2016).

Cedefop’s skills governance framework (Table 2) has been recently set up to provide a starting point for identifying essential elements of EU countries’ skills governance systems (Cedefop 2017d). Despite the marked variation observed in LMSI data and methods and governance models across countries, a number of desirable elements may be identified that constitute “foundations” of a well-functioning skills governance system.

Participation of key stakeholders is fundamental in assuring quality in data gathering, production and analysis of skills intelligence, legitimacy of the results, and coming up with a strategic vision and road map for skills development, based on evidence-based policymaking (Shortall 2013). Clarifying the role of national, local, and sectoral participating institutions within the overall foundation of the system and forms of collaboration and negotiation between them is a critical element in ensuring robust skills governance.

To this effect, setting up sustainable institutional arrangements for stakeholder feedback and validation of LMSI outputs between different government bodies and

**Table 2** Cedefop’s skills governance framework

	Organization	Resources	Stakeholders	Use of information
Foundations	A	D	G	J
	Legal and regulatory framework	Funding and human resources	Cooperation arrangements	Feedback mechanisms
Processes	B	E	H	K
	Management and control	Data, methods, and expertise	Feedback and validation	Customization and dissemination
Sustainability	C	F	I	L
	Vision and strategy	Resource continuity	Integration of stakeholder needs	Reputation

Source: Cedefop 2017d

social partners is a necessary building block. Nevertheless, institutional bodies facilitating stakeholder engagement may manifest in many different forms, as is typically observed across European countries. For instance, formal institutional fora include “national education and training commissions/committees” (DK, DE, EE, IE, HU, LT, NL, PT, SK, SE, LV), “advisory boards” (DK,PT), “sectoral skills councils” (CZ, SI, BG, HR, EE, LT, PT, SK, ES, UK), tripartite bodies (FI), and “regional skills platforms/for a” (SE, AT, HR, CZ, DK, HU, PT, SK) (European Commission 2015).

A transparent legal and regulatory mandate, as well as an operational management strategy, offering to national stakeholders a clear understanding of their roles and task responsibilities in both design and take-up of LMSI findings, is also important.

Ensuring that a wider array of potential beneficiaries have access to and can provide feedback on the LMSI produced at higher levels and that such information is customized to meet the needs of a diverse audience constitutes another critical pillar of the framework. In many EU countries, the dissemination of LMSI tends to be a weak link in the governance chain, as efforts often rely on ad hoc communication activities (e.g., publications, events, and awareness campaigns) but lack a systematic or targeted communication strategy based on specific regulation, budget line, and monitoring of the user base. For instance, career guidance and counselors, the most typical “transmitters” of LMSI to micro-agents (job seekers, employers), have been found to be targeted by LMSI dissemination efforts in less than one third of EU countries (ibid 2015).

Finally, the framework places emphasis on the inputs to the skills governance system, namely, the existence of adequate human and financial resources. Specific attention is paid to the capacity of both front and end users involved in the system and on how such capacity is developed over time so as to ensure system continuity.

Even though setting up the aforementioned foundations and formal structures and processes is a necessary condition for ensuring sustainable skills governance, it is

also important for policymakers to carefully understand behavioral traits and interdependencies between the elements underpinning the system. For instance, identifying the rationale for stakeholders involvement (or exclusion), capacities made available to them, and clarifying the nature of their contribution (advisory, consultative, decision-making, passive, or active) are vital ingredients for assessing the overall contribution and quality of stakeholders' engagement. Setting up a credible operational plan may induce stakeholders involvement, subsequently also improving the quality and depth of data collection.

The provision of stakeholder feedback and validation is also dependent on adoption of a strong negotiation perspective providing reassurance that (legitimate) stakeholder interests and needs are taken into account. This is especially the case if validation of LMSI findings constitutes the basis for resource allocation. Customization and use of the outputs of the system by a wide range of user groups will provide credence to the system and subsequently may improve prospects of resource continuity and system stability.

It is often also the case that skills governance systems are, to some extent, hostages to historical contingencies, which may prove hard to address in a short-time period. Therefore, the overall reputation of the skills governance system ultimately hinges on ensuring continuous and adaptive system learning, namely, understanding the reasons why LMSI may lack credibility among system actors and what type of mechanisms may have been set up so as to resolve potential conflicts. Evaluations and impact assessments may provide some of the feedback required, but they are unlikely to take place with any degree of regularity. Therefore, it is important for a well-functioning skills governance system to have other formal or informal institutionalized feedback mechanisms in place.

#### **Box 4 Examples of Skills Governance Systems**

##### *Greece – A newly developed system*

In the midst of a severe economic depression, the Greek government, with the encouragement of the European Commission, began to set up a comprehensive skills diagnosis and anticipation system at national, regional, occupational, and sectoral levels. Setting up the newly established “mechanism of labor market diagnosis” first entailed the drafting of a precise regulatory framework led by the Greek Ministry of Labour. The regulation allocated responsibility for overall methodological expertise to the National Institute of Labour and Human Resources. It sought to engage a wider network of stakeholders into the process (e.g., ministries, public employment service, social partners, regional authorities) by setting up complementary operational components as part of the mechanism, including a coordination committee, a scientific committee, and a larger operational network. After 2 years of implementation, the system produces biannual reports and outputs of what constitute the most “dynamic” (in terms of employment growth) and “high-

(continued)

**Box 4 Examples of Skills Governance Systems** (continued)

quality” jobs in the Greek labor market. Detailed information enabling the design of targeted unemployment policies at local level is provided together with almost real-time labor market intelligence on entrepreneurial dynamics.

Continued reforms are taking place, including a process of further integrating as part of the mechanism’s feedback loops additional relevant ministries (e.g., Ministry of Education, Ministry of Tourism, and Ministry of Immigration). Moreover, continued efforts are made to ensure that the outputs of the mechanism of skills diagnosis can produce policy relevant information spanning across a wide array of policies, such as active labor market policies, apprenticeship design, social protection measures, and migration. Although social partners participated in the initial stages of the development of the mechanism, both in a consultative and executive role (e.g., carrying out quantitative or qualitative analyses of the economy), their long-term involvement, as well as that of regional authorities, has yet to be established in practice. In spite of the potentially wide range of end users of the mechanism (e.g., education providers, employers, guidance counselors, etc.), the current dissemination modes are not yet customized enough so as to achieve that aim.

*Bulgaria – Development of a workforce competence assessment system*

In Bulgaria a project to develop a national skills anticipation and governance system was implemented by the Bulgarian Industrial Association during the period 2009–2014, partnering with the Confederation of Independent Trade Unions in Bulgaria (CITUB) and the Confederation of Labour “Podkrepa.” The project was co-funded by the European Social Fund (ESF), under the Human Resource Development Operational Program, and offered users an overview of available job posts in sectors and regions as well as the key competences and qualifications needed so as to facilitate job seeking and training/lifelong learning decisions. Each competence is linked to qualification levels of the National Qualifications Framework, while “key jobs” per sector are also identified. The MyCompetence platform was developed under the project which allows for future analysis of trends, forecasts, and research.

Continued reforms are taking place to ensure that the outputs of the MyCompetence initiative feed into the design of vocational education training programs and that a multiplicity of data outputs by the Ministries of Labour and Education can be more effectively bridged. Efforts for further capacity building of regional and local authorities in producing and using labor market intelligence and skills anticipation tools are also ongoing.

*Finland – a mature skills governance system*

Finland has a long tradition of participative policymaking and consensual acceptance of forecast results which ensures that skill forecasts are widely used and valued. As part of the National Education Development Plan, the two key forecast tools VATTAGE (steered by the consortium of key ministries) and

(continued)

**Box 4 Examples of Skills Governance Systems** (continued)

MITENNA (the Ministry of Education and Culture) steer education and training in accordance with sectoral developments and vocational education needs for young people. In particular, the MITENNA system translates the results of VATTAGE scenarios (long-term sector-specific labor needs) into learning provision strategies. These provisions are discussed by councils at different levels (national, regional, and local) in order to make adjustments to provisions according to stakeholder views (e.g., the 26 national and sector-specific Education and Training Committees, tripartite bodies in each occupational field, supporting the design and content of upper secondary VET and HE).

A dialogue process is used to develop proposals for the future educational targets. The working group consists of representatives of the Ministry of Education and Culture, the National Board of Education, education research, provincial government, regional councils, the Finnish Association of Local Government, and the Ministry of Employment and Economy. Also the main trade unions contribute to the process, while the different regions are to take into account national and regional forecasts in planning their future strategies and activities. The whole process uses and comments on the long-term qualitative information of VATTAGE and other qualitative and quantitative sources. VATTAGE also sets a common framework for stakeholder cooperation and a sustainable anticipation procedure, which further enhances its reliability and accountability.

Source: Authors' elaboration based on inputs from Cedefop's project "Governance of EU skills anticipation and matching: in-depth country reviews" <http://www.cedefop.europa.eu/el/events-and-projects/projects/assisting-eu-countries-skills-matching> and Skills Panorama <http://skillspanorama.cedefop.europa.eu/en/analytical-highlights> (section: Skills anticipation in countries).

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**Conclusion**

This chapter has focused on one of the "new" objectives of the VET reform process in the EU, strengthening feedback loops between VET and the labor market. Blending the worlds of education and of work to combat high unemployment and skill mismatch became a key ambition of EU member states, responding to the legacy of the 2008 global crisis. It has been argued however in this chapter that facilitating VET responsiveness in alignment with labor market signals in Europe has been inhibited by significant coordination failures, manifested at both the level of micro-agents and policy. Overcoming information deficiencies, asymmetries, and externalities among education and labor market actors, as well as fostering strategic complementarity between their individual decisions, is an important requirement for



establishing faster adaptiveness of VET policy to structural economic and social trends.

Although several EU member states have now invested heavily in strengthening tools and methods of LMSI, on the grounds that information is a public good that may mitigate market failures, this chapter has pointed out that such efforts tend to fall short of ensuring that LMSI translates into effective policy responses. The absence of or inadequate skills governance has been highlighted as a culprit for undermining the potential LMSI to address coordination failures, especially those arising at the policy level. In this regard, a new framework for assessing and monitoring critical elements of a country's skills governance, recently developed and employed by Cedefop, has been presented here for the benefit of policymakers. The framework is based on the principle that facilitating VET responsiveness via better LMSI is dependent on putting in place appropriate institutional arrangements and procedures that can empower national stakeholders and facilitate and sustain in-depth social dialogue. Understanding the way in which skills governance systems in EU countries are structured, interactions between different parts of the system and the underlying behavior and motives of social actors are an essential prerequisite for ensuring that well-informed, labor market-relevant, VET reforms are implemented.

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# Role of ICT in Enhancing Scale, Quality, and Reach of TVET in India

# 27

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## Abstract

India's skill requirement calls for millions of individuals to be formally trained and qualified for employment. What underlies an acknowledged dearth of skilled labor, impeding India from reaching its potential, are issues of quality, standardization, and accessibility to skill development, especially to and within existing vocational training programs. The United Nations Sustainable Development Goals (SDGs) reiterated the urgent need for improved inclusion in skill development among socially and economically vulnerable groups to strengthen the prospect of decent employment and income generation, as indicated in the sub-goal of SDG 4 on quality education. Skill development practitioners and

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academicians recognize information communication and technology (ICT) as a critical component in addressing issues of inclusivity, quality, and standardized skill development. Discussion of ICT-integrated TVET primarily takes place in the context of formal training; however, a significant portion of skill development in India takes place along the lifelong learning continuum, outside of the formal context. This chapter, therefore, takes a wider perspective to review how ICT is reforming TVET delivery practices in India across formal, nonformal, and open and distance learning settings.

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**Keywords**

ICT · TVET · TVET reforms · India · Technology · Teaching and learning

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## Introduction

India's skill requirement calls for millions of individuals to be formally trained and qualified for employment. What underlies an acknowledged dearth of skilled labor, impeding India from reaching its potential, are issues of quality, standardization, and accessibility to skill development, especially to and within existing vocational training programs. The United Nations Sustainable Development Goals (SDGs) reiterated the urgent need for improved inclusion in skill development among socially and economically vulnerable groups to strengthen the prospect of decent employment and income generation, as indicated in the sub-goal of SDG 4 on quality education (United Nations 2015):

SDG 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship.

Skill development practitioners and academicians recognize information communication and technology (ICT) as a critical component in addressing issues of inclusivity, quality, and standardized skill development (British Council 2016, Chinien 2003). Discussion of ICT-integrated technical vocational education and training (TVET) primarily takes place in the context of formal training; however, a significant portion of skill development in India takes place along the lifelong learning continuum, outside of the formal context. This chapter, therefore, takes a wider perspective to review how ICT is reforming TVET delivery practices in India across formal, nonformal, and open and distance learning settings.

## TVET Continuum

A major principle of TVET, as per UNESCO-UNEVOC (2013), is that providers must recognize that learning takes place along a continuum composed of formal, nonformal, and informal education. The barriers associated with access to formal

skill development in India are widely recognized and have contributed to a predominantly informally employed labor force. Informal labor systems tend to require people to rely on open and distance learning (ODL) or other nonformal forms of training to acquire skill and employment. UNESCO (2002) defines open and distance learning (ODL) as an “educational process in which all or most of the teaching is conducted by someone removed in space and/or time from the learner, with the effect that all or most of the communication between teachers and learners is through an artificial medium, either electronic or print.” In contrast to formal education, which the OECD describes as structured and learning objectives in alignment with official accreditation bodies, nonformal education (NFE) is generally described as a complementary to formal education, shorter in duration, and flexible structure and can potentially cater to learners’ specialized needs (Schneider 2013). The aspects of short-term training, flexibility in structure and objectives, have lent to the implementation of NFE programs in sidelined communities throughout India (Mitra 2007). This chapter will focus on the role of ICT in training delivery, especially with regard to content development and course delivery.

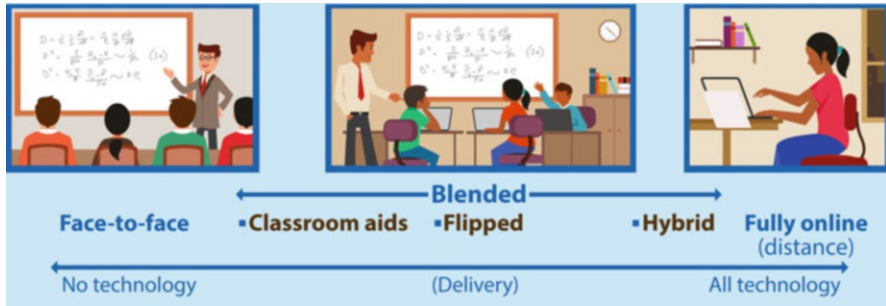
To preface the larger discussion around ICT-integrated TVET across the lifelong learning continuum, the following section will clarify what is meant by ICT for TVET.

## ICT for Teaching and Learning

ICT is a broad term that encompasses radio, television, Internet, mobile, WiFi systems, computer hardware and software, audio and video conferencing, and social media. ICT enables individuals to locate, analyze, share, and present information, knowledge, skills, ideas, and experiences (Latchem 2017).

*Media and Technologies:* ICT in education may be broadly divided into media and technologies. Technology consists of tools and resources used to support teaching and learning. Current educational technology includes devices such as computers, tablets, mobile devices, telecommunications, network, software, massive open online course (MOOC) platforms, learning management systems (LMS), simulators, etc. The key building block of media, on the other hand, are text, graphics, audio, video, and computing (including animation, simulations, and virtual reality) (Bates 2015). There are models that help determine the selection of media for training based on various factors including context and target audience. In the subsequent sections, the term “ICT for teaching and learning” may interchangeably be referred to as “media and technology.” Also, the term “e-content” refers to digital learning resources such as digital textbooks, workbooks, articles, videos, or multimedia.

*ICT-Enhanced Delivery Models:* ICT is used by institutions in a variety of delivery models such as blended learning with technology aids, i.e., using videos, presentations, and similar aids, blended learning with flipped and hybrid classrooms, fully online learning such as distance learning initiatives and MOOCs, and the use of open educational resources (OER) in informal learning (Bates 2015), as illustrated in Fig. 1.



**Fig. 1** Continuum of ICT-based teaching and learning (based on Bates 2015)

### Enabling and Constraining Factors to ICT Implementation

There are a wide variety of factors that influence the success of ICT-enabled training, such as teacher training, pedagogy, technology familiarization, and more, which need to be considered while adopting ICT for teaching and training (Mayer 2014). The literature identifies the following common issues in ICT for teaching and learning: lack of usability and user engagement, which mainly arises from a lack of rigor in the design process and a poor choice of media, and insufficient effort at the institutional level to develop carefully curated e-learning content. Institutions often convert textbooks to online e-books or page turners and expect a change in learning outcome.

The use of evidence-based models for media design that follow learning and design principles such as ADDIE is known to lead to more effective uses of ICT for teaching and learning (Mayer 2014). Higher forms of ICT, such as interactive e-learning, simulations, simulators, and virtual reality (VR)/augmented reality (AR), promote active learning and improve user engagement compared to passive forms of media such as e-books, PowerPoint presentations, and videos. The former forms of technology are considerably more expensive to design and develop; hence, institutions are often required to balance between cost and quality when adopting ICT for teaching and learning. With this background on ICT-integrated TVET, the next section discusses practical instances of ICT for TVET in India along the learning continuum.

### ICT for TVET in India

The integration of ICT and blended learning in schools and other higher and distance education through MOOC platforms like edX, Coursera, Khan Academy, etc., is a globally trending practice. ICT-based initiatives initiated by the Government of India (GoI) Ministry of Human Resource Development (MHRD) such as recorded lectures by experts, MOOCs, online-simulated and remote trigger labs, digital libraries, etc. are a growing school education practice in India. ICT integration at the vocational



training level, however, is an emerging practice in India and not yet widely implemented for reasons that will be briefly summarized here.

Firstly, a distinguishing factor between the integration of ICT in TVET and conventional school education is that the former involves the use of complex, multimodal technologies that are designed to provide hands-on, kinesthetic learning experiences in addition to cognitive knowledge transfer. Secondly, the varying levels and educational qualifications of the target groups add another level of complexity to the teaching-learning process. In India, there are challenging cultural and structural issues, notably the multiple language requirements for the course curriculum (India has over 22 major languages and hundreds of local dialects), a large number of vocational trades, and the costs involved in undertaking large-scale ICT initiatives which are constraints toward developing universal ICT-enabled content for TVET.

Evidence has emerged, however, that demonstrates ICT-integrated teaching and learning lends to improved quality, standardization, and accessible TVET (British Council 2016). Currently, there are multiple governmental agencies such as the MHRD and Ministry of Skill Development and Entrepreneurship (MSDE) that fund the development of open-access media and technology for TVET. This is supplemented by intergovernmental bodies such as the Commonwealth of Learning (COL) and Commonwealth Educational Media Center for Asia (CEMCA) and industry-driven ICT-based skill development solutions promoting the development and the use of open education resources (OER) in distance education. Figure 2 highlights the current ecosystem for e-content and technology for TVET in India. The figure includes initiatives by the GoI ministries and nongovernmental and private agencies that develop and distribute ICT solutions as OER or for paid access.

Ministry of HRD		Ministry of Skill Development and Entrepreneurship		Private agencies and NGOs
<b>Swayam MOOCs platform</b> for schools, higher, TVET	<b>A-VIEW</b> Video conferencing and distance learning platform	<b>NSDC</b>	<b>DGT</b>	<b>Online platforms and Technologies</b> (MOOCs, video conferencing etc.)
<b>eGyankosh</b> (National digital library for ODL by IGNOU)	<b>Sakshat</b> (e-Content repository for higher, certificate and diploma)	<b>Kaushal mart</b> (market place for TVET content aligned to occupational standards)	<b>NIMI Portal</b> (ebooks, interactive eContent of ITI courses)	<b>Courseware</b> (eContent, serious games, simulators, simulations, AR, VR)
<b>NIOS Open Courseware</b> (e-Content repository for secondary, sr. secondary, vocational for NIOS)		<b>Kaushal e-Pustrakalaya</b> (access to training content through mobile app)		<b>Open Educational Resources</b> (OER)
		<b>Skill India online portal</b> (online courses for registered candidates and public)		

**Fig. 2** E-content and technology ecosystem for TVET in India



*Other ICT Enablement Policies and Initiatives:* MSDE (2015) recognizes the need for innovative ICT-enabled training models and products to address critical gaps in the skills ecosystem. It highlights the case of over one million institutional buildings and 8000 railways stations with adequate infrastructure facilities and extensive optical fiber cable network that may be leveraged for TVET. Google has enabled WiFi in over 110 railways stations around India and has set a target of 400 stations by the end of 2018 (Tiwari 2017). Rollout of 4G data plans starting at \$0.33 per GB and availability of 4G mobile handsets starting at less than \$25 (Rudradeep 2017) have propelled India to high mobile consumption with a projection of 11 GB data consumption per active mobile user per month by 2022 (Borde 2017).

The next section will explore in greater depth various initiatives that support ICT-enabled teaching and learning for TVET, across the formal, nonformal, and ODL training scenarios.

## **Formal TVET Training**

TVET delivery in India through formal institutions is primarily coordinated by the MSDE. Under the MSDE, the Directorate General of Training (DGT) and NSDC are mandated to impart TVET through their network of industrial training institutes (ITIs) and training providers, respectively. While these agencies are under the same ministry, they operate independently and offer different programs. Hence, in this section, the ICT initiatives of these agencies and its training providers will be discussed separately.

### **ICT Initiatives by DGT**

India's ITI system is estimated to be the largest vocational training infrastructure in the country with a training capacity of over three million (MSDE 2017). However, studies indicate that issues such as a shortage of skilled instructors, machinery, tools, and space to teach modern technologies impact the quality of training and employability of its students (Tara and Pilz 2016).

The MSDE introduced several reforms to tackle the aforementioned challenges through initiatives such as the upgradation and performance evaluation of ITIs, the establishment of model ITIs, development of ICT-based teaching materials, professional development of trainers, and launch of space-based distance learning (MSDE 2017).

To ensure standardization of training across ITIs, the National Instructional Media Institute (NIMI), an autonomous body under the MSDE, develops courseware in the form of print material – textbooks, instructor guides, assessment guides, visual aids, instructional videos, and e-learning. DVDs of instructional videos of practical procedures are bundled with the print material and are available for sale to learners and trainers. The print material is available in English and in eight Indian languages. Another major initiative of this agency is the development of an open-access platform which hosts e-books and interactive learning materials for over 60 courses in English (NIMI 2016).

State governments are starting to support ICT-based TVET, such as the Chhattisgarh state's launch of the online learning platform (OLP) to promote ICT-enabled skills training at ITIs and vocational institutions (Skill Reporter 2016). Concerted efforts by stakeholders of the skill development ecosystem to promote ICT-based TVET, such as upgradation of required infrastructure, training the trainer on ICT skills and pedagogy, and ensuring availability of relevant ICT-enabled content in regional languages, are essential to ensure effective adoption. There is a need for further research to better understand the extent to which ICT-enabled teaching and training take place at ITIs and how they can best be introduced given the current infrastructure.

### **ICT Initiatives of NSDC**

The NSDC promotes skill development through the creation of large-scale, high-quality, and for-profit vocational institutions through a private-public partnership (PPP) mode. In addition to financing the skill training providers, the agency works to build the capacity of training providers so that they can deliver high-quality training. The agency supports a network of over 330 private training partners and over 7000 training centers in the country. This agency has undertaken several ICT-based initiatives in an effort to support the sustainable growth of TVET, which will be briefly summarized here.

More than 280 Pradhan Mantri Kaushal Kendras (PMKKs) or modern skilling centers have been set up to create benchmark institutions that demonstrate the aspirational value for competency-based skill development training. Each PMKK center is mandated to have at least one classroom equipped with audiovisual facilities and Internet connectivity to conduct virtual training, interactive sessions, and industry seminars/webinars.

The agency's efforts toward strengthening the delivery of TVET, curriculum, and assessments include various ICT initiatives such as the *India Skill Online Portal*, an online learning portal for skill aspirants to access online content; *Kaushal mart*, an online skilling resource marketplace, which aggregates skilling resources and bridges the demand and supply gap, and *Kaushal e-Pustakalaya*, an Android e-book reader app for reading open-access skill content e-books. While these initiatives are at an early stage, it has set the foundation to build a strong ecosystem for the development and use of quality training content by connecting the training partners and students with content and technology developers.

### **Blended Learning Practices**

The data gathered for this section relies on the author's own survey, interviews, and descriptions of the institutions from the respective organization's publications. Surveys and interviews were conducted of TVET providers in India between August and November 2017. Training providers were selected based on their reported use of technology, confirmed by the NSDC, to which the training providers are affiliated. The survey consisted of open-ended questions pertaining to pedagogy, the use of ICT in TVET delivery, and its perceived advantages and challenges. Out of six surveys that were distributed through NSDC, four training providers provided

responses. Common usages of ICT among the training providers surveyed consisted of projectors to show PowerPoint presentations and instructional videos in the classroom. The survey results demonstrated that the student progress is often tracked using learning management systems (LMS) and assessment portals. This section will now take a closer look at some current examples of blended learning in practice at training centers.

*Technology-Enriched Classrooms:* Following the survey, a visit to a training center of Infrastructure Leasing & Financial Service (IL&FS) – one of the surveyed training providers – was made to observe the use of ICT in training delivery and collect feedback from trainers and students. IL&FS follows a three-part pedagogy system in their TVET delivery referred to as “show and tell, try, and test” (IL & FS 2015). In the initial step, students are shown a video in the classroom using a projector, followed by query resolutions and discussions (“show and tell”). Next, the students try each step of the hands-on exercises while watching the video, till they are able to repeat the step without making mistakes (“try”). Finally, the students are assessed and graded (“test”). The factors shared by the training provider that they found to be critical toward scaling the training model were training facilitators on the pedagogy, availability of well-designed multimedia content, participant handbooks and facilitator’s guides in the local languages, and the physical IT infrastructure. The absence or unavailability of quality content also led the training provider to have a dedicated content development team to create and design instruction content and multimedia modules. Also, they reported that this method enabled students to perform the hands-on exercises independently to a large extent and improved trainers’ productivity as this model reduced considerable redundancy in instruction, allowing them to focus on giving feedback to students. This model was replicated by the training provider across their centers nationwide, resulting in 450,000 students trained in over 100 TVET courses spread over 22 sectors (NSDC and IL & FS, survey and personal communication, October 17, 2017). The model was reported to considerably reduce the training time, improve motivation levels in students and trainers, improve learning outcomes, and reduce training costs.

*Flexible mobile learning:* Training provider SkillTrain (2016) addresses the needs of school dropouts in rural areas through mobile learning. The mobile platform lets students register for free on their portal and take online courses based on lesson plans and downloadable videos on mobile phones. Students are able to learn at their own pace. Assessments are online or through text messaging capability on the mobile phone. For hands-on exercises, the student is required to register with the nearest vocational practice center and then paired with an affiliated workshop or independent practitioner (British Council 2016; Dubey 2016).

### **ICT for Teaching and Learning Physical Skills and for Recognition of Prior Learning (RPL)**

An emerging area of research in ICT-enabled TVET is to adapt high-tech and innovative technologies that were previously utilized for performance training in highly specialized domains, such as surgery and aircraft flying (Akshay et al. 2013; Jose et al. 2014; Ranjith et al. 2014; Aswathi et al. 2016). Simulator-based training

can provide a hands-on experience in a safe environment at potentially lower costs. Introduction of simulators into TVET in India has struggled with the same cost benefit equation that other ICT technologies have done for years owing to delayed returns on investments. With the rapidly increasing number of personnel to be trained in vocational skills even in the formal sector, the benefits in inclusion of simulator-based training is being increasingly recognized by the training institutes and industry in India (Chenoy 2013).

There are several benefits to using simulators in skill training institutes: savings in costs of consumables and instructor contact hours, standardization of training, safety, and the prestige in using technology-based approaches for training (Akshay et al. 2013). Yet another benefit of simulators is in recognition of prior learning (RPL). The reliable assessment of the prior skill level of a candidate can be used to allocate work or training accordingly.

For instance, simulators developed for bar bending and cutting utilize a virtual reality interface and haptic force-feedback that simulate the various skills in rebar bending training. Larsen and Toubro Construction Skills Training Institutes (L&T CSTI) has incorporated these simulators to supplement their skill training programs in concrete-based construction (Menon et al. 2017). The simulators are currently being utilized to train, retrain, and assess recruited personnel in the rebar bending and steel fixing trade. In just under 1 year at two of the CSTIs, the simulators have been trained over 600 rebar bending graduates who have been subsequently employed by L&T.

Prior to the use of the simulators, the CSTI reportedly found it challenging to justify the poor benefit-cost ratio of their training programs owing primarily to the high attrition rate in their bar bending graduates who migrated overseas and to the Middle East for higher-paying jobs. The average cost of training borne by the CSTI for the bar bending course was a little over \$450 per candidate, one third of which is attributed to the cost of rebars consumed in training process. The simulator helps reduce this cost. Another interesting observation is that the simulators are housed indoors which eases the initial hardships the trainees have to endure while training outdoors in the hot sun. The CSTI reports that the reduced hardship helped the candidates to resist the urge to discontinue the program. L&T also shared plans to utilize the bar bending simulators for offering retraining on the construction site and for RPL of the contractual workers who seek employment at the construction sites.

The most widely used virtual reality simulators in the industry in India are welding simulators (Knoke 2016). Welding simulators are being adopted primarily for workplace training, assessment, and RPL purposes by various industries that have a requirement of welding and by training institutes to prepare new welders and offer retraining where required. Students trained using the simulator are able to learn the basics of welding in a controlled environment without exposure to the harsh and challenging conditions of the trade such as smoke, burning eyes, and other severe accidents (Kulkarni 2007). After welding training on the simulators, the students are reportedly more confident and find it easier to transition to the real-time environment (Okimoto et al. 2015). VR welding simulators like the ones developed by SkillVeri

offer a standardized lesson plan to teach a basic skill level with ease and accuracy (Skillveri 2015). All training modules are developed in line with the National Council for Vocational Training standards. For an entry level, 2-week program in welding, the simulator is reported to save more than \$300 per student. From the viewpoint of a training center which prepares students for international certifications, welding simulator becomes an effective mechanism to save cost and time.

Recent schemes of the government to support innovation and manufacturing within the country such as the Make in India initiative have encouraged training institutes and industry to consider advanced technology-based training and skill development. The country looks to ride this new wave created by inclusion of haptic simulators and augmented and virtual reality applications to address its needs in the present and future.

In this section, ICT for teaching and learning within formal TVET scenarios was discussed. The ICT-enabled teaching and learning initiatives for open and distance learning TVET will be discussed next.

## Open and Distance Learning

Distance learning institutes in India have experienced a significant rise in student enrolment, with an estimated ten million currently enrolled (Team Careers, 2017). India's ODL system consists of the Indira Gandhi National Open University (IGNOU), State Open Universities (SOUs), and other institutions and universities which include the Correspondence Course Institutes (CCIs) in the conventional, dual mode. Government and private ODL schools offer a range of skill-based programs. There are currently over 245 institutions that offer courses via distance education, of which about 100 are TVET courses (Vaid 2014).

Public institutions such as IGNOU, NIOS, and other private institutions that offer ODL in India have launched online certificate and diploma courses. They utilize an array of ICT in the teaching and learning process such as MOOCs, OER, education radio, and video broadcasts, among many others. The ICT trend is likely to continue with GoI initiatives like "SWAYAM," an integrated platform and portal for online courses for TVET, secondary and higher education levels. There is strong funding support from the GoI to develop and deploy MOOC courses that meet rigorous development standards and feature built-in monitoring mechanisms to ensure quality. This is further supported by the University Grants Commission (UGC) regulations which now recognizes and allows transfer of credits for courses done online (University Grants Commission Regulation 2016).

*ICT Initiatives of IGNOU:* Established by the MHRD, this institution is one of the largest open university in the world, with three million students enrolled. Sixty-one TVET certificate courses and 53 diploma programs in distance education mode are currently being offered through its network of 3000 study centers across India. Hands-on exercises are conducted at the study centers or through affiliated workshops or industries. The ODL organization uses ICT in various ways to supplement the print-based self-learning materials – such as *Egyankosh* – a national digital

library that houses digitized self-learning print material developed by a consortium of ODL institutions, YouTube channels, wiki pages, blogs, live educational programs through video and audio broadcast channels, teleconferencing, and learning management systems. The institution is in the initial stages of delivering a large number of certificate and professional online courses through the SWAYAM platform (Singh 2017).

The range of its ICT-enabled learning initiatives has enabled better access to learning resources and services, contributed to increased student retention rates and reduced dropout rates (Dowerah and Kanta 2011). However, there are also studies that indicate low adoption of ICT for academic purposes measured in terms of course material download, subscriptions to broadcast/video, and so on. This has been attributed to factors such as lack of awareness, lack of access to Internet services, and quality of the audiovisual content (Awadhiya et al. 2014; Gaba and Sethy 2010). In order to increase the outreach and promotion of ICT-enabled learning, the institution is setting up 5000 digital learning centers utilizing the broadband network created by the government to connect one million villages in India (NDTV 2017). The open university has also signed an MoU with Common Service Centers (CSC), a network of over 200,000 centers with ICT infrastructure across India that will increase the outreach of TVET through open university, its digital learning initiatives, and other services (Hindustan Times 2017).

The following section discusses ICT-integrated TVET delivery practices implemented by nonformal education training providers.

## Nonformal TVET

In India, nonformal education (NFE) has more commonly encompassed programs that address basic literacy, i.e., reading, writing, numeric literacy, and life skills development, supported by the MHRD and Ministry of Labour and Employment (MoLE). NFE programs under initiatives such as *Jan Shikshan Sansthan* (JSS, originally an adult literacy program that caters to tribal groups), the National Literacy Mission, etc. are illustrative of the traditional approach to literacy education. Several of these programs have since evolved and shifted focus to TVET.

*I-Saksham* (2015) is one example of NFE that provides a certificate course in basic tutoring to youth in remote villages. The trained youth, in turn, teach children in their village using digital tablets with learning content sourced from various providers. I-Saksham reported through the distributed survey that their training model has led to improved learning outcomes and reductions in training costs and dropouts, making it possible to scale. Some of the reported challenges were high repair/maintenance costs of low-cost tablets and poor connectivity in these geographies resulting in increased spending on logistics for delivering content, monitoring, and evaluation (NSDC Representative and I-Saksham, survey, October 17, 2017).

While ICT-enabled NFE in India is a recognized research and intervention area with respect to literacy and life skills programs, practical evidence appears less

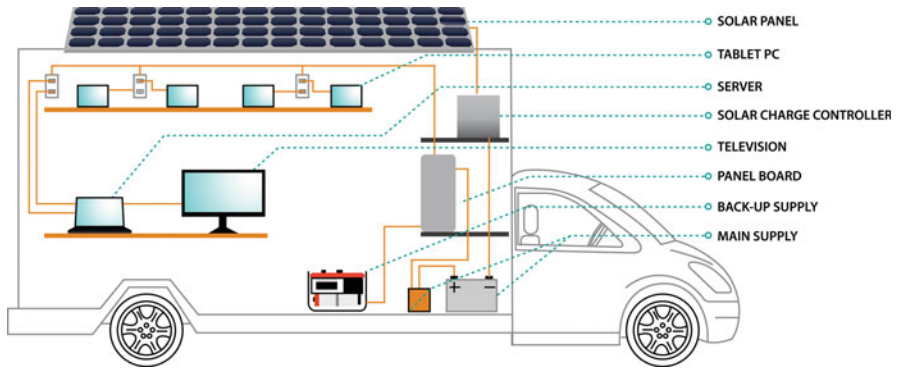
extensive in the area of vocational training. For example, AMMACHI Labs is an organization that designs and delivers NFE skill development and life skills to women in rural India via ICT (UNESCO-UNEVOC 2017). The organization provides vocational and life skill development through ICT and mobile platforms as a means to women's empowerment. The organization shared lessons learned in implementing nonformal, ICT-based vocational and life skills education:

- *Usability among users with low education attainment and digital illiteracy:* Deployments of the organization's approach (UNESCO-UNEVOC 2017) demonstrated effectiveness in achieving independent and self-paced learning, motivation to learn new subjects, interest in repeated use, recommendation of the course and learning tool to others, heightened sense of self-esteem and confidence, and feelings of personal dignity in connection to learning a skill through technology (Bhavani et al. 2010). Issues of digital illiteracy were addressed by contextualizing the design of TVET e-content and software to the target demographic (Sachith et al. 2017).
- *Flexible deployment scenarios and blended learning models:* Several trials were conducted to explore combinations of student to technology ratios, such as one student per ICT tool (desktop computer, laptop, or tablet) in high-resource settings versus two or more students per ICT tool, in resource-constrained areas. It was found that peer interaction in the computerized classroom helped students overcome their inhibitions to learn and created a safe space for collaborative learning. Furthermore, the sharing of a common experience by learning a vocational trade through computers, the discovery of personal and shared perspectives through collaboration on tasks, and in-class group discussions helped to socially bond learners, which found to be critical toward personal development and a sense of professional identity. The organization's pedagogy was accordingly designed to strengthen a community of learning and practice within and outside the classroom (Bhavani et al. 2010).
- *Required infrastructure and human resource inputs:* The presence of a facilitator, who functions as the center manager and mentor to students, was determined essential. The extent to which a subject-matter expert is actually required was found to be intermittent (depending on the complexity of the course), for periodical hands-on practical training and assessment.

### **Mobile TVET Classrooms**

Mobile, solar-powered classrooms equipped to deliver computerized TVET lend to greater accessibility, flexibility, scale, and inclusion (NITI Aayog 2017). While mobile classrooms could potentially substitute brick-and-mortar infrastructure in geographically remote areas, there are several technical and operational constraints that make it impractical to do so completely. For example, while mobile classrooms are effective in reaching underserved communities, skill development programs often require a greater investment in the targeted community, of a resource that is more economically effective for shorter term interventions. Mobile classrooms do,





**Fig. 3** Conceptual design of the MoVE mobile TVET delivery vehicle designed by AMMACHI Labs © Amrita University

however, allow for less dependency on human resources, greater flexibility in training, increased geographical coverage, and relatively lower investment in operational costs that give this solution a competitive advantage. Effective implementation of TVET, therefore, relies upon carefully planned interventions that take into account the time investment required in the targeted community (Fig. 3).

Very few agencies in India run mobile TVET classrooms (Raghavan 2007). These mobile setups are evolving from substituting conventional classrooms to complementing traditional training (Nagarajan et al. 2012). A few considerations that underscore the evolution of mobile TVET include:

- Changes in the traditional hub and spoke operating model to accommodate dynamic needs from the field.
- The role of the trainer has evolved into the role of a facilitator who is not necessarily a subject-matter expert but a person with the skill set to manage an ICT classroom.
- The ideal vocational courses are those that require less intense TVET hardware.
- An emerging focus on twenty-first century skills training, such as problem solving and design thinking as a complement to TVET.

## Revisiting Promises and Constraints of ICT in TVET

The discussion thus far has demonstrated how ICT-integrated TVET is an active area of practice and research in India. Various ICT initiatives across India's learning continuum were discussed along with their promises and constraints, as summarized below (Table 1). The listed enabling factors summarize current efforts in India that support the integration of ICT in TVET. While these enabling initiatives are still at a nascent stage, they offer promise toward achieving improvements in inclusivity, standardization, and quality.



**Table 1** Summary of promises of ICT along with the constraints and enabling factors

ICT Benefits	Current constraints and enabling factors
Scalability of TVET	<p><i>Constraints:</i></p> <ul style="list-style-type: none"> <li>E-content is not available for a majority of courses despite the demand due to costs associated with the development</li> <li>A requirement for courseware in various Indian languages</li> <li>Internet connectivity issues</li> <li>Poor training practices and IT infrastructure</li> <li>Finances – Initial costs involved in setting up IT infrastructure and licensing of ICT-enabled tools and courseware</li> </ul> <p><i>Enabling factors:</i></p> <ul style="list-style-type: none"> <li>GoI initiatives to develop ICT-enabled open-access resources</li> <li>Promotion of OER by agencies like CEMCA and COL</li> <li>Participation by industry to develop and market ICT tools and courseware</li> <li>Improved internet connectivity through GoI initiatives</li> <li>Opportunities for utilization of existing infrastructure, e.g., CSCs, railway stations, government institution buildings, and resources</li> <li>National level thrust such as digital India mission campaign to provide digital literacy to all Indians</li> <li>Policy support for ICT enablement through the National Skill Development Policy</li> <li>ODL courses through the Swayam portal and other ODL initiatives utilizing ICT</li> <li>ITI modernization efforts</li> </ul>
Accessibility to TVET	<p><i>Constraints:</i></p> <ul style="list-style-type: none"> <li>Socioeconomic barriers to technology access</li> <li>Digital illiteracy</li> <li>Lack of courses in required languages</li> <li>Paucity of training providers serving rural and tribal areas where it is not cost-effective to set up centers</li> </ul> <p><i>Enabling factors:</i></p> <ul style="list-style-type: none"> <li>Digital India initiatives</li> <li>Low cost of 4G mobile data and handsets</li> <li>Mobile TVET and similar innovations to reach remote areas</li> <li>NIOS and open schools initiatives</li> </ul>
Quality of training and certification	<p><i>Constraints:</i></p> <ul style="list-style-type: none"> <li>Lack of well-trained teachers in training and using ICT and subject-matter expertise</li> <li>Lack of availability of standardized and quality content and E-content</li> <li>Quality and suitability of OER</li> <li>ICT-enabled training can contribute to passive learning (i.e., videos and digital texts)</li> <li>Lack of access to active learning tools and courseware</li> <li>High costs of development</li> </ul> <p><i>Enabling factors:</i></p> <ul style="list-style-type: none"> <li>Increased awareness about the use of OER and its advantages</li> <li>GoI focus on Swayam courses by industry and academic experts and private agencies resorting to online training for ODL and the use of ICT for classroom training (as seen by demand)</li> <li>The use of simulators for RPL and certification</li> </ul>

(continued)

**Table 1** (continued)

ICT Benefits	Current constraints and enabling factors
	Mandate for good instructional design frameworks and rigorous focus on quality assurance of content and its periodic revision by industry certified experts Industry involvement in content development Job connect through job portals Effective blends and access to ICT technology Community of learning and practice to sustain aspirations Mobility across vocational and higher education streams

## Preparing Youth for the Changing Place of Work

Even as ICT addresses various infrastructural and pedagogical issues with traditional TVET, a holistic solution must also address some of the biggest issues facing the domain of technical skills development in the near future, the increasing adoption of automation technologies driven by advances in artificial intelligence (AI) and robotics. Many jobs requiring routine cognitive and physical skills, especially in the technical trades, are quickly being replaced by algorithms and machines (World Economic Forum 2016). Success in the vocational trades in this century will mean mastery and constant upgrading of technical and soft skills to fit more advanced and integrated positions.

When technical skills are combined with the 4Cs – creativity, collaboration, critical thinking, and communication, along with pedagogical strategies like project- or problem-based learning (PBL) – peer to peer teaching, and design thinking, it not only prepares students for a career in the technical space but also gives them the essential creative and teamwork competencies needed to succeed in the twenty-first century workplace (Trilling and Fadel 2009). One key enabler for this is the idea of a “makerspace,” a space furnished with rapid prototyping and computational tools that enable the rapid realization of solutions. For this reason, the Indian government’s think tank, NITI Aayog, is in the process of establishing makerspaces throughout India known as the Atal Tinkering Labs (ATL). As of 2017, more than 900 schools have been selected for this program. The NITI Aayog has associated the ATLs with the Self-Employment and Talent Utilization (SETU) scheme to provide pathways to encourage the formation of start-ups.

## Twenty-First Century Skills Workshops in Andhra Pradesh

The twenty-first century skills training workshops organized in Andhra Pradesh in collaboration with the Andhra Pradesh Skill Development Corporation (APSSDC) are the ongoing case in point (Times of India 2016). The workshops focus on creating and disseminating educational tools and curriculum for teaching computational thinking, robotics, and maker skills, along with “softer” skills like social

problem solving. Listed below are the three main technical skills taught in the school workshops:

*Computational Thinking Skills:* With computation merging into almost every area of human activity and vocation, a literacy and fluency in computational thinking is crucial. One method of imparting these skills is through the use of serious games (Unnikrishnan et al. 2016). The game teaches the basic concepts of computational thinking including sequential commands, loops, and conditional branching (ibid). The game was found to have reduced the cognitive “leap” students need to make to understand the basics of computing which makes the valuable skill of programming easily accessible to all.

*Maker Skills:* Rural India is well regarded for its “jugaad” spirit or the ability to come up with innovative products and solutions given highly constrained sources of finance and materials. This spirit must be harnessed and channeled in the present age so that the inventors and innovators of rural India can better participate in the globalized economy and job market. The curriculum for teaching these “maker” skills follows a grounded approach by teaching design and thinking principles through hands-on exercises, 3D modeling, and sketching skills to help design products and practical prototyping skills.

*Robotic Skills:* Work in robotics involves both the abstract skills of computational thinking and the skills of making and engineering. The LEGO Mindstorms kit and the Hummingbird kit are two educational toolkits that are commonly used for introducing robotics to students, with Mindstorms providing a versatile and interactive medium for rapidly creating and designing programmable robotic solutions and the Hummingbird bringing a more arts and crafts approach. These two kits are demonstrating promising success in teaching robotics skills and at the same time allowing robotics to become a social tool for technical explorations accessible to diverse student populations.

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## Conclusion

ICTs in education and skill development are undergoing a rapid change. As advances in computer graphics, artificial intelligence, and machine learning technologies rapidly evolve, the future of TVET will invariably be impacted by a more sophisticated integration of ICT. Advances in motion tracking through the Leap Motion and Microsoft Kinect, among other technologies, which were primarily made for the entertainment industry, will serve as conduits for artificial intelligence-enabled tutoring systems to understand the students’ context and student performance through multimodal learning analytics (Blikstein 2013). These tutoring systems will then modify content delivery strategies and pedagogical and testing approaches so that every student gets a customized learning experience suited to their needs (Sarrafzadeh et al. 2008). Content delivery will be transformed as the primary media for instruction and communication will shift to cost-effective mobile devices enabled by the spread of 4G networks through the country. This would circumvent the problem of loading media-rich content onto phones and tablets with limited storage

capacity. Technologies being used in social networking sites can be used by content providers to club together students based on their geographical location, interest, etc. so that the virtual learning environment is supported by robust communities of practice in the real world.

Based on the discussion thus far, it is apparent that while ICT-integrated TVET is a rapidly emerging practice across India, further research is required to better understand best practices and replicable delivery models. While the GoI and several industries are strong proponents of ICT-driven solutions, it is vital that their support also extends to investing in monitoring, evaluation, and research-driven development of innovative technology to complement the changing nature of work. Additionally, to prevent unnecessary duplication of efforts that are already costly, a synergy among agencies that develop open-access ICT resources for TVET is imperative.

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# National Policy Framework Development for Workplace-Based Learning in South Africa

# 28

Ronel Blom

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## Abstract

The latest response in South Africa to social problems associated with youth not in education, training, or employment (the NEET youth) is the intention to roll out large-scale programs of workplace-based learning. The implicit purposes are to improve the employability of youth, to ease the transition from school or learning to work, and to enhance the educational value of learning through authentic, real-life workplace situations.

In support of the above, a study aimed at developing a national policy framework for workplace-based learning was commissioned by the South African Department of Higher Education and Training.

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Using an educational design research approach, the first phase of the study entailed content analysis of legislation and policies which provide the statutory basis for, and intend to give effect to, a workplace-based learning policy.

Although the “language” of workplace-based learning is highly congruent across all the policies, the hoped for “outcomes” of such policies are very different from actual practice. Policies strongly focus on labor-absorbing activities, while education practices place emphasis on workplace-based activities for purposes of enhanced learning. Policy pronouncements may therefore place unfair pressure on the education and training system to solve the problems of the youth unemployment, a job-scarce environment and poverty.

This contribution tracks the genesis of a national policy framework for workplace-based learning in South Africa. It results in a typology of divergent practices, with differing purposes, which may make it improbable (and perhaps inappropriate) to implement a single, homogenous approach to funding and implementation of workplace-based learning in the country.

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**Keywords**

Workplace-based learning · Labor-absorbing activities · Enhanced learning · National policy framework

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## Introduction

The latest policy response in South Africa to the social problems associated with youth not in education, training, or employment (the so-called NEET youth) is the intention to roll out large-scale programs of workplace-based learning. The implicit purposes are manifold: to improve the employability of youth; to ease the transition from school to work, or learning to work; and to enhance the educational value of learning through authentic, real-life workplace situations.

There is a dire need for meaningful policy responses to deal with the looming social problems associated with high youth unemployment. In a discussion document published by the South African National Treasury (2011), it is maintained that, at the time, only one in eight young people under the age of 25 years were employed. In 2017, the unemployment rates of young people in most categories, including the NEET youth, have risen.

Young people without a school-leaving certificate are the hardest hit, with unemployment increasing from 29.9% in 2011 to 33.1% in 2017, while unemployment for those who have attained the school-leaving certificate remained flat at 27.5% in 2011 and 2017, respectively. Graduate unemployment has recently been noted with concern, but in this group, unemployment is relatively low (Van der Berg and Van Broekhuizen 2012). It has nevertheless increased – from 4.4% in 2011 to 7.3% in 2017. In addition, a group categorized as having concluded “other tertiary” (pre-university, post-school education – see Umalusi 2009), also saw a significant increase in unemployment, namely, from 10.9% in 2011 to 17.8% in 2017 (Statistics South Africa 2017, p. 14).



Policy responses have been wide-ranging: a National Skills Development Strategy has seen three iterations since its first implementation in 2001, with a fourth iteration under consideration. Various youth-focused initiatives have also been launched. However, it is only since the publication of the National Development Plan (National Planning Commission 2011), the Social Accords agreed to in support of the Plan (2011–2013), and the South African Department of Higher Education and Training's White Paper for Post-School Education and Training (Department of Higher Education and Training 2013), that the focus shifted particularly to workplace-based learning as a possible solution for youth unemployment.

In 2015, the South African Department of Higher Education and Training commissioned research to develop and establish a national policy framework for workplace-based learning, which was intended to encompass all of the objectives mentioned above, namely, improved employability, transitioning from school and/or learning to work, and enhanced learning.

Using an educational design research approach (Van den Akker 1999), the first phase of the research entailed the detailed content analysis of legislation and policies which provide the statutory basis for, and intend to give effect to, the goal of a national, fundable, workplace-based learning policy framework. It also involved an extensive literature review of learning for, at, and through work (Brennan and Little 1996).

Based on phase one, the second phase involved the drafting of a concept (prototype) policy framework (Blom 2015); the third required interaction with expert groups to refine the policy framework; and the final phase required publication of the draft policy framework for public comment.

The research design appeared to be appropriate, as it succeeded to “develop an intervention to address an educational matter for which no or few guiding principles, ready-made solutions, or guidelines have been found’, since no “how to do” guidelines or heuristics [seem to be] readily available” (Modiega 2014).

This chapter will largely focus on the first phase, particularly on the existing policy instruments that were meant to enable the large-scale implementation of a policy framework for workplace-based learning. Ten non-education-related (inclusive of human resource and economic policies) and seven education and training-related policies were analyzed. It became evident that while the “language” of workplace-based learning appears to be highly congruent across all of the policies, the hoped for “outcomes” of such policies are very different from actual practice at institutions of learning. Policies seem to strongly focus on labor-absorbing activities, while education practices place emphasis on workplace-based activities for purposes of enhanced learning. Policy pronouncements may therefore place unfair pressure on the education and training system to solve the problems of the youth unemployment, a job-scarce environment and poverty.

A single policy for workplace-based learning, however strongly supported by a range of policy instruments, cannot be expected to solve all the problems of youth unemployment, a job-scarce environment and poverty. The struggle for a policy framework that will support and enhance the development and implementation of the integration of education, training and work, for the purposes of learning, and not primarily for the purposes of employment, has just begun (Blom 2015).

This contribution will track the genesis of a national policy framework for workplace-based learning in South Africa. It proposes a typology of divergent practices, with differing purposes, which may make it improbable (and perhaps inappropriate) to implement a single, homogenous approach to funding and implementation of workplace-based learning in the country.

The discussion will start by describing the struggle to come to a common definition for workplace-based learning. It will also assess the extent to which the proposed policy framework could meet the needs of all the potential beneficiaries mentioned above. It will then turn to an analysis of the various policy instruments in relation to the agreed to definition, tracing the extent to which policy intent and practical institutional realities match. The discussion will end with commentary on the likelihood that a single policy framework could meet the needs of diverse expectations.

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### **Definitional Difficulties: What Is in a Name?**

The first attempt at the development of a system-wide policy framework for workplace-based learning was made by the Southern African Society for Cooperative Education (SASCE) (see <http://sasce.net>), the body in South Africa that seeks to advance work-integrated learning (WIL). This body, affiliated to the World Association of Cooperative Education (WACE) (see <http://www.waceinc.org/>), has been trying to find traction for the practice of cooperative learning in the South African higher education system. Participating institutions involve the six Universities of Technology in the public system and to some extent, Technical and Vocational Education and Training (TVET) colleges.

SASCE has long sought funding support for the management, administration, and training of institutional tutors and workplace mentors in keeping with the needs of their curricula which require experiential learning in workplaces. However, as Ori (2014, p. v) noted, “despite the great strides made in implementing WIL across the Southern African region, WIL has been practiced in a policy vacuum.” Thus, while laudable, this first attempt at a national policy, addressed only a relatively small part of the post-school system, and the South African Department of Higher Education and Training consequently initiated its policy development process.

In the scoping of the study to support the development of the national policy framework, it was found that definitions relating to some form of workplace or work-related learning, abound in South Africa, with the Southern African Society for Cooperative Education, for example, recognizing only work-integrated learning as its definition. However, it was clear that this single definition of WIL excluded many other practices in the country. It therefore appears that definitions stem from a range of practices that have been in existence, in one form or another, for some time, and it is only recently that an attempt was made to bring all forms of workplace-based or work-related learning into one framework.

This was not an easy and, to a large extent, is an ongoing task. This is because it is evident that each definition relates to a range of intersecting issues: some practices

relate to the curriculum (for example, work-integrated learning and work-based education) while others refer to pedagogical devices (for example, experiential learning, job shadowing, and simulated work). Yet others relate to the timing of workplace exposure (such as in-service learning, sandwich programs, and suchlike) and to the locality of the placement (industrial placement or community placement, etc.) (Blom 2014).

Furthermore, the purposes of each of these practices seem to differ. While the curricular practices and pedagogical devices seem to intend to enhance learning, others seek to increase the employability of graduates by concluding some form of workplace-based learning to achieve a qualification. Others are unashamedly about placing a variety of entrants in workplaces to gain experience for employment purposes. These issues are undoubtedly influenced by the target groups it is intended for, and the way in which the practice can be funded.

Nevertheless, in Table 1, a (final) list of practices is provided (based on the typology developed by the South African Department of Higher Education and Training (DHET) 2014a, p. 10).

**Table 1** Workplace-based practices in South Africa

Practice	Purpose	Target group	Funding
Apprenticeship	To achieve a trade qualification	Apprentices	Employer
Learnership	To achieve a registered sector education and training qualification	Learners, usually unemployed	Sector education and training authorities
Internship	To achieve a “legacy” diploma offered by technical and vocational education and training (TVET) colleges	Graduates of technical and vocational education and training qualifications	Employer and/or sector education and training authorities
Student internship category A	To achieve a vocational qualification	Students who have concluded a vocationally oriented higher education program	Employer and/or funder
Student internship category B	To achieve a professional qualification	Students who are busy with or have concluded a professional qualification	Depending on timing, either not funded (teaching) or funded by the employer (nursing)
Candidacy	To achieve a professional designation	Candidates, for example, chartered accountant	Employer
Graduate internship	To gain work experience and improve employability	Unemployed graduates, usually for programs where workplace-based learning is not part of the curriculum	Various, including sector education and training authorities and the National Skills Fund

All of the above practices, except for “graduate internship” reflect current practices. Also, all are, except for “graduate internships,” arguably either considered part of the curriculum or are integral to the achievement of the qualification. However, the extent to which the practices enhance learning as one of the objectives of workplace-based learning was not examined in establishing the typology.

Nonetheless, the following overarching definition was agreed at the time (Department of Higher Education and Training 2015b, p. 19):

Workplace-based learning is an educational and training approach through which a person internalizes knowledge, gains insights, and acquires skills and competencies through experience in a workplace to achieve specific outcomes applicable for employment.

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## **The Draft Policy Framework and Its Intended Beneficiaries**

### **Not in Education, Employment, or Training (NEET) Youth**

In terms of addressing the needs of the youth not in employment education or training, who either have not concluded their schooling or who have a school-leaving certificate but are not currently registered on a program with a post-school institution, the draft policy framework on workplace-based learning is meaningless. Yet, in all the policy instruments discussed in the next section, the not in employment, education, or training youth feature strongly, suggesting that these instruments have the implicit intention to enable work placement for the unemployed. Clearly, workplace-based learning requires young entrants to be enrolled for, or have concluded a formal qualification, and this is not the case with the NEET youth. It may therefore be more appropriate to rely on other policy instruments such as the “Youth Wage Subsidy” (the Employment Tax Incentive (Act 26 of 2013)) to address the needs of NEET youth (see the discussion document developed by the South African National Treasury 2011). Furthermore, it is telling that the above typology developed by the South African Department of Higher Education and Training (2014) does not have a category to deal with this target group.

### **Apprentices, Learnerships, Student Internships Category B, and Candidacy**

Students enrolled for these programs are arguably the direct beneficiaries of a policy on workplace-based learning. These practices see the workplace experience segment of the curriculum either as an integral part of such curricula (apprenticeships and learnerships) or is considered a prerequisite for eligibility to seek a license to practice (student internship category B and candidacy – see Table 1). These types of workplace-based learning are well-established and, despite critiques in terms of quality, have the necessary infrastructure (including funding, where appropriate), to continue implementation.

## Student Internship Category A

This category is intended to accommodate the needs of students in vocationally oriented higher education programs (usually offered by universities of technology), who are in need of “experiential learning” in keeping with the conceptual frame informing these curricula. Lately, students offering (nontechnical) programs at TVET colleges are also considered part of this target group. This category of students is particularly vulnerable to an unwillingness, on the part of employers, to absorb young, potential entrants to the workplace. A workplace-based policy framework, including a concomitant funding structure, will significantly benefit this target group.

## Unemployed Graduates

Turning to the unemployed graduates, the inclusion of “graduate internship” as a category is clearly included in the typology to meet the needs of this target group, despite the relatively low rates of unemployment. However, it is the pre-university, post-school graduates that will clearly benefit (see Table 1). This target group, (the internship category), numbering at least 39.8% (or 127,436 college students) in 2015 (Department of Higher Education and Training 2017a, b, p. 36) are enrolled for the so-called “legacy” qualifications at public and private post-school TVET colleges. “Legacy” qualifications refer to programs that were meant to be phased out with the reforms introduced in the education and training system in the 1990s, but due to various policy impulses, were retained (but unfortunately seem to remain unreformed and largely outdated).

Nevertheless, in terms of the proposed policy framework on workplace-based learning, it is clear that not all of the current categories are necessarily in need of an additional policy instrument to enable students and/or graduates to successfully achieve qualifications and improve their chances in gaining employment. The categories that are in the greatest need for policy support, however, are also seen to be the weakest in the system. The Swiss South African Cooperation Initiative (2013), for example, states that (p. 56):

Colleges are required, by [the Department of Higher Education and Training]’s formal planning and monitoring framework, to provide [workplace-based learning]. Despite this, colleges are at markedly different stages of [workplace-based learning] implementation and much has still to be done in order for [workplace-based learning] to be institutionalised within the colleges’ structures and systems. The differing capacity of the colleges is a key factor here, but industry’s very limited appetite for [workplace-based learning] at present is also a significant constraint.

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## (Enabling?) National Policy Instruments

The South African policies developed and enacted since the dawn of democracy in 1994 are lauded as some of the most progressive in the world, particularly in terms of their “nation-building” intentions (Gumede 2008, p. 8). Certainly, policy-making is strongly seen to be “collective interventions directly affecting transformation in social

welfare, social institutions and social relations” (Mkandawire 2001). Thus, the non-education and education policies meant to enable the system-wide implementation of workplace-based learning are awash with positive signals in regards to the practice. This is in contrast with policy development, which in the past, was characterized by silo-based development. These silos often led to policy paralysis because the supporting “institutional logic” (Raffe 2003) was absent, meaning that support for a particular matter was evident in only one set of policies, but lacked support in others.

In the case of workplace-based learning, a deliberate attempt was made to achieve coherence across non-education and education policy instruments. It is evident that these policy instruments largely agree, but the intended outcomes of these policy pronouncements seem to differ substantially from actual practice. Consequently, while “policy breadth” was achieved, (where “policy breadth” refers to the direct and explicit linkages with other measures in the system – see, for example, Raffe 2003; Keevy 2006), in the analysis of the policy instruments, it seems that the outcomes sought, particularly in relation to workplace-based learning for education purposes were conflated: policies largely seek to enable “work”; while on-the-ground practices seek to enable “learning” (Blom 2015).

Ten non-education and seven education policies were analyzed, originally to ensure that “policy breadth” (Keevy 2006) is achieved. It became clear that non-education policies and education and training policies “focus strongly on the economy, and on how workplace-based opportunities could contribute to a more prosperous nation through various labor-absorbing activities” (Blom 2015, p. 19). Institutional practice, on the other hand, tend to address workplace-based learning as a mechanism to enhance learning, in keeping with the purposes of curricula. This is because workplace-based learning is seen to be “about learning, and not about working. Work is the vehicle for learning” (Blom 2013, p. viii).

As indicated in the introduction, this section will trace the policy intentions of the non-education and education policies, and assess each in respect of the agreed definition for workplace-based learning, namely (Department of Higher Education and Training 2015b, p. 19):

Workplace-Based Learning is an educational and training approach through which a person internalises knowledge, gains insights and acquires skills and competencies through experience in a workplace to achieve specific outcomes applicable for employment.

## Non-education Policy Instruments and Workplace-Based Learning

Table 2 outlines the non-education policies that were analyzed (not an exhaustive list).

The *National Development Plan* (National Planning Commission 2011) is arguably the most coherent statement of the “dreams” for the country; in the introduction, these dreams are expressed as follows: “[the] plan is to change the life chances of millions of our people, especially the youth.”

It is an all-encompassing plan, including considered proposals in respect of “education and skills, decent accommodation, safe communities, social security, transport and job opportunities” (National Planning Commission 2011).

**Table 2** Non-education policies in South Africa

Name of policy instrument	Date
The National Development Plan	2011
The New Growth Path	2011
National Skills Accord	2011
Youth Employment Accord	2013
National Integrated Human Resources Development Plan	2014–2018
Industrial Policy Action Plan	2013
Strategic Implementation Projects	No date
Draft National Youth Policy 2014–2019	2014–2019
Turning the Public Sector into a Training Space	2015
The Public Service Human Resource Development Strategic Framework	No date

However, it is evident that the plan is hugely concerned with job creation and that it sees workplace-based learning as a means to achieve these aims, in keeping with the developmental agenda of (economic) growth (Gumede 2008). Furthermore, the plan has a distinct youth focus with the intention “to expand opportunities, enhance capabilities and provide second chances” – one of which is “easy labor market entry” (National Planning Commission 2011, p. 86). However, “education without jobs carries risks of its own” (p. 86), so the economy needs to expand to absorb more labor (Blom 2015). The latter comment, in particular, signals the possibility of a kind of “mission drift” for a national policy framework for workplace-based learning.

Nevertheless, the “language” of the plan includes workplace-based opportunities and placements, learnerships, internships, work experience programs, and service-linked scholarships, and the subsidies envisaged for these, albeit for the purposes of employment creation, rather than for the purposes of learning.

The *New Growth Path* (Department of Economic Development 2011a) in contrast is primarily about the economy (as expected), and the policy document states that the New Growth Path is “the framework for economic policy and the driver of the country’s job strategy” (p. 1). Employment opportunities and a “decent work agenda” (p. 11) is at the heart of the strategy. It nevertheless sees workplace-based learning as a means to “skills development, entrepreneurial opportunities for youth and [placements in] knowledge-intensive sectors such as Information Communication and Technology (ICT), higher education, mining, healthcare, pharmaceuticals and biotechnology” (Blom 2015).

Interestingly, the New Growth Path (Department of Economic Development 2011a) also proposes a parallel system (to other forms of workplace-based learning internships), namely, “youth brigades,” which claim to be have the purpose of exposing “young people to work experience through internships” (p. 34).

Furthermore, the New Growth Path (2011a) is adamant that none of the above is possible without a set of social pacts with all stakeholders involved which comprise an agreement between government, business, and labor to secure mutual benefit – in this case, the improvement of the economy.

Five social pacts were formed following the publication of the National Development Plan (National Planning Commission 2011). The two social pacts, formally



known as “Accords” relevant to the policy framework for workplace-based learning, are the National Skills Accord (Department of Economic Development 2011b) and the Youth Employment Accord (Department of Economic Development 2013).

The *National Skills Accord* (Department of Economic Development 2011b) encompasses “efficiencies, funding and alignment of the skills system with the New Growth Path, the development of a pipeline of new entrants to the various skills fields and support for colleges” (Blom 2015, p. 6). However, it also focuses quite particularly on artisanal training, internships relating to TVET colleges and university of technology graduates, suggesting that it targets the skills system, with the higher education system only included on the periphery.

The *Youth Employment Accord* (Department of Economic Development 2013) is quite overt in its intention: the social problem of youth unemployment. However, the main mechanism to achieve youth employment is through partnerships which involve training, internships, and apprenticeships and “youth brigades” which will provide some work experience and training (p. 18). Once again, it is clear that policy intentions rely heavily on the education and training system to solve the problems presented by youth unemployment. The education and training system is also expected to assist with the transitioning from school to work, by offering second chance opportunities, and by improving the vocational education and training system (Blom 2015).

The *National Integrated Human Resources Development Plan 2014–2018* (Human Resources Development Council, n.d.) is equally focused on the post-school, pre-university sector. Likewise, the *Industrial Policy Action Plan* (Department of Trade and Industry 2013) targets the “significant skills deficit and demand-supply mismatch in many areas of the domestic economy” (p. 8). However, at the time, the policy also aimed to put in place an Unemployed Graduate Work Experience Placement Programme and work readiness programs addressing employability skills and unemployed youth through various learnerships. To this end, the National Department of Trade and Industry has concluded Memoranda of Understanding with selected Sector Education and Training Authorities. It thus displays a conscious effort in aligning the needs of the economy with the needs of the education and training system (Blom 2015).

The *Strategic Implementation Projects* (Department of Economic Development, n.d.) relates to a series of implementation plans to give effect to a National Infrastructure Plan (Department of Economic Development 2012). It strongly relies on workplace-based practices to achieve the aim of the projects, including experiential training, access to workplace training opportunities (for apprentices), and other workplace experience through all public works. The hope was that the alignment of education and training and the infrastructure projects will “lead to a seamless transversal from a learning pathway to workplace assessment and employment” (Blom 2015). There is thus a strong congruence with the purposes of workplace-based learning as an educational practice.

The *Draft National Youth Policy 2014–2019* (Department of Planning, Monitoring and Evaluation 2015), on the other hand “responds to the challenges peculiar to young people in the 21st Century” (p. 6), as youth is finding joining the labor market particularly difficult, especially young women. Solutions to deal



with these challenges include a National Youth Service, public employment schemes; skills development; work exposure measures for on-the-job experience; and internships and learnerships in the public service. Youth brigades and community works projects are seen to have high labor-absorbing opportunities. Importantly, the lack of work experience is seen to be a major constraint in being employed and workplace-based learning is consequently seen as a means to achieve large-scale youth employment. The draft National Youth Policy (Department of Planning, Monitoring and Evaluation 2015) therefore foregrounds work placement which could lead to employment, in the recognition that youth unemployment is a form of social exclusion which is in danger to impact on social and economic intentions (Blom 2015).

To achieve the above objectives, the public sector is seen to provide many opportunities for workplace-based learning. In the *Turning the Public Sector into a Training Space Strategy* (Department of Higher Education and Training 2015a), there is, for the first time, a real recognition of the educational value of workplace-based learning. According to the document, school to work transitions are highly complex, even without the sometimes debilitating South African contexts impacting on youth. This is because nine out of ten organizations will more likely hire someone with experience rather than without. For this reason, in many international contexts, internships, and workplace readiness programs are compulsory parts of education and training syllabuses. The main rationale of the document is to outline how the public service could be turned into a training space, focusing on internships, work-integrated learning, learnerships, bursaries, and traineeships with the Department of Public Service and Administration (Blom 2015).

The final non-education policy instrument to be discussed in this section is *The Public Service Human Resource Development Strategic Framework, Vision 2015* (Department of Public Service and Administration, n.d.). It should be read with the previous strategy as this document also, among other matters, focuses strongly on learnerships, internships, and bursaries for young people, mentoring and coaching for workplace and practical learning.

A few observations emerge from the analysis of the non-education policy instruments that are meant to enable workplace-based learning. First, there is a remarkable congruence in the policies in respect of the importance of workplace-based learning. This is encouraging, as it seems that “policy breadth” (Raffe 2003; Keevy 2006) has been achieved. However, as a second observation, it is clear that while the (current) definition of workplace-based learning postdates most of the preceding policies, the definition favors the practice as an educational practice, rather than a practice that will create employment. Herein lies the (in)congruence of these policy instruments with actual practice at institutions of learning, and consequently the (perhaps) unfair expectations placed on the education and training system to solve the problems of social and economic issues – issues over which the education and training system may not have direct control.

Nevertheless, education and training policy instruments also tend to stray into the realm of dealing with social and economic problems rather than with enhanced learning. These policy instruments are the subject of the analysis that follows.

## Education and Training Policy Instruments and Workplace-Based Learning

Table 3 outlines the education and training policies that were analyzed (not an exhaustive list).

The first three policy instruments, the *National Qualifications Framework Act* (Act 67 of 2008), the *Higher Education and Training Act* (Act 101 of 1997 as amended by Act 26 of 2010), and the *Further Education and Training Act* (Act 16 of 2006 as amended by Act 25 of 2010) represent the statutory bases for the different sectors of the education and training system in South Africa. As such, they predate all of the non-education policy instruments discussed in the previous section. This means that these Acts do not explicitly address workplace-based learning as a focus for policy, even though other policies and regulations, such as policies on the Recognition of Prior Learning, Credit Accumulation and Transfer and Articulation are explicitly mentioned. It is only in the *Further Education and Training Act* (Act 16 of 2006 as amended by Act 25 of 2010) that any mention is made of relationships with workplaces to increase responsiveness to the needs of the economy. In addition, the *Further Education and Training Act* (Act 16 of 2006 as amended by Act 25 of 2010) also clearly makes links with the National Skills Development Strategy (discussed below).

The *Skills Development Act* (Act 97 of 1998, as amended 2008, and by Act 26 of 2010) provides the statutory basis for the *Skills Development Strategy* (Department of Higher Education and Training, n.d.). In fact, long before a policy framework for workplace-based learning was proposed, this Act made provision for learnerships (see Table 1) which was seen to be a key approach to enhance the skills levels of the country through utilizing “the workplace as an active learning environment” where it will “provide opportunities for new entrants to the labor market to gain work experience.” The Act also makes provision for funding mechanisms through the Skills Development Levies Act (Act 97 of 1998 as amended by Act 24 of 2010) and the National Skills Fund. The key focus of the Act and its regulations is on the skills

**Table 3** Education and training policies in South Africa

Name of policy instrument	Date
The National Qualifications Framework Act	Act 67 of 2008
The Higher Education and Training Act	Act 101 of 1997, amended by Act 26 of 2010
The Further Education and Training Act	Act 16 of 2006, amended by Act 25 of 2010
The Skills Development Act	Act 97 of 1998, as amended 2008, and by Act 26 of 2010
The National Skills Development Strategy III	No date
SETA Workplace-based Learning Programme Agreements Regulations	2014
The White Paper on Post-school Education and Training	2013

system of the country – but recently these policy instruments have started including higher education and the workplace-based learning needs of those graduates, through the third iteration of the *Skills Development Strategy 2011–2013* (Department of Higher Education and Training, n.d.), which was extended unchanged until 2018. The strategy has as its explicit purpose to facilitate workplace learning as an integral part of all vocational and occupational programs. It is believed that by establishing effective partnerships between education and training systems and employers to provide for workplace training, it would ensure that skills have real labor market relevance and that young people could gain an early appreciation of and exposure to the world of work (Blom 2015). However, it is quite telling that the strategy seeks to contribute to “. . . a skilled and capable workforce that shares in, and contributes to, the benefits and opportunities of economic expansion and an inclusive growth path,” suggesting that the strategy quite explicitly signifies the dichotomy between workplace-based learning for the purposes of employment, rather than for learning.

Nevertheless, the Regulations for the Skills Development Strategy, namely, the *Sector Education and Training Authority Workplace-based Learning Programme Agreement Regulations*, (Department of Higher Education and Training 2014b) provide for the preparation, submission, registration, and management of workplace-based learning program agreements, and applies to all workplace-based learning programs including apprenticeships, learnerships, internships, internships Category A and B, candidacy, and graduate internships (see Table 1) (Blom 2015).

The final education and training-related policy instrument to be discussed is the *White Paper for Post-School Education and Training* (Department of Higher Education and Training 2013). The White Paper dedicates a full chapter on the issue of “linking education and the workplace.” However, despite being an education and training policy, workplace-based learning is seen to be an approach that will “achieve inclusive growth,” that is, it focuses on the triple challenge of unemployment, poverty, and inequality. It almost primarily focuses on the skills system as a means to achieve growth, only making the concession that the National Skills Fund should, in addition to vocational and technical programs (namely, apprenticeships and learnerships), also fund workplace-based learning of academic qualifications. In addition, there is a nod to the curricular work that needs to be undertaken to integrate theoretical and workplace learning, but renewal and reconceptualization of curricula seems to be limited to Strategic Implementation Projects (Department of Economic Development, n.d.).

Furthermore, in a clear attempt to achieve “policy breadth” (Raffe 2003; Keevy 2006), the White Paper (Department of Higher Education and Training 2013) makes mention of many of the policy instruments discussed in the previous section, for example, the National Infrastructure Plan through the Strategic Implementation Projects and the Public Sector as a recipient of interns.

This policy instrument can therefore by no means be seen to be a policy encouraging workplace-based learning for the purposes of learning, and not for working (Blom 2013).

Thus, while the education and training policy instruments all espouse workplace-based learning as “an education and training approach” (see the definition), the

expected outcomes for workplace-based learning seem to strongly lean to issues of the unemployment and the economy. This is a far cry from workplace-based learning as part of a holistic curriculum which involves “the intersection of work-based pedagogies that originate from research into how people learn in, for and through work, with the further and higher education pedagogies in which the subject-dominant starting point is applied to people at work” (Evans et al. 2010). Therefore, despite espousing workplace-based learning as an educational practice, these policy instruments are much more aligned to the economic policies of the country.

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## **A Policy Framework for Workplace-Based Learning: An Intractable Ideal?**

In seeking to establish a policy framework for workplace-based learning, an analysis of the statutory, policy, and regulatory instruments was undertaken. Initially, the purpose of the analysis was to determine whether there is sufficient “policy breadth” (Raffe 2003; Keevy 2006) for the successful implementation of a national policy framework. The analysis was largely undertaken due to previous painful experiences, where the lack of congruence of policies across the education, training, and the economic sectors hindered implementation (see, for example, Blom 2006).

In the analysis of both non-education and education and training policy instruments, remarkable agreement was found. Across these instruments, the language and practices of workplace-based learning are easily recognizable, albeit for different purposes. As noted earlier, in general, non-education policy instruments sought solutions for unemployment (particularly youth unemployment) and the boosting of the economy.

The education and training policy instruments, on the other hand, were expected to foreground workplace-based learning as an education and training approach. However, in the analysis, it became evident that the purposes of responding to the needs of the economy and the needs of education are conflated. This confirms the notion that policies are deeply influenced “by a political discourse and more so by the political manifesto of the party that wins the elections” (Gumede 2008, p. 8), suggesting that the education and training policy instruments have deeply bought into the economic discourse, rather than an educational discourse. The analysis therefore confirms that policy and politics “closely interact, often overlap, and in part cannot be separated even analytically” (Dror 2006, p. 81).

This situation does not bode well for a practice which essentially supports an educational methodology which embraces the “extent to which the curriculum reflects the teaching of theory, supported by practice” (Blom 2006). It therefore seems that, presently, current policy instruments completely ignore the curricular implications that need to be addressed when a national policy framework for the practice is developed. This is despite the attempt in the draft policy framework to balance these concerns (Department of Higher Education and Training 2015). The draft policy, for example, states that the value of workplace-based learning lies in “the recognition that workplaces are important sites of learning where new

knowledge is generated and applied knowledge is embedded” (Department of Higher Education and Training 2015).

The policy (in)congruence therefore does not seem so much to relate to the policy instruments intended to enable workplace-based learning but rather between policy and actual practice. The “voice” of education and training institutions, for example, is completely silent in the policy instruments analyzed, which primarily focus on the administrative and funding infrastructure needed to support large-scale implementation. This is despite a deliberate attempt in the policy framework development process, to draw on the expertise and experience of education and training institutions in the country (see discussion on the methodology used to undertake policy development).

Furthermore, in many policy instruments (non-education and education and training related), so-called target markets include the NEET youth. However, unless these young people are in some form of education or training, the current policy instruments are meaningless and will not address their needs. A range of other policy instruments, not discussed in this chapter, seek to deal with this particular group.

Nevertheless, a draft policy framework was concluded in 2015. In accordance to the research methodology, the draft policy framework was meant to be published for public comment and input, which would have ensured that the policy framework addresses actual practice, and could have allowed for the voice of practitioners. However, as of December 2015, the policy development process has stalled – the reasons for this are not clear. Consequently, the system remains in limbo and the practice continues to be implemented in a “policy vacuum” (Ori 2014).

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## Conclusion

This chapter traced the attempt at the development of a policy framework for workplace-based learning in South Africa. As part of the process, a useful typology for the practice was constructed. While the typology largely captured current practices (with the exception of graduate internships – see Table 1), it was the first time that different subsectors of the education and training system tried to make sense of the similarities and differences of workplace-based learning as applied in different contexts. As a result, the subsectors succeeded to agree that, although the practices, purposes, and concepts of practices vary, there is a common understanding that workplace-based learning is a powerful educational approach that could enrich and complement institutional learning. Thus, the gains achieved through engagement across all subsectors of the system were considerable. Certainly, the practice has firmly been positioned as an important discourse in education and training and seems to have the potential to improve the employability of youth; to ease the transition from school or learning to work; and to enhance the educational value of learning through authentic, real-life workplace situations.

With that in mind, perhaps a policy framework for workplace-based learning is premature. It is clear that there are no shortages of funding instruments and administrative infrastructure to implement workplace-based learning and perhaps, a policy

framework is unnecessary at this stage. This is because funding and infrastructure usually follow policy pronouncements and not the other way around. In South Africa, these have been put in place before a renewed focus on the practice came into being. Indeed, this situation may very well provide the space for education and training institutions to undertake the necessary research and investigation to build workplace-learning as a meaningful educational approach that will enhance learning.

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# Integrating Work-Based Learning into Formal VET: Towards a Global Diffusion of Apprenticeship Training and the Dual Model?

# 29

Markus Maurer

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## Abstract

In an era in which policy makers emphasize the need to invest in vocational skills development and improve its orientation towards the demands of the labor market, there is also a growing interest in promoting systems of apprenticeship, by integrating work-based learning into formal VET. Countries with dual VET at the upper secondary level are often considered as “models,” and they have been actively promoting themselves as “lenders” of dual VET in international cooperation. Still, the introduction of apprenticeship schemes in many countries has had mixed results, and even in countries where dual VET had already played a key

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role, its adaption to changes in society and labor markets has become challenging. Whereas national qualifications frameworks are now being implemented across the globe, the global diffusion of apprenticeship schemes in formal VET in general, and dual VET in particular, is by no means yet a reality.

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**Keywords**

Vocational education and training · Apprenticeship · Work-based learning · Dual VET · Switzerland · Germany

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## Introduction

Traditionally, work-based learning had been the predominant mode of vocational skills development (VSD) in most parts of the world. In the course of the expansion of educational systems, many countries started to make use of upper secondary schools to develop such vocational skills, while other countries ensured the formal education system concentrated on general education, leaving the development of vocational skills to the world of work. Only in a few countries in continental Europe, such as Germany and Switzerland, did work-based learning become a substantial element of formal vocational education and training (VET) at the upper-secondary level. This type of apprenticeship training has become commonly known as the “dual VET model.”

Today, VET policy discourses in many countries emphasize the need to articulate work-based and school-based learning through apprenticeship training. This might suggest that education systems around the world are broadly moving towards the dual VET model. This chapter, however, argues that this is not the case.

After a discussion of terminology and a brief section on the worldwide decline of apprenticeship training, the chapter provides an overview of the history, recent developments, and challenges of the dual VET model, with a focus on Germany and Switzerland. This country selection is based on the facts that, firstly, Germany is the most prominent example of a dual VET country, and, secondly, Switzerland is the country with the largest share of dual VET at the upper secondary level worldwide (SERI 2017). The chapter follows with accounts of apprenticeship schemes in other OECD countries – notably in England, France, and Sweden – and then discusses the promotion of apprenticeship training and the dual model in international cooperation before discussing challenges at the level of implementation.

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## Work-Based Learning and Apprenticeship Training

Vocational competences can be acquired at very different sites of learning (the workplace being just one of them), but it is obvious that work-based learning plays a central role in apprenticeship training. Though the terms “apprenticeship” and “work-based learning” are often used in similar contexts, they are conceptually different. The following section serves to address these differences.

## Work-Based Learning

Work-based learning is an integral part of the work process. As with other forms of learning, work-based learning contributes to the acquisition of competences; these may be generic, and thus transferable to a broad range of contexts (e.g., social competences), or specific. Some competences may be so specific as to only be applicable in a single company (e.g., the competence to handle a company-specific software), whereas others may be applicable to an entire industry sector or vocational field (e.g., the competence to handle a CNC machine in metal manufacturing). In fact, it is the latter type of competence that is generally understood to be a vocational competence in a specific vocational field or industry.

Work-based learning is often not guided by formal learning objectives but rather by work-tasks, and it can therefore be informal. Informal work-based learning can occur by observing and imitating more experienced colleagues in the workplace (modeling, see, e.g., Bandura 1972) or by learning through experience (experimental learning, see, e.g., Kolb 1984). Of great importance are also socialization processes within work contexts which can contribute to, for instance, the development of “work ethics” (Heinz 2005).

Work-based learning can also be more formalized. Many larger companies, for instance, have their own training regulations, applied during induction periods where new recruits familiarize themselves with the technologies and processes of their new employer. Work-based training can also be guided by legal regulations which may define employment conditions (e.g., salary and maximum working hours of apprentices) or training objectives (e.g., skills standards and curricula).

In most of the literature, work-based learning is seen to occur in the world of work (workshops, smaller firms, larger companies, public administration). Still, some scholars have written about work-based learning in school settings, e.g., in workshops of vocational schools. One such proponent was Kerschensteiner (1966), an iconic figure in the history of vocational education in Germany.

## Apprenticeship Training

There is no universally accepted definition of apprenticeship training. Still, the following statement by the European Commission reflects a certain consensus among experts and policy makers, at least in Europe.

Apprenticeships formally combine and alternate company-based training with school-based education and lead to a nationally recognized qualification upon successful completion. Most often there is a contractual relationship between the employer and the apprentice, with the apprentice being paid for his/her work. (European Commission 2015, p. 1)

Still, looking at apprenticeships from a more historical and international-comparative perspective, neither school-based education nor the *national* recognition of qualifications are indispensable elements of apprenticeships. In our view, apprenticeship training must: (a) include a strong (and possibly exclusive)

component of work-based training; (b) be based on institutionalized processes that are supported and shared by different actors in the respective geographical area; and (c) lead to a qualification that is socially recognized. Against this backdrop, we distinguish several types of apprenticeship which share these features:

- *Informal apprenticeships*: In many countries, apprentices are trained informally in workshops, mainly in traditional craft trades, without ever undergoing school-based vocational training or a formal test. Still, these apprenticeships are highly institutionalized, often following unwritten rules and regulations that prevalent in their respective sectors and geographical areas.
- *Nonformal apprenticeships*: These include training programs that are regulated by non-state actors, e.g., employers' associations. Work-based training is often complemented by off-the-job training, either within the respective economic unit or outside (e.g., in private training centers). The issued qualifications are not officially recognized but can be of value in the labor market. Early examples of nonformal apprenticeships include those regulated by the guilds in medieval Europe.
- *Formal apprenticeships in upper secondary education*: In this type of apprenticeship training, work-based learning is a fully integrated element of upper-secondary education programs. The training periods in the workplace clearly go beyond short internships and are guided by curricular objectives. We consider this type of apprenticeship training as largely in line with what generally is perceived to be the dual VET model, which we elaborate upon below (see section “[Key Features of the Dual VET Model and Their Larger Societal Context](#)”).
- *Formal apprenticeships on other levels of formal education*: Workplace-based training has an increasing role to play also at the level of tertiary education, and even there it can be organized as apprenticeship training. In most cases, however, workplace-based training should be considered as an “internship,” which may be a compulsory component of a degree program but is comparatively short and not guided by explicit curricular objectives.

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## The Decline of Apprenticeship Training

For centuries and throughout the world, trades were learnt in the workplace. For much of Europe's history, it was only in a few professions that formalized education and training were required *before* entering the world of work.

In most cases, training in the workplace (e.g., in agriculture) did not lead to any form of what we today would call a recognized qualification. However, work-based training was the basis of recognized qualifications in many of Europe's towns, where, from the High Middle Ages onwards, access to trades was linked to an apprenticeship system that was controlled by guilds. This model had certainly always touched upon only a minority of mainly male, comparatively more privileged urban adolescents. But in some countries, this model could be retained to a certain degree, rendering work-based learning and apprenticeship training important

elements of current VET systems. In most countries, however, the traditional apprenticeship model vanished entirely or lost its importance, for different reasons.

In some countries on the European continent, the guilds' apprenticeship model declined as a consequence of the French revolution, which led to the introduction of economic freedom in many parts of the region. This either meant an entire ban of guilds or their loss of control over access to markets, to which their traditional training system had been intimately linked. Following the decline of the traditional apprenticeship system, many state authorities decided to step in with the establishment of technical and vocational schools, catering to craft trades or emerging industry sectors. The most typical example of this group of countries is France (Tanguy 2000).

Another reason for the decline of the traditional apprenticeship model in some countries was rapid industrialization, the most prominent example being the case of England. Here, the growth of manufacturing rendered work-based training on the shop-floor the standard model of vocational skills development. Industrialists, politically opposed to the increasingly marginalized guilds, did not press for more formalized vocational training, which allowed the government to focus its education policy on expanding basic schooling. Vocational skills development in England and some other Anglo-Saxon countries was therefore, for a long time, left in the hands of private initiative (Gospel 1995).

A third factor was the expansion of educational systems, mainly of school-based upper-secondary education. The consequence was that young people (particularly males) were no longer available for apprenticeships, as they now started to enroll in schools and subsequently moved either into employment in economic sectors where apprenticeship was of no importance, or into higher education. An important example, here, is Sweden, where school reforms from the late nineteenth century onwards were aimed at providing more equal access to opportunities in the labor market and in society more generally. Of particular importance were the reforms in the 1960s and 1970s which rendered the *gymnasiet* the standard type of upper-secondary education, covering also school-based vocational education programs, and led to a decline in the number of young people in apprenticeship training (Busemeyer and Schlicht-Schmalzle 2014). Other examples include transitional and developing countries, in many of which massive educational expansion, particularly at the upper secondary level, is a more recent phenomenon, and one to which the international community, has strongly contributed in the last decades.

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## The Dual VET Model as a Type of Apprenticeship Training

A few countries retained apprenticeship training to a stronger degree, and made it a key element of upper secondary education, with qualifications recognized in major parts of the respective labor markets and, consequently, by the general public and potential trainees. Generally, some fully or partly German-speaking countries (i.e., Austria, Germany, Liechtenstein, and Switzerland) as well as Denmark and the

Netherlands are considered to have education and training systems in which dual VET plays a key role.

Given the important role both of work-based and school-based education, this type of apprenticeship training became to be known as the “dual VET model.” It represents the most prominent form of formal apprenticeship training at the upper secondary level (see section “[Apprenticeship Training](#)” above). Still, the term is not mentioned in any national law (in their original language) and is, therefore, not officially sanctioned. In the case of Switzerland, for instance, the Ordinance on Vocational and Professional Education and Training regulates “*betrieblich organisierte Grundbildung*” (i.e., initial VET organized at the company level), a term which is then translated into “dual track VET” in government publications in English (see, e.g., SERI 2017, p. 11).

### **Key Features of the Dual VET Model and Their Larger Societal Context**

Dual VET is in no way a unitary concept. It has adopted a range of different forms, even within countries. Accordingly, there is a broad literature on the key features that are common to these various forms (e.g., Euler 2013; Gonon 2014). Based on a review of this literature, we define the following as some of the key features of the dual VET model:

- Work-based learning forms a part of formal VET, i.e., it is an indispensable element of programs that lead to qualifications issued and recognized by state authorities. It takes place in host companies, which thus become a key locus of formal VET. A substantial part of the required learning hours of the VET programs are allocated to work-based learning, going far beyond an internship and often covering the entire duration of the VET program. In Switzerland, for instance, most VET programs require VET learners to spend 3.5–4 days per week in the workplace.
- Work-based learning is complemented by school- or center-based vocational learning.
- Both work-based and school-based training are guided by officially sanctioned occupational profiles and related curricula.
- The curricular objectives are developed in strong cooperation with collectively organized representatives from the world of work (e.g., chambers, associations, labor unions).
- Vocational learners and host companies sign apprenticeship contracts which define mutual rights and obligations. This type of contract is generally regulated not only by the VET laws but also by the labor laws of the respective countries. Given the fact that they profit from the productive work of the apprentices, host companies are generally not subsidized to offer apprenticeship training.
- A part of the formal assessment process occurs in the workplace, with representatives from the world of work operating as examiners.

In much of the literature, dual VET is seen as much more than a mode of apprenticeship training; it is also characterized by its political and social preconditions. Of particular importance are references to the conceptual notion of “*Beruf*” (literally: *vocation*), which is seen to have had a strong influence on the historical evolution of the model, becoming the organizing principle of dual VET, and to be of considerable importance even today (e.g., Deissinger 1998; Schriewer and Harney 2000). As a further precondition of dual VET, many contributions point to a governance structure in which representatives of the world of work have a very strong say, not only in the development of skills standards but also in VET policy making more generally (Gonon 2014).

## Current Challenges and Trends

In countries in which the dual VET model evolved, the traditional apprenticeship model did not so much decline as transform. In short, this was made possible by the facts that: (a) state authorities allowed representatives of the world of work to get involved in officially sanctioned education and training programs; (b) these representatives were ready to do so; and (c) rapid educational expansion pressed these stakeholders to complement work-based with school-based training. Still, the national trajectories were different.

All countries with a strong dual VET model have regularly engaged in intensive debates about it, with some critics fundamentally questioning its relevance for postindustrial societies in principle, and others pressing for substantial reforms.

The quasi-classical argument goes that the occupational profiles underlying the different dual VET programs are too narrow and that there is not sufficient time allocated to general education subjects, restricting the mobility of VET graduates in labor markets (see, e.g., Maurer and Pieneck 2013; Rosendahl and Wahle 2012). Growing intra- and inter-occupational mobility and the accelerating digitalization of workplaces are factors that are currently pushing this discussion to the fore again. It seems, however, that the institutional foundations of dual VET and its key supporters do not allow for transformative change. As a general rule, any reform with the aim of broadening occupational profiles and increasing the number of lessons dedicated to general education will meet with opposition from those employers who profit most from apprentices spending a considerable part of their training in the workplace. In Switzerland, for instance, the most fundamental reform in this respect was the introduction of the Federal Vocational Baccalaureate (FVB) program in 1998, but it was only introduced because of substantial pressure from the side of the universities of applied sciences (Gonon 2013). The FVB allows learners in the dual VET programs to spend, on average, one more day at school per week and to enroll, after successful graduation, at universities of Applied Science. Though the introduction of the FVB was clearly transformative in nature, the growth of the program has started to reach its limits, mainly due to the unwillingness of many employers to allow their apprentices to spend more time at school (Econcept 2015).

A further critical challenge is the positioning of dual VET programs and, even more, of the programs that are open to the graduates of dual VET within an increasingly globalized world of education and training. Both observers and VET authorities in Germany and Switzerland hope that national qualifications frameworks will help improve the status of post-secondary and tertiary level VET programs (AK DQR 2016; SBFI 2014). However, export-oriented, multinational companies tend to increasingly recruit university graduates even for mid-level positions, restricting the career opportunities for VET graduates with non-academic education and training (see, e.g., Hippach-Schneider et al. 2011). Clearly, such signals from the labor market influence educational decisions by adolescents and parents, accelerating an academic drift – even though less pronounced – also in dual VET countries. In fact, the share of young people enrolling in dual VET (as part of all those starting an upper secondary education) has been decreasing in all these countries over the course of the last decades, at the benefit of general education programs (i.e., notably the *Gymnasium*) and more school-based VET programs (Busemeyer and Trampusch 2012).

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## Reforms of Apprenticeship Training in OECD Countries

In nearly all cases in recent decades where governments of OECD countries without dual VET proposed system reforms, the strengthening of apprenticeship training was emphasized. In the USA, for instance, Bill Clinton, Barack Obama, and, more recently, also President Trump made such propositions. At the national level, plans to strengthen apprenticeship training are often supported by a broad range of political stakeholders who consider the high share of work-based learning to be a guarantee that vocational learning will become more relevant to the world of work and smoothen the transition of graduates into the labor market.

Policy reforms with the aim of boosting apprenticeship training are highly diverse, with different notions of what apprenticeship training actually is, and they are planned and implemented in a broad range of economic and social contexts as well as VET systems. In the following, three different types of apprenticeship promotion shall be briefly outlined.

A first reform type is that of promoting apprenticeship programs which is positioned outside the formal education system but still lead to recognized qualifications. This is the approach followed by England where different forms of apprenticeship training have been developed by successive governments since the 1990s (Euler 2013; Evans and Bosch 2012). As of today, apprenticeship schemes exist at four levels, i.e., intermediate, advanced, higher, and degree level. Though they are referenced to the qualifications framework, an apprenticeship qualification at a given level does, however, not automatically entitle for enrolment in a qualification program at a next higher level.

Common to these types of apprenticeship training in England is a strong component of work-based training that is based on standards developed by representatives of the industry and is combined with training outside the workplace, mostly at private education and training centers. Host companies pay the apprentices at least



the national minimum wage, but in most schemes they are catering to lower skill levels, therefore they are subsidized by the government. The requirements to receive such subsidies are, however, relatively low, which led to a rapid expansion of apprenticeship training at these lower levels. Despite the existence of skills standards, recognized apprenticeship training at these lower levels is often hardly different from informal on-the-job training, with the only difference being state subsidies and access to a qualification. This challenge has also been corroborated by the fact that apprenticeship schemes at lower levels have become a means of recognizing prior learning among existing employees, with very limited additional training being provided. It is, partly for this reason that many observers have bemoaned that apprenticeship, in England, still falls short of providing the labor market with intermediary skills (Evans and Bosch 2012).

A second type of reform is that of strengthening the share of work-based learning in upper-secondary VET, which is otherwise predominantly school-based and places heavy emphasis on general education. Such a reform has been implemented in Sweden since 2010, with the aim of enabling students enrolled in the vocational tracks of the gymnasium to undergo at least half of their 3-year program as apprentices in a company (*gymnasial lärlingsutbildning*) – considerably more than the 15 weeks of internships (*arbetsplatsförlagda lärande*) as part of the regular school-based VET tracks (Panican and Olofsson 2015). Although, in principle, the apprentices follow the same curricular objectives as the students of the school-based VET, the share of general education was reduced, which makes it difficult for the apprentices to directly enter higher education upon graduation from the VET program. Graduates lacking general education are, however, entitled to develop it for free by joining dedicated adult education programs (*Komvux*) (Skolverket 2014). The responsibility that students acquire, defined by the national curriculum in terms of vocational competencies, derive from the VET school, which in reality has little leverage over host companies to train as per the curriculum. Still, host companies are subsidized by the government to offer apprenticeship positions and are not compelled to pay any salary to the apprentices. This reflects the general opinion that host companies help the government to reach its education policy objectives as well as the concern that host companies will not be able to employ apprentices in a sufficiently productive way, even if they work there half-time for 3 years. What is more, the apprentices at upper secondary level are not covered by the national labor law. They are, however, entitled to receive a public training grant (*lärlingsersättning*) that allows them to cover meal and travel expenses.

A third type of approach is that of *strengthening apprenticeships at different levels of formal education, including higher education*. This approach was adopted by France and has come to be known as *formation par alternance*. It covers a whole range of formal educational qualifications, including those at higher education, all of which are otherwise mostly followed in the school-based mode. The scheme thus enables students to spend a part of the training program in companies, with which apprentices sign an employment contract. In contrast to England, the expansion of apprenticeship training was more pronounced at the upper secondary level (*baccalauréat professionnelle*), while remaining modest at the lower levels (e.g., *certificat d'aptitudes professionnelles/CAP* or *brevet d'études professionnelles/*



BEP), a fact which has been criticized for leaving behind those young people who would be most in need of a recognized qualification. In fact, apprenticeship positions in France are considered to be difficult to access for young people, but those who succeed, and finally qualify, are clearly better positioned in the labor markets, compared to their counterparts undergoing exclusively school-based training (Brandt 2015; Sanchez and Zamora 2007).

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## **Apprenticeship and Dual VET in International Cooperation**

### **Policy Borrowing and Lending in OECD Countries**

As is often the case with policy reforms, their proponents tend to admire what they perceive to be best or good practices in other countries and propose borrowing these practices, or elements of them (Steiner-Khamsi 2012). Apprenticeship reforms in OECD countries are mostly inspired by countries with dual VET, particularly Germany. Although such borrowings appear somewhat obvious to the reforming countries, it is important to underline that Germany has understood itself as a *lender* of dual VET for quite some time. Initially, its focus was on middle-income and developing countries (Barabasch and Wolf 2009), while recently it paid more attention to promoting dual VET also in OECD countries through its platform iMOVE (iMove 2013). In contrast to earlier approaches, this platform also promotes international cooperation as a commercial opportunity for VET providers (such as schools, chambers and associations, and companies), with attractive markets to which German VET approaches can be “exported.”

Promoting its VET system abroad has also become a project of the Swiss authorities. In previous decades international cooperation in VET was left in the hands of the agency in charge of development cooperation (SDC, see section “[Revival of Apprenticeship Training in Development Cooperation?](#)”); now the State Secretariat for Education, Research, and Innovation (SERI) plays a key role. Starting with support to VET in India, it developed a strategy for international cooperation in VET, which supports exchange of experts and a variety of projects. Initially, the authorities had the clear objective of exporting the Swiss dual model. After a series of discussions with different stakeholders, both within and outside the federal administration, a more cautious approach was adopted, emphasizing the need to support policy learning in partner countries and to thus promote the image of Swiss VET abroad, rather than export a model (Jäger et al. 2016). In the USA, this strategy was effective, with important stakeholders referring to VET in Switzerland, not only in Germany (Hoffman and Schwartz 2015).

### **Apprenticeship and Dual VET in Development Cooperation**

Support to the formal VET sector and other forms of VSD has been an element of bi- and multilateral aid to developing countries for a number of decades, but VSD

has not always been accorded the same level of importance. Whereas for some key donors (such as the World Bank) it was a core element of education aid from the 1960s onwards (Jones 1992), support for it waned following the adoption of the Education for All (EFA) and Millennium Development Goals (MDG) agendas in the 1990s and 2000s, which prioritized basic education. Since around 2010, VSD has regained favor, a trend that is reinforced by VSD targets in the Sustainable Development Goals (SDG) which now allow donors to more easily justify support to VSD.

Some donors and multilateral technical agencies have always provided assistance to developing or strengthening apprenticeship training. The following section serves to look at this assistance.

This analysis takes into account that many recipient countries of bi- and multi-lateral aid have their own approaches to apprenticeship, just like OECD countries. Of traditional importance are informal apprenticeships, mostly in the craft sector and other sectors of what has been termed the informal economy, implying that apprentices are trained under conditions of little or no regulation by authorities. Informal apprenticeship schemes have also evolved in industries, e.g., in the manufacturing of garments. Many countries have introduced a legal framework for the employment and training of apprentices, defining the duration of the training period, remuneration, etc. Some countries, particularly in Latin America, have established structures that combine work-based and school-based training for industrial workers, the most prominent example being the National Industrial Apprenticeships Association (SENAI) in Brazil, which has served as a model to other countries in the region.

### **Different Approaches in the Past Decades**

Most important donors supporting VSD in the past decades focused on school or center-based forms of training. From the 1960s up to the late 1980s, the World Bank had assisted formal training of industry workers in dedicated centers, or the development of diversified secondary education, but not apprenticeship schemes. Apprenticeship was addressed by the International Labor Organization (ILO), however. It not only adopted recommendations (e.g., ILO 1956) but also actively supported member countries in the improvement of apprenticeship training, promoting the interlinkages between work-based and school-based forms of vocational learning (e.g., ILO 1959).

Supporting apprenticeship training also became a central goal of German development cooperation. Although, in its early years of working in VET, it had mainly focused on school and center-based training, it began to promote VET projects with work-based training components from the late 1970s onwards. As stated in a 1986 strategy paper, the “underlying principles” (e.g., chambers) of VET in Germany were now seen to be critical for reforms of VET systems in partner countries (Greinert 2001). Underlining the “system orientation” of this approach, the GTZ (today: GIZ) adopted a notion that dual VET was much more than a specific mode of apprenticeship training – one that could only evolve if critical preconditions were in place, requiring reforms of entire VET systems along the lines of the German one. This radical approach, borne by the conviction that the German VET system

was superior to any other, was somewhat softened in the early 1990s, giving way to a strategy underlining the need to transfer only specific elements of the German dual system instead of the system as a whole. But for a number of projects in partner countries, e.g., in Egypt, the development of a dual system along the lines of Germany's remained a long-term goal (Greinert 2001). Evaluations, however, found the new approach ineffective (e.g., Stockmann 1992), and many contributions to the international comparative literature pointed out that dual VET was successful in Germany because of preconditions which were difficult to transfer to partner countries (Caillods 1994).

### **Revival of Apprenticeship Training in Development Cooperation?**

The renaissance of VSD in development cooperation since around 2010 was partly inspired by the need to improve the transition of young people to labor markets in many developing and transition countries. Existing VET systems have, in this context, often been criticized for being insufficiently “demand-driven,” which requires a stronger involvement of the private sector in governance and delivery. Though mainly driven by donor agencies and state authorities in partner countries, the ambition to strengthen the demand-orientation of VET has also been one of the core objectives in the establishment of qualifications frameworks (Young and Allais 2013).

In this overall context of revived attention towards VSD in development cooperation, apprenticeship and work-based training are experiencing a particular renaissance and are often seen to be critical to demand-driven training. Multilateral stakeholders that promote such approaches include the Asian Development Bank, the European Commission as well as the ILO (ADB 2010; European Commission 2015; ILO 2011). Among the bilateral donors with no dual VET system at home, the French development agency explicitly promotes apprenticeship training (AFD 2014), whereas the two largest ones – DFID and USAID – have not declared the promotion of apprenticeships to be an explicit objective of their education strategies, but do, in fact, support forms of apprenticeship training in some of their interventions (see, e.g., DFID 2013).

At the same time, dual VET countries – in particular Austria, Germany, Liechtenstein, and Switzerland – have discovered the promotion of apprenticeship training as a means to position themselves in the field of aid for VSD. References to dual VET as a point of reference for aid in VSD can be found in all these donors' strategy papers, and they also launched a joint donor committee dedicated to the promotion of dual VET in development cooperation (DC dVET 2016). However, it has become difficult for these donors to clearly distinguish their approaches from the ones followed by other donors. On the one hand, there is a broad agreement that a transfer of entire VET systems is not feasible; on the other hand, any attempt to make use of the concept of dual VET in a way that reflects the heterogeneity of contexts in partner countries leads to its being entirely blurred, and indistinguishable from other donors' approaches to the promotion of apprenticeship training and demand-driven VSD. This can be illustrated by looking at the changing arguments in the two latest VSD strategy papers by the German development agency. The 2012 version argued that it was important to base German aid for VSD on key principles of the German

dual VET system, including the dialogue between government and the private sector, and work-based learning (BMZ 2012, p. 25f). In contrast, the 2017 strategy mentions similar principles but brands them success factors of BMZ's intervention strategy – replacing “work-based learning” with the assurance that TVET programs would be “practice-oriented and responsive to labor market needs.” Aware that most donors supporting VSD are arguing along similar lines, references to the “success story” of dual VET in Germany and the low unemployment rates in the country have gained prominence in its strategy papers (BMZ 2017, p. 9f).

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## Concerns and Challenges

Whereas policymakers tend to promote the strong orientation of apprenticeship training towards the labor market, they are, in many contexts, confronted by many critics. A first concern is equity: in the eyes of many, broadened access to general education contributes to social equity, whereas reforms to strengthen or reinvigorate apprenticeship training would contribute to socially disadvantaged segments of the population being channeled into low-paying parts of the labor market. Apprenticeship training would, in other words, contribute to the reproduction of social inequalities. This concern is certainly relevant, and there is evidence that (for instance in Switzerland) socially more privileged strata of society is not sending their children to apprenticeship training (Keller 2014). At the same time, the same case of Switzerland suggests that an elaborated apprenticeship scheme at upper secondary education provides opportunities for a relatively smooth transition into the labor market for comparatively disadvantaged segments of the young population (SCCRE 2014). Furthermore, the Swiss system shows that it is, in fact, possible to create pathways from apprenticeship training at upper secondary level to higher education and that such pathways can be important in order to ensure the social status of VET in general and apprenticeship training in particular.

A second concern is that apprenticeship schemes can be abused to pay minimal or no salaries to entrants to the labor market, with few wage regulations. This concern is of particular relevance in countries where apprenticeship training is not integrated into a formal education program and where there are low barriers for becoming a host company. A third concern is finally that the expansion of apprenticeship training, e.g., at upper secondary level would lead to a retrenchment of teachers in school-based VET (e.g., Dell'Ambrogio 2015). Though a radical implementation of company-based VET at upper secondary would certainly imply the loss of teaching positions, experience suggests that the expansion of apprenticeship training at this level of education is a slow process.

Whereas these concerns question the legitimacy of strengthening apprenticeship training more generally, apprenticeship schemes are additionally confronted by various challenges at the level of implementation. Two of them deserve mention here.

Firstly, in countries where skill formation is otherwise mainly school-based or left to the private sector, it is difficult to convince companies of the value added of

apprenticeship training. Training apprentices does involve costs, and if they do not remain with the company, these investments are lost. It then remains more attractive to poach trained personnel, including former apprentices, from rival firms.

Secondly, many apprenticeship schemes are not sufficiently attractive to young people, particularly in countries where school-based general education has a high social status and educational credentials are highly appreciated in the labor market. Of particular concern to potential trainees in many countries is the fact that apprenticeship programs have a reduced share of general education, which can lower their prospects of progressing within the general education systems.

Not least because of these two challenges, the share of apprenticeship training has remained low in many developed countries. Quite remarkable are the numbers in France, where the share of apprenticeship training at upper secondary level has gone up to one third (Brandt 2015). But in Sweden, for instance, only 3% of all VET students in 2016/2017 were enrolled in the apprenticeship program (Skolverket 2017). In England, the numbers had been growing fast for some years but given the nonformal nature of apprenticeship training, these numbers could never be seen in relation to enrolment figures at, for instance, the upper secondary education level (Evans and Bosch 2012). In many developing and transition countries, the apprenticeship schemes supported by donor agencies mostly remain insulated and lack sustainability, mostly as companies, with no outside support, have problems benefitting economically from their engagement in apprenticeship training.

To make apprenticeship training more attractive, policy makers have often resorted to lowering requirements or increasing financial incentives. On the one hand, companies engaged in apprenticeship training in many countries have profited from subsidies and regulations for apprenticeship training being lowered, notably in terms of educational contents. This also includes reducing learning hours allocated to off-the-job learning, notably at schools. On the other hand, some governments have started to provide salaries to the trainees (which, in fact, is a further subsidy to the companies) or lowered entry barriers for students to enter the apprenticeship programs. All such incentives have risks involved: a prominent example of their negative effects is England. Here, many companies profited from subsidies, though they had already been heavily engaged in training independently of the public apprenticeship scheme – meaning it had a textbook-like deadweight effect. Others profited from subsidies without training their apprentices. This, in combination with lowered entry requirements for apprenticeship training and comparatively few hours allocated to center/school-based learning, further contributed to a low image of apprenticeship training in the country (Evans and Bosch 2012).

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## Conclusion

A global diffusion of the dual model is anything but a reality, even though many governments and donor agencies currently emphasize the need to strengthen work-based learning at the upper secondary level. Many work-based learning schemes have emerged in countries with predominantly school-based VET, but these remain

confined to comparatively small segments of their school populations. What is more, countries in which the dual model has been of central importance have seen an academic drift over the last decades, illustrated by declining shares of students undergoing dual VET at the upper secondary level, and reforms that strengthen general education within VET and improve access from VET to higher education.

In contrast to the model of “qualification frameworks” – which was pioneered in England in the 1980s – the system of apprenticeships in formal VET in general and dual VET in particular is definitely not subject to global diffusion, one of the reasons being that it is easier to launch national-level macro-reforms, which entail little commitment on the part of key stakeholders to actually changing the way they do things, than to introduce reforms at the level of training program delivery, which affect the stakeholders more directly and rapidly.

Accordingly, most experts agree that a transfer of dual VET to other countries is virtually impossible and that the establishment of the apprenticeship system in formal VET mostly fails due to the absence of necessary preconditions.

Still, for the dual VET countries, emphasizing their experience with the dual model has become important in positioning themselves in the global landscape of international cooperation in education. And as the following statement by the Swiss development agency suggests, advocating the dual model in development cooperation has been discovered as a means to garner public support for VSD aid:

Position our engagement in vocational skills development as a localized adaptation of the dual model. Stress commons rather than differences in our communication in Switzerland. (SDC 2011)

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# Careers Guidance and Job Placement Services: The Missing Link Between Education and Employment

# 30

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## Abstract

This chapter will promote the view that without well-functioning careers guidance services for young people and adults, the benefits of other components of TVET reform cannot be fully realized, and a country's ability to achieve Goal 8 of the Sustainable Development Goals is undermined. Targets 8.5 and 8.6 call for full and productive employment and decent work for all women and men, as well as a substantial reduction in the proportion of young people not in employment, education, or training. However, access to decent work requires more than equal access to education, a reformed curriculum, and fairer governance. For people from poor communities, the obstacles are often insurmountable: a lack of social capital prevents

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them from negotiating their way through opaque recruitment practices where family connections are more important than qualifications or aptitude, and information on job vacancies and selection criteria are the preserve of the well-informed middle classes.

Careers guidance brings more benefits than simply smoothing and shortening the transition from school to employment for young people. In today's fast-changing, often precarious and turbulent, labor market, workers are expected to change not just job but also career path more than once in their working lives. Periods of retraining or up-skilling are increasingly necessary to remain resilient during economic downturns, leading to frequent movement between education and employment and between jobs. Access to careers guidance is important for workers of all ages as a means of reacting positively to labor market trends and reducing periods of unemployment.

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**Keywords**

Careers guidance · SDG 8 · Productivity · Unemployment · Inequality

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## **Introduction**

This chapter begins by confirming the importance of the Sustainable Development Goals and the benefits which they can bring. It explains that Targets 8.5 and 8.6 are being measured through increased levels of productivity and decreased levels of unemployment, particularly among young people, women, people with disabilities, and members of other disadvantaged groups. Seven actions are proposed which governments could take to have a positive impact on these two measures and the added value which a good-quality careers guidance system can bring to each of these actions.

Consideration is given to three objectives which a good careers guidance system should achieve: providing access to career-long services, contributing toward closing the inequality gap, and contributing toward the achievement of socioeconomic goals, most specifically unemployment.

Desirable design features of a careers guidance service are addressed, both for young people and for adults. The chapter concludes by proposing that increased investment in careers services is justified because they enhance other actions taken to achieve Targets 8.5 and 8.6 and not to do so risks undermining the efficacy of these actions.

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## **Sustainable Development Goals (SDGs) and the Role of Careers Guidance**

### **The Importance of the SDGs**

In 2015 the member states of the United Nations adopted a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of the Resolution "Transforming our world: the 2030 Agenda for Sustainable Development." Among

these is Goal 8 on Decent Work and Economic Growth which aims to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

Having goals can bring a number of benefits for development (Sachs 2015):

- (i) Social mobilization – adopting global goals helps individuals, organizations, and governments worldwide to agree on future direction.
- (ii) Peer pressure – the adoption of the goals exposes political leaders to questions on the progress they are making.
- (iii) Networks of expertise, knowledge, and practice – these communities of knowledge and practice come together to recommend practical pathways to achieve results.

It is the last of these which is supported by the inclusion of improved careers guidance services as part of the efforts to achieve Goal 8.

## **SDG 8: Decent Work and Economic Growth**

Within Goal 8, there are two targets in particular with which careers guidance services can help. These are Target 8.5, by 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value, and Target 8.6, by 2020, substantially reduce the proportion of youth not in employment, education, or training (NEET).

Official indicators have been developed for the above Targets (UN 2017), and their progress is tracked on the Sustainable Development Knowledge Platform <https://sustainabledevelopment.un.org/>. They cover average hourly earnings, unemployment rates, and the proportion of youth who are not NEETs.

Labor productivity and unemployment rates are both used as measures of progress toward achievement of the eighth SDG. The Report of the UN Secretary General in July 2017 (UN Economic and Social Council 2017) stated that, with regard to Goal 8, labor productivity globally has slowed from an average annual rate of 2.9% from 2000 to 2008 to 1.9% from 2009 to 2016. The Report also painted a worrying picture regarding unemployment with the global unemployment rate standing at 5.7% in 2016 but with youth unemployment at 12.8%. Women were more likely to be unemployed than men across all age groups. In countries with data, more than 10% of youth were neither in the educational system nor working.

In tackling the challenges of raising productivity and lowering unemployment with a view to achieving Targets 8.5 and 8.6, there are a number of possible actions, from which governments may choose all or a combination of some:

- (a) *Invest more in basic education.* In a study of the effect of worker schooling levels on the productivity of South African industries (Burger and Teal 2014), there were robust results showing that schooling has a substantial direct effect on production and that this effect increases as the education level of workers

increases. This supports the findings that increased educational attainment results in increased labor force participation (Access Economics 2006).

- (b) *Invest in skills development.* Technical and vocational education and training (TVET), whether in formal or nonformal settings, is a critical factor in achieving and maintaining high levels of productivity both in the formal jobs market and the informal one. Equipping poor people with skills and knowledge increases their chances of employment but also enhances their contribution to productivity and growth (Marope et al. 2015; Collier et al. undated).
- (c) *Encourage in-company training of employees.* Training, in both technical and soft skills, is invaluable in increasing the productivity of organizations by unlocking potential growth and development (Nda and Yazdanifard 2013). It has a beneficial impact on retention rates, performance levels, and employee productivity which all contribute toward a company's competitive advantage (Sri Divya and Gomathi 2015).
- (d) *Increase female participation in the labor force.* Productivity can be raised and unemployment reduced by enabling women to develop their full labor market potential. This is particularly so in emerging and developing nations where 812 million of the 865 million women worldwide who have the potential to contribute more fully to their national economies live (Elborgh-Woytek et al. 2013). Although female employment rates have increased in most countries, nevertheless, gender employment gaps remain larger than 10% points in 15 of the G20 countries (OECD et al. 2014) and are particularly wide in the Middle East and North Africa (51% points) and in South Asia and Central America (above 35% points) (Elborgh-Woytek et al. 2013).
- (e) *Encourage workers to move from the informal into the formal sector.* In India, for example, the formal sector has the highest level of productivity with total factor productivity being twice as high in firms with more than 250 employees than in those with up to 10 employees (Dougherty et al. 2009). The majority of jobs however are in the informal sector. Young people without junior secondary schooling or who have been trained through a traditional apprenticeship are less likely than their peers to get into formal employment and therefore less likely to benefit from on-the-job training which is carried out mostly by larger, formal sector employers (Adams et al. 2013; EC 2009; Dar et al. 2017; Lee 2016).
- (f) *Encourage geographic mobility.* An analysis of the OECD Labour Force Survey data for 1995–2005 showed that migration rates were twice as high across 15 member states of the European Union than migration was between Indian states. Developments since then, such as the European Qualifications Framework, have further encouraged migration through mutual recognition of qualifications. When labor is highly immobile, as in India, this acts as an impediment to the reallocation of human resources to where they are most needed and best deployed (Dougherty et al. 2009). On the other hand, a mobile labor force will seek to avoid unemployment by relocating to where the jobs are.
- (g) *Encourage labor mobility between occupations and sectors.* Better skills assessment, skills recognition, and retraining strategies for job-seekers help workers to avoid unemployment through being better able to respond to changing demands

for skills in the labor market, as particular economic sectors grow or retract and new technology is introduced (OECD et al. 2016).

## The Added Value of Careers Guidance

While a battery of initiatives will be needed to work on these seven actions, one which should not be overlooked is career-long guidance services, starting in school, continuing through formal and nonformal education and during periods of employment and unemployment, and not finishing until retirement at the end of a person's working life. The OECD defines career development services as services intended to assist individuals, of any age and at any point throughout their lives to make educational, training, and occupational choices and to manage their careers. The relationship between SDG 8 and careers guidance is one of mutual benefit. Careers guidance can be both a direct asset toward achieving the goal and reinforcing the impact of other efforts; the goal itself can draw attention to the importance of good-quality career services and shine a light on an underexploited tool. It could be said that without good careers guidance services, other efforts to achieve SDG 8 may be sub-optimal.

When careers services for learners and for those in work are effective, it has the potential to reduce the costs to both the individual and society of poor careers choices. These include costs of course delivery, time spent on an inappropriate course, and poor productivity in an inappropriate work role (OECD 2004). It should also help to smooth and shorten the process of transition from education to employment and from one job to another. Education and career choices are too important to be the result of ill-informed advice from peers, which is commonly the case in, for example, agrarian societies in Nigeria (Oyinloye 2016).

Taking each of the above seven actions in turn, the contribution of good-quality careers guidance becomes evident.

## Careers Guidance During Basic Education

Careers education in schools is the delivery of learning about careers as part of the curriculum (House of Commons 2017) and is ideally incorporated within good basic education. It aims to help young people to understand themselves and the influences upon them while investigating opportunities in learning and work and making and adjusting plans to manage change and transition (Hutchinson 2013). It enhances general education, gives young people direction and motivation, and opens up the world of work to them beyond their own limited experience and family environment. Careers guidance enables young people to get the best return they can on the basic education they have received and is associated with higher levels of academic achievement (Rice et al. 2015). Careers services are particularly important for the less qualified, the economically disfavored, and other groups in need of support for socioeconomic integrations, such as migrants and refugees (Cedefop 2016).

Starting careers education early helps young people to navigate the proliferation of choices and options offered by the 14–19 education and training system and the

labor market (Acquah et al. 2016 in Moote and Archer 2017). But in this information age it is more important that careers education develop students' motivation and competence rather than providing them with information about different professions. It needs to alleviate the doubts and insecurities that young people go through in choosing their future occupation (Hårle and Lezcano 2016). While it is recommended that careers education starts early for all students (OECD 2004), those who are most at risk of early leaving or are likely to have difficulty transiting to the labor market may require additional support. Schools need to have systems in place for identifying these students and for providing them with extra support from the start of secondary schooling (Rice et al. 2015).

What is clear is that careers education should not be at the discretion of the student as this can reinforce patterns of unequal participation, leading to young people's aspirations and educational and occupational choices being constrained by ethnicity, gender, and social class (Moote and Archer 2017). All young people need access to professional support. While the need for qualified careers advisers and strong links between schools and employers are often stressed, research shows that teachers are the main providers of careers education and need to be at the heart of any long-term strategy for improving careers support (Moote and Archer 2017).

Careers guidance therefore needs to be embedded within basic education, giving it relevance, optimizing its impact, and broadening the aspirations of young people. This can be achieved by using a framework to incorporate careers, employability, and enterprise education into the curriculum at different stages (CDI 2015).

### **Careers Guidance for Progression from TVET into Employment**

Young people developing skills through TVET are generally doing so in order to make themselves marketable to employers and to transition within the shortest space of time after graduation into a significant job which offers security and wages above those of unskilled workers. These objectives will be the same whether a young person has followed the path of mainstream education prior to embarking on a TVET course or whether the young person has arrived at a TVET course having received intermittent formal education and spent periods of time in unskilled work or unemployment. For both cases, there is strong evidence that careers guidance interventions can have a positive impact on their progression and are more likely to be effective if they are provided timeously and by trained professionals (Neary et al. 2015). Effective careers guidance at this stage helps to channel more young people into work for which they have been trained, increases the likelihood of them finding jobs in the formal economy, combats de-skilling which occurs during long periods of unemployment, and maximizes the return on investment made by them and by the state. Employment results achieved by the Underprivileged Children's Education Programme in Bangladesh are evidence of the benefits of including employment support to young people during TVET programs (<http://www.ucepb.org>).

Careers guidance should not be something which is offered just at the conclusion of a training program. A combination of skills tasters, periods of work experience, employability skills, and one-to-one support should run throughout a training

program, building motivation and job search skills (McCrone et al. 2013). Research in the USA has shown that job-seekers who participated in job search interventions were 2.67 times more likely to be successful than job-seekers who did not participate in such programs. The chances of success were highest for those in programs which included teaching job search skills, improving self-presentation, boosting self-confidence, encouraging pro-activity, promoting goal setting, and enlisting social support (Liu et al. 2014). For TVET students, a combination of skill development and motivation enhancement is most effective.

Careers professionals can help to resolve the persistent mismatch, particularly severe in low and middle income of the supply of appropriately skilled workers for available jobs.

### **Careers Guidance for Adult Workers and Learners**

Liu et al. (2014) found job search interventions less effective for middle-aged job-seekers. Unfortunately, frequent periods of unemployment and irregular careers are increasing, particularly for individuals in mid-career. Career guidance has the potential to support learning for career and labor market transitions, provided the particular requirements of adult workers are taken into account (CEDEFOP 2014a).

Workers already in employment rarely have access to government programs, and so their career development needs are not addressed. As CEDEFOP (2008 p. 108) points out “. . .while employers tend to focus their career development effort on what they identify as ‘talent’ groups – managers, future leaders, people with scarce skills (all groups that are in high demand in the labour market) – governments have understandably tended to focus their efforts on people who are unemployed or economically inactive for some reason (e.g., have a disability), or those in employment who have low skills or are disadvantaged in the labour market.” As a result the career development of the bulk of the workforce is largely ignored.

It is critical for the sustainability of employment initiatives, for improved productivity levels, and for developing resilience to labor market changes and the threat of unemployment that the business and economic case for addressing the career development of people in employment is made. It requires career guidance professionals to help people acquire the labor market knowledge and career management skills that they require and to build their social capital. It is often not clear to people in employment that they need career development or that it will benefit them and, as a result, few are willing to pay for it themselves.

Individual employers alone cannot be relied on to provide the careers information which employees need, as the impartiality of their advice may be compromised by their firm’s interests. However, employer input to careers information is important and can come from employer associations, from chambers (British Chambers of Commerce 2016), and from state-run services. Reform of information systems will support careers guidance reforms.

To improve productivity and to counter unemployment, governments require strategies for providing career development support to the majority of the employed workforce.

### **Careers Guidance to Combat the Gender Gap**

Using career guidance to raise the level of participation of women in the workforce faces a number of challenges (Ofsted 2011). From an early age, the majority of girls hold conventional, stereotypical views about jobs for men and women. They retain those views throughout their schooling despite being taught about equality of opportunity, and most girls choose careers along stereotypical lines. Many have limited knowledge and understanding of how choices about courses and careers influence pay and progression routes, and so their success in education does not translate into success in terms of long-term career status and pay. Gender stereotypes affect girls' educational choices from the first time subject choice is required and are particularly strong among girls at the bottom of grade distribution. Girls who are performing well at school are more likely, like boys, to follow their abilities and interests and not succumb to gender pressure (Favara 2012).

Girls with poor educational outcomes are more vulnerable to pressure. Feedback from employers (Ofsted 2011) suggests that confidence is indeed key for girls to make non-stereotypical choices. Employers emphasized the need to extend job interview practice and develop presentational skills. Further suggestions included providing earlier experience of work in a wider range of roles to enable students to make better-informed course choices, increasing the number of role models and mentors visiting schools, and promoting local case studies of young women who have moved beyond stereotypical routes. Websites such as "Career Girls" at <https://www.careergirls.org> can also be used to show successful women in non-stereotypical roles and to explore options.

Innovative careers services with professional staff trained to identify and work with girls who are under pressure to conform to stereotypical subject and career choices could be instrumental in raising the number of women in the workforce and their productivity (Welde et al. 2016).

### **Careers Guidance Toward Formal Employment**

Employment in the informal labor market is generally not a positive choice but rather a fall-back position when efforts to get formal employment have failed. For workers in countries with large informal economies, it is not only where they are most likely to get employment but also where the majority of new jobs are being created. Workers in the informal sector are likely to be less well-educated than those in the public, salaried sector which is where many of the formal sector jobs are in developing countries. Workers in the informal sector are also more likely to come from rural areas where there is less access to training opportunities (Arunatilake and Jayawardena 2010). An inclusive careers guidance system must give workers in the informal sector equal access to its services and, in the absence of formal sector jobs, prepare young people for the reality of informal work.

Although not everyone enters the informal sector out of necessity, in the case of entrepreneurs, informal entrepreneurship is more likely to be conducted by people in lower-income groups, women, those with lower educational qualifications, and those not formally working (Williams 2014). Although some may choose the informal



sector because it offers them better opportunities of upward mobility, others are there because they have no alternative and members of vulnerable groups are more likely to become informally employed during economic downturns (Slonimczyk 2014). The profiles of these workers match those who are least likely to have access to careers guidance.

Introducing careers education into basic education and providing careers guidance and employment services for all school-leavers and people of working age raise awareness of the choices available and helps people to take steps to equip themselves for jobs in the formal sector. Introducing government provision of careers guidance for all must however be seen to be for the public good rather than an effort to support disadvantaged groups (Slonimczyk 2014).

Having workers reluctantly entering into informal employment while employers in many countries are experiencing skills shortages suggests a serious mismatch. As described above, if careers guidance starts early in the school system and awareness of the world of work is built up, then it is more likely that young people will make informed choices which match the needs of the formal sector. Similarly, careers guidance for adults can help to manage their education, training, and careers in ways which guide them toward, and keep them in, formal sector employment.

### **Careers Guidance to Support Geographic Mobility**

The ability of workers to move location in order to find employment is strongly predicated on their knowledge of the labor market. The risk of moving away from their own community to another part of the country or, indeed, to another country must be mitigated by a high level of certainty of finding decent work there. Careers guidance acts as an interlocutor between labor market information (data) which may not always be publicly available or user-friendly, intelligence (the analysis of that data), and job-seekers (LSC 2004).

Careers professionals have to be confident that the labor market information they are using to give confidence to would-be emigrants is valid, objective, and of high quality (LSC 2004). The ability to interpret LMI is a key skill for them and is expected by clients. A 5-year longitudinal case study carried out by Warwick Institute for Employment Research from 2003 to 2008 consistently identified access to LMI as highly valued by adult job-seekers (Bimrose 2012).

There is evidence that young people can become overwhelmed by the amount of information on choices and, as a result, many restrict themselves to a very narrow range of possibilities in order to reduce the anxiety and stress. For young people to genuinely take on board LMI, something more than signposting to information sources is needed, which is where the careers professional adds value (IER 2006).

### **Careers Guidance to Support Mobility Between Occupations and Sectors**

Occupational mobility – the ability of workers to move across a set of jobs – is increasingly important. As it is now unlikely that workers can choose a job for life, it becomes necessary to obtain useful transferable skills which can be deployed in a number of sectors and jobs while applying an understanding of labor market trends.

Careers professionals can help prepare job-seekers for the future by raising their awareness of the skills and attitudes they already possess and those they need to gain in order to be successful, no matter what jobs remain and what new work emerges (LSC 2004). Given that the majority of new work will emerge from the informal economy, careers professionals cannot focus exclusively on formal sector employment. They must also be able to help lower paid workers who (along with the highest paid workers) have the highest probability of leaving their occupations (Groes et al. 2014). They are most likely to switch to occupations with low average wages and to do so when the relative productivity of their original occupation rises, suggesting that new technology and processes may have a disproportionate impact on them. Careers professional should be able to prevent a downward spiral by ensuring that they are aware of all opportunities available to them across sectors and across training programs and of how their transferable skills can be presented as an asset to employers.

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## Careers Guidance for the Twenty-First Century

If careers guidance systems are to play a role in raising productivity levels and reducing unemployment, so that SDG 8 can be achieved, then it is particularly important that they are designed to meet three objectives:

### A Careers Service for Everyone: Learners, Job-Seekers, and Workers

In the volatile labor market we have come to expect, workers will change job frequently and move in and out of education and training, and the content of their jobs will change progressively. All of this points to a need for, if not “lifelong” then at least “career-long,” guidance services which can be used not only by school-leavers and the unemployed but also by workers in jobs which are disappearing when the economy is restructuring, before they become redundant (Hooley et al. 2015).

The use of ICT-enabled services, such as South Korea’s CareerNet ([www.career.go.kr/cnet/front/eng/eng\\_home.do](http://www.career.go.kr/cnet/front/eng/eng_home.do)), or exploiting social media as in Scotland’s Online Careers Q&A (<https://www.glasgowchamberofcommerce.com/news-media/news/2017/september/27/online-careers-qa-levelling-careers-advice-playing-field/>) makes careers guidance more accessible for workers, learners, and the unemployed.

While delivering human capital gains for individuals, career guidance will also contribute to wider economic gains. These will result not only from building resistance to becoming unemployed but also by ensuring faster transitions out of periods of unemployment (Hooley and Dodd 2015). Careers services can also bring benefits to workers who are in employment but who wish to develop their careers through taking on increased levels of responsibility and delivering higher productivity.

## Close the Inequality Gap

The OECD (2004) argues that a broader market in career guidance could be complementary to public provision and that governments should actively seek to stimulate the growth of nongovernmental careers provision. While doing so, it should regulate the quality of that market to protect the public interest and to build consumer confidence, and interventions from government should address the areas that the private market does not address.

However, it is important to recognize the limitations of private sector markets in careers guidance. Such markets offer greatest access to those who can pay rather than those who need it most. If not balanced by a universal entitlement, it potentially strengthens the capacity of those who can afford to pay to maintain their positional advantage (Access Economics 2006). As we have seen, those most in need of careers guidance are often the most reluctant to access it and least likely to pay for it.

If governments accept that careers guidance primarily serves a public rather than a private function (Bergmo-Prvulovic 2014), then it becomes a higher priority for state funding.

While government funding is essential for the effective functioning of a careers guidance system, this does not necessarily mean that government has to pay for all services, nor does it mean that all individuals should be entitled to the same services. There are strong arguments related to social equity, which suggest that there should be additional targeted services for some groups to address various forms of disadvantage, which points to the need for a variable market in careers guidance (Hooley et al. 2015).

In all countries, but particularly those where recruitment practices depend heavily on social networks, careers guidance can give individuals with weak social capital access to information and contacts that are beyond their own immediate family and friends. It helps them to build social capital, provides access to mentoring, and gives insights on how to penetrate career networks (Hooley and Dodd 2015).

## Contribute to Socioeconomic Goals

Good quality, objective careers guidance can reduce the risk of unemployment for individuals, decrease the possibility of underemployment, and increase the probability of better job satisfaction and higher pay for society as a whole that creates downward pressure on the level of unemployment. It therefore contributes to the two socioeconomic goals with which this chapter is concerned: higher labor force participation and higher productivity (Access Economics 2006).

Focusing in particular on unemployment, informed decision-making arising from good-quality careers guidance can help to address the two main forms. The first of these is frictional unemployment. This is when there are job vacancies which match the number and skills of unemployed workers, but there is a lack of adequate information available to them so either the right workers are not filling the right vacancies or it is taking longer to fill vacancies with the right people.

Careers guidance services have a role to play in addressing that lack of information by sourcing reliable information and ensuring it is disseminated through channels which unemployed people can access.

The second is structural unemployment. This occurs when workers' skills are not a good match for the jobs available, possibly due to outdated skill sets and the pace of change. Careers guidance which identifies current or imminent skills shortage and encourages potential workers to gain skills can alleviate structural unemployment (Access Economics 2006).

These are not the only challenges to which careers guidance can contribute however. Under the three categories of economic, educational, and social, careers guidance has a positive impact on a wide range of policy areas including employee engagement, labor market flexibility/flexicurity, reducing early school-leaving, active aging, and many others (Hooley et al. 2015).

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## Applying Quality Measures to Careers Guidance

With the above three objectives in mind, consideration needs to be given to the design of a careers guidance system, the features it should have, and the criteria against which it should be measured.

It is evident that countries should aspire to having a career-long guidance system which is coherent and coordinated between its different elements (Hooley et al. 2015). It will need to coordinate services provided through the education system with those provided through public employment services (Morena da Fonseca 2015 in Hooley et al. 2015) and those available in the private sector.

For school-age students, a good careers guidance system will mean that:

- Every school and college has an embedded program of careers education and guidance.
- Every pupil has access to good-quality information about future study options and labor market opportunities.
- Opportunities for advice and support are tailored to the needs of each pupil.
- All curriculum learning is linked to careers and the relevance of STEM subjects highlighted.
- Every pupil has multiple opportunities to learn from employers about work, employment, and the skills that are valued in the workplace.
- Every pupil has firsthand experience of the workplace.
- All pupils understand the full range of learning opportunities available.
- Every pupil has opportunities for guidance whenever significant study or career choices are being made (Summarized from Gatsby 2014).

In an ideal world, every school would be able to provide all of these features. Realistically, in most developing countries, resources will have to be targeted. In that case, the last of the above bullet points is particularly critical as it highlights the

necessity for guidance to be available when choices have to be made which can have career-altering consequences.

A careers service for adults, on the other hand, may be expected to focus more on:

- (i) Delivery: Are people aware of the service and do they know how to engage with it, do they have access to the information they need, and do they have support in using that information to explore options and make choices?
- (ii) Management: Is service delivery planned and maintained, is the competence of staff and the level of support sufficient, and is there continuous quality improvement based on feedback from users? (CEDEFOP 2008)

For adults, the most critical issue is usually to reduce periods of unemployment and to prevent loss of income and a decrease in quality of life. In situations of limited resources, the priority must therefore be to focus on guidance for the unemployed, for those in insecure or hazardous employment, and for the underemployed.

Careers services can be instrumental in bringing young people who left school early back into the labor market. For them and for adults, the most positive results come when there are tailored approaches for individuals, during which skills, attitudes, and preferences are assessed and discussed. Such an individualized approach is more adaptable to highly irregular career paths and has a favorable, long-term, cost-benefit relationship (Cedefop 2014b). In the case of university graduates who exercise a high degree of self-management of their career in most countries, research shows that career self-management measures, particularly networking, are indirectly related to employment success (Okay-Somerville and Scholarios 2015) suggesting that students who are proactive are more likely to meet with success in the job market.

The effectiveness or otherwise of careers guidance can be judged at the level of the education system, at the level of the school, and at the level of the individual student with separate criteria for each (Rice et al. 2015). In all cases, the potential for online tools and social media must be employed for a blend of multichannel delivery which includes face-to-face services and telephone contact but does not depend entirely on them. Not only do the users need skills to navigate a modern careers service, but the careers staff need adequate guidance, information, and skills in communication technology and the effective use of LMI (Cedefop 2016).

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## Conclusion

Without effective careers guidance, reforms SDG8, particularly the Targets related to employment, will be much more difficult to achieve. Increased investment in careers guidance services is merited because of the enhancing role which careers guidance can play in seven types of action which governments can take to raise productivity and lower unemployment. Without effective careers guidance, governments run the risk that these actions will be sub-optimal and the resources devoted to them underexploited.

To be effective, careers guidance services must respond to the needs of today's workers as they navigate multiple career pathways and wide-ranging education and training offerings. They must deliver career-long guidance to learners, job-seekers, workers in employment, and the self-employed. This will require a blend of ICT-enabled services and targeted face-to-face interventions. As a tool for closing the inequality and gender gaps, careers education needs to start with young people who are still in primary school, to combat choice-constraining stereotyping and limited social networks.

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# Financing Skills for Work in Post-2015: Mobilizing the Private Sector

# 31

Ana Rosa Gonzalez-Martinez and Ben Gardiner

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## Abstract

Training levies are an important tool for providing a pool of funding which can contribute to the advancement of human capital. The potential of this type of fiscal instrument is especially important for countries that have unstable public budgets. The review of the existing literature has pointed out that the vast majority of the research work undertaken has followed a qualitative approach.

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This is because of a lack of the statistical data required to conduct empirical analysis. In order to contribute to the existing body of knowledge, we propose a conceptual framework for calculating the amount of revenue which could potentially be raised by a training levy. This methodology can be applied to forecast the amount of revenue that could be raised by means of a training levy. However, there are other factors that could influence the final outcome achieved by the relevant levy, such as the economic and institutional context and the general conditions of the labor market.

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**Keywords**

Training levy · Skills · Technical and vocational education · Forecasting

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## Introduction

The international community has set an ambitious 2030 Agenda for Sustainable Development. The Agenda calls for an integrated approach to development. Education and training are central to the achievement of the 2030 Agenda. The vision for education is fully captured by Sustainable Development Goal (SDG) 4, “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all,” although many other SDGs have a reference to education and training in their targets or indicators as well.

In this context, Education 2030 devotes considerable attention to (i) technical and vocational skills development, specifically regarding access to affordable quality technical and vocational education and training (TVET); (ii) acquisition of technical and vocational skills for employment, decent work, and entrepreneurship; and (iii) elimination of gender disparity and ensuring access for the vulnerable. Bearing in mind these initiatives, TVET is expected to address multiple demands of an economic, social, and environmental nature by helping young people and adults to develop the skills they need for employment, decent work, and entrepreneurship; promoting equitable, inclusive, and sustainable economic growth; and supporting transitions to green economies and environmental sustainability.

In order to achieve these objectives, mobilizing the means for implementing the technical and vocational skills agenda is crucial. The role of the private sector is fundamental in this context. The Third International Congress on TVET organized in Shanghai in 2012 considered that “Scaling up existing models of TVET provision to include more young people and adults is not the solution it also involves a paradigm shift that includes the active involvement of relevant actors, such as industry” (UNESCO 2012).

In this chapter, we present the main findings of the review of literature on existing funding methods of technical and vocational education and training (TVET). UNESCO sees TVET as “comprising education, training and skills development relating to a wide range of occupational fields, production, services and livelihoods. TVET, as part of lifelong learning, can take place at secondary, post-secondary and tertiary levels and includes work-based learning and continuing training and

professional development which may lead to qualifications. TVET also includes a wide range of skills development opportunities attuned to national and local contexts” (UNESCO 2016).

Second, we elaborate on a methodology to estimate the amount of private sector resources which could be mobilized by means of a training levy for financing TVET in a given country. It needs to be clarified that resources that are spent by firms to train their own workers, the cost of apprenticeships to students, or any other resources that come from donations from private firms are excluded from our analysis.

The literature review covers a broad scope of reports in order to identify clearly the determinants of the revenue which could be raised by means of training levies. We identify three main types of scheme:

- Revenue-generating schemes
- Levy-subsidies schemes
- Levy-exemption schemes

An important issue which has been encountered while reviewing the existing body of knowledge and developing the methodology has been the absence of previous contributions which conduct a similar exercise to the current project. In this context, UNESCO (forthcoming) goes beyond the existing literature since it discusses the effectiveness of several training levies and proposes a method to quantify its potential.

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## Training Levies: Notion and Typology

As defined by UNEVOC/NCVER (2009), a training levy is a tax imposed on employers with a view to financing training activities. In other words, training levies are a means to collect funds from employers. The money collected is then invested in the industry in the form of training. The aim is twofold: to support employers that train their workforce and to promote skills development.

An important challenge that policy-makers need to confront is the under-provision of adult learning as a result of market failure or credit constraints (Hoeckel 2008). In this context, where quite often insufficient efforts are being made by the private sector, public intervention is needed to ensure that the necessary amount of lifelong learning takes place. In general terms, training levies are important tools to provide a pool of funding which could contribute to the advancement of human capital (Dunbar 2013). The potential of this type of fiscal instrument is quite important for all economies. However, training levies are known not to be perfectly suited to contexts where there is a large informal economy. This is so since in the mentioned context, they usually benefit only a fraction of the overall private sector, formal and informal, regardless of the degree of development of their economy. The necessity for public sector involvement has been acknowledged by the existing body of literature. For example, Falch and Oosterbeek (2011) analyze

the experience of several European countries in financing lifelong learning. In particular, Falch and Oosterbeek (op.cit.) highlight that in England, making training available at low cost has not been as effective as was expected in generating take-up from low-skilled workers. This contribution also suggests that “deadweight” losses were identified in Switzerland and the Netherlands. In both countries, a voucher system financed training which would have taken place without the system in half of the cases under consideration. The age tax deductions implemented in the Netherlands contributed to the postponement of training activities, since the scheme is not designed to target specific groups, such as low-skilled workers.

Training levies also create a means for undereducated members of society to continue to train and build up their human capital. This could be particularly relevant for the informal sector, which tends to employ workers with low levels of education. In those cases, resources from a training fund could be used to support training for the informal sector, although it is hard to actually mobilize funds from the informal sector itself. Training levies provide a useful tool in a context of market failure and the under-provision of continuing education. Specifically, Hoeckel (2008) and Falch and Oosterbeek (2011) argue that in addition to the benefits that a particular employer receives from having a well-trained work force, training provides wider benefits to the whole economy. Examples of these positive externalities are the dissemination of knowledge across the national employment pool (Falch and Oosterbeek 2011) and greater abilities to innovate (Smith 2001). However, employers might fail to account for these spillover benefits and only consider the increased productivity of their own workforce when assessing the potential benefits of providing additional training.

Despite the potential of training levies to contribute to skills development, the existing literature has also pointed to some distortions that it could create. In particular, levies could raise the cost of employing people, leading employers to either reduce the number of workers they employ or compensate for the additional cost by paying lower wages (Johanson 2009). This report also highlights how unequal access to training schemes “breeds resentment” and how this compromises the principle of “benefit taxation.” Ziderman (2002) also emphasizes that there can be pressure on governments to use training levy funds in areas other than training, particularly when they suffer from serious budget constraints. This diversion of funds would also distort the benefit tax aspect of a training levy.

Another issue that policy-makers need to consider when establishing a training levy is how its effects could differ across sectors and between different-sized companies. A key message from the existing literature is that smaller companies tend not to take up the opportunity to send staff for training. A major reason is that this creates a short-term need to replace the staff while they are attending the training, which can be difficult and expensive. Additionally, they may have cash flow constraints that make it impossible to pay the cost of training upfront (Dickinson and Marsden 2013), even if it will subsequently be refunded. Thus, under certain funding mechanisms, small companies pay the levy but are unable to take advantage of the scheme, as discussed by Johanson (2009). Conversely larger companies tend to use the training opportunities. This inequality in uptake of the

training funded by levies effectively leads to a redistribution of resources from smaller to larger companies and to the exclusion of informal firms.

Policy-makers should also bear in mind administration costs, which if large could dampen the efficiency of a scheme. Some countries, such as Denmark, have managed to keep the costs low, but many less-developed countries with weak organizational infrastructure find that the costs reach excessive levels. This was true, for example, for Kenya and Tanzania. Moreover, large and inefficient bureaucratic systems mean that companies that try to access the funds also incur expenses, even if they are opportunity costs rather than direct costs. This top-heavy inefficiency has been one of the key problems of the Hungarian system of training levies. As Johanson (2009) highlighted, many Hungarian companies believe that the government and trade unions are excessively involved in the actual training provided. This has eroded private sector confidence in the scheme.

For a better understanding of the notion of training levy, a typology to categorize them is provided as follows. In general terms, the amount of revenue which could be raised for training purposes by means of a training levy will mainly depend on the (%) rate at which the levy is set and the base to which the rate is applied, such as payroll (headcount or wage bill), turnover, output, contract value, product value, production costs, or profits. More specifically, three different types of training levies using payroll-based funding can be distinguished:

- Revenue-generating schemes base their funding on a fixed-rate levy per working hour or per employee. The revenue is generally earmarked for regional or sectoral training programs. This type of system is used in Brazil.
- Levy-subsidy schemes (also called levy-grant and reimbursement schemes) use payroll contributions that are centrally collected from enterprises and distributed in the form of grants to set against the cost of training. This strategy has been used in Denmark and Singapore.
- Levy-exemption schemes allow companies to offset the cost of the training they provide or purchase against their tax liabilities. This system has been used in Quebec, Tunisia, and France.

Based on previous evidence gathered by UNESCO, Table 1 provides an overview of the bases used by past and present schemes. It shows a clear predominance of financing through a payroll tax.

UNESCO (2010) reports that assessing the potential of training levies has proved a challenging task. Revenue-generating schemes are arguably the most reliable in generating funding for training in countries where there is a persistent shortage of funding available to promote skills development. They can also greatly reduce the cost to governments of training provision. For example, in Brazil a major body providing commercial training (Serviço Nacional de Aprendizagem Comercial, SENAC) receives 80% of its revenue through levy-based funds, as Gasskov (2002) reported. Johanson (2009) highlights that SENAI (Serviço Nacional de Aprendizagem Industrial), the Brazilian industrial training scheme, has failed to increase participation rates, as has happened for other revenue-generating schemes. This is probably because it

**Table 1** Overview of training funds by type of levy base

Levy base	Country
Company profit tax	Jordan (canceled), Egypt (suspended)
Levy on foreign workers	Bahrain, Marshall Islands
Payroll	Belgium, Bulgaria, Cyprus, France, Greece, Hungary, Italy, Ireland, Netherland, Poland, Romania, Spain, United Kingdom, Algeria, Morocco, Tunisia, Singapore, Barbados, Bolivia, Brazil (for SENAI, SENAC, and SENAT), Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Paraguay, Peru, Uruguay, Venezuela, Benin, Burkina Faso, Central Africa, Chad, Côte d'Ivoire, Guinea, Malawi, Mali, Mauritania, Mauritius, Namibia, Nigeria, Senegal, South Africa, Tanzania, Togo, Zimbabwe
Fixed amount per worker	Slovenia
Value product	Brazil (SENAR), South Africa Agricultural Training Fund (SETA)
Social security fund	Panama

Source: UNESCO (2015a)

does not offer any incentives to employers to provide additional training (see Johanson 2009 for further details on the Brazilian training funds). Although they have considerable potential, a major issue with revenue-generating levy schemes is their administrative and organizational requirements. They tend to create a lot of bureaucracy. They are typically centralized, and this can lead to inefficiencies. Levy-exemption schemes allow individual firms to select training courses that have clear relevance for their staff, but revenue-generating schemes normally use centrally mandated training bodies and courses, as the Brazilian experience revealed. As reported in Muller and Behringer (2012), previous research suggests that one benefit of implementing a levy-subsidy scheme is that the allocations of grants do not have to provide more benefit to those who have contributed more to the fund, thus this system can be far more redistributive than levy-exemption schemes. There have been successful examples in Denmark and Singapore (Gasskov 2002; Dickinson and Marsden 2013). It is also important to consider “deadweight losses.” To illustrate the importance of minimizing “deadweight losses,” we focus on the United Kingdom. Muller and Behringer (2012) reported that the vast majority of participants used the scheme to provide training that they had already planned on carrying out and would have done even if the scheme had not been in place.

There is no firm prescription for the best design of a training levy. However, our comparison of the different methods suggests that levy-exemption schemes could be the most attractive, since they allow firms to decide what training courses their employees should attend, instead of training being allocated by a central body. However, the existing literature has acknowledged that revenue-generating schemes could be more suitable for developing countries, where opportunities for education are often scarce. The core reason is that this type of scheme has proved to be the most effective way of raising resources.

## Overview of Methodologies for Analyzing TVET Funding Schemes

The vast majority of the existing literature analyzes current or planned TVET funding schemes from a qualitative perspective (Gasskov 2002; Muya et al. 2007; CEDEFOP 2009). Much of the qualitative research carried out takes the form of interviews with local experts such as policy-makers and individuals directly affected by the different training levy schemes. The purpose of these interviews is to shed light on the problems encountered by schemes and on the areas where they have succeeded. In those situations in which data are not available, an alternative approach is to conduct a survey which allows conclusions to be drawn about the efficiency and effectiveness of the schemes based on the respondents' answers.

Moreover, Torres (2012) developed a theoretical framework for education funding. He then applied it to the OECD countries, seeking a better understanding of how funding schemes should operate. The report concluded that there is no ideal system, and the most suitable approach will differ from country to country, since societal attitudes to income redistribution, tax compliance, and the level of underinvestment in education and lifelong learning tend to affect the suitability of the different funding Schemes. Additionally, Hofstetter (2014) conducted a literature review to gather robust evidence on existing TVET schemes in other countries in order to provide some insights into the potential effects of the implementation of a similar system in Nepal. This study identified corruption and the lack of transparency in the system as the main impediments to the success of the Nepal Skills Development Project (SDP).

As was explained earlier, the existing body of literature analyzing the impact of training levies on economies is limited because of the lack of statistical data. Our review of this knowledge revealed that most researchers used a basic quantitative analysis in conjunction with a qualitative approach in order to provide robust results. The statistics typically analyzed are the amounts contributed by companies and the increase in uptake of training schemes. A key reference in this field is CEDEFOP (2009). The CEDEFOP analysis assesses the strength of the different funding methods, with regard to their effectiveness (the extent to which the policy achieves its objectives), efficiency (reasonableness of their costs, user-friendliness, and the administrative burden), and their impact (how much they avoid deadweight loss). A key point of the analysis undertaken by CEDEFOP (2009) is that levels of private investment and participation in TVET were used as dependent variables. However, because of the lack of reliable and available data, composite statistics were used. Neither private investment nor participation in TVET could be measured directly. In order to bypass this problem, the researchers used data from Eurostat's Continuing Vocational Training Survey (CVTS). In particular, this data source provided data on (i) expenditure on educational institutions from private sources, (ii) cost of CVT sources as a percentage of total labor cost, (iii) percentage of employees participating in CVT courses, and (iv) number of hours in CVT courses per employee. Furthermore, this analysis also includes some focus-independent variables. These variables were split into two categories: (i) TVET cost-sharing mechanisms, which represent the method and source through which funding for TVET

schemes is made available to participants, including (among other methods) tax incentives, training funds, subsidies mechanisms, and loans, and (ii) TVET cost-sharing regulatory instruments, which are general rules of the schemes consisting of payback clauses and training leave. In this context the cost-sharing mechanism refers to a situation where the funding for TVET is shared between public organizations and private companies. Contextual variables are also included, i.e., public spending on education, certainty of training investment, technological progress, and labor market equilibrium. Subsequently, some econometric analysis was applied to an unbalanced panel of the 27 EU member states across the period from 1999 to 2006. The lack of reliable data on TVET schemes is the main reason due to which this study focused on the effects of the contextual factors on the dependent and independent variables. The contextual factors affected both the levels of investment and participation in TVET schemes and the mechanism and regulation. This study found that although all the contextual factors have an impact on investments and participation in VET, technological progress is the element that has had the greatest impact.

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## **Methodology to Estimate Potential Resources for Skills Development**

This section presents a detailed description of the methodology that has been developed to estimate the potential of private sector resources for skills development that could be mobilized by means of a levy. First, we propose a proxy for the levy base. Then we describe the main features of the levy rate. Subsequently, we elaborate on a conceptual framework to estimate the potential revenues that could be raised. Further discussion of our approach is also provided to identify the advantages and limitations of the proposed methodology.

### **Design of a Proxy for the Levy Base**

The empirical evidence gathered for the purpose of the previous section has revealed that the vast majority of the schemes currently in operation are designed to raise funds through taxes that are applied to the payroll (see Table 1 for further details). Ideally, it would be useful to distinguish several broad sectors and use the total payroll for a sector as a proxy for the levy base. This could improve the accuracy of the results, since training levies might present a different behavior in each sector. If that is the case, eventually, aggregated totals would be calculated.

However, official statistics that track the evolution of the payroll through time are unlikely to be available, since some of its components may be difficult to monitor. For example, bonuses can be quite volatile – they can be related to worker productivity, profitability, or other indicators which can vary substantially between two successive periods. In this case, we could approximate the base levy by using the gross annual earnings in the economy (or in a sector if there are available data).



In general terms, our proposed proxy for the levy base, total payroll/remuneration, is preferred to other variables such as turnover since that variable could fluctuate dramatically between two successive periods. However, our proposed methodology needs to be flexible enough to use several proxies for the levy base, since not all the training levies are designed in the same form. For example, in Panama social security contributions are the appropriate proxy, while the value of production is relevant for Brazil (see Table 1).

We can anticipate that the inclusion of a variable with an unstable value will not produce significant results from an econometric perspective. Moreover, variables such as the average turnover or profits in a sector could not provide an accurate representation of that particular industry since they are more firm-specific.

In order to provide estimates of the private resources that could be available for training, two sets of data are needed. First some historical data is needed to estimate the relevant parameters. In addition, some forecast data is also needed to build the baseline. If not enough periods of data on the payroll (earnings) are available for analysis, we could produce the required time series by setting the existing observations to grow at the same rate as sector gross value added (GVA). That is, we make the assumption that wages are a constant fraction of value added for any given sector. For transparency a similar rule would be applied to generate the relevant observations for other variables such as social security contributions.

## Identifying Key Features of the Levy Rate

The levy rate is the level at which the tax is set to fund the TVET scheme. This can be considered as the outcome of a social dialogue, public-private partnership (PPP), or policy decision. The “buy-in” indicator is the spending on training that is financed. Figures reported in the existing literature reveal that the rates across countries and even across sectors are quite heterogeneous. In general terms, the rate applied to payroll is reported to be in the range of 0.1% (Belgium) to 4% (Benin).

In addition, the literature review has revealed that the mean levy rate on payroll in Europe as well as in North Africa is approximately 1%; while Latin America and the Caribbean and sub-Saharan Africa have an average levy on payroll of 2%. Of the countries that apply a levy on payroll, Belgium has set the lowest rate. Focusing on the Belgium case, the Flemish Employment and Vocational Training Service (VDAB) in Belgium is a levy-exemption scheme that caters to 11 different sectors. Flemish employers that invest less than 0.1% of payroll cost in training are subject to a social security contribution of 0.05%. Drawing attention to the African countries, an ambitious scheme is running in Benin, where a 2% levy rate was established, although the rate at which the tax is set is not directly related to a fixed share of the payroll. Other interesting examples are Jordan and Egypt, in which the payroll tax used to be applied to corporation profits. These countries apply a 1% rate, which is paid nationally rather than by one specific industry.

In the case of Latin American countries, two cases should be highlighted. Brazil's SENAR training fund applies a 1% levy on all agricultural goods. The revenues of these

funds are earmarked for rural training schemes. This is a distinctive feature of this scheme. Furthermore, Panama deserves special mention, since its rate is 15%. In Panama, the Instituto Nacional de Formación Profesional y Capacitación para el Desarrollo Humano (INADEH) scheme was introduced in 2006 with the aim of monitoring and implementing programs of vocational and general training as well as managing and distributing public resources allocated for that purpose. The previous training scheme, Instituto Nacional de Formación Profesional (INAFORP), was funded by a payroll levy of 2.7%.

## Theoretical Approach to Estimate Potential Revenues

In general terms, the amount of revenue raised by means of a training levy will depend on two components – the levy rate and the levy base – as shown in formula (1):

$$\text{Revenue raised} = \text{levy base} * \text{levy rate} \quad (1)$$

However, other contributing factors can affect the final outcome. Table 2 focuses on this additional set of explanatory factors.

**Table 2** Explanatory factors of the amount of revenue raised

Factor	Rationale	Relevant variables to categorize each dimension
Economic context	<ul style="list-style-type: none"> <li>Economic contextual factors directly affect the participation of firms in the schemes</li> </ul>	National wealth (gross domestic product – GDP), sectoral value added, productivity, average wages, sectoral employment (number of jobs), etc.
Labor market structure	<ul style="list-style-type: none"> <li>Labor market factors seem to have an impact on TVET (albeit a slight one)</li> <li>Employment rates also affect the levy base since an increase in the proportion of individuals who are participating in income-generating activities will increase the levy base</li> <li>Educational attainment levels of the population also influence the revenue raised. In principle, more skilled workers will be more productive and obtain higher remuneration, which eventually affects the levy base.</li> </ul>	Unemployment rates, labor participation rates, educational attainment level of the population, expenditure on labor market training as percentage of GDP, etc.
Institutional setup	<ul style="list-style-type: none"> <li>Institutional factors such as the size of the informal sector directly affect the outcomes and disbursement of the training funds. The size of the informal sector could also help to explain a low amount of revenue raised.</li> </ul>	Relative weight of the informal economy and the relative weight of the public sector over the total economy

Source: UNESCO (2015b)

Formula (1) can be expanded by including the set of factors described above in order to produce a model where the volume of revenue raised is a function of the levy features – the levy base and the levy rate, the economic context, the setup of the labor market, and the institutional context – as shown in formula (2).

$$Rev = f(LeB, LeR, Eco, Lab, Ins) \quad (2)$$

where *Rev* is revenue raised, *LeB* is the levy base, and *LeR* is the levy rate. *Eco* is a vector which includes those variables that refer to the economic conditions, *Lab* represents a vector which comprises several variables to reflect the structure of the labor market, and *Ins* refers to a vector that captures variables that reflect the institutional context. The sign below a variable indicates the partial derivative of the dependent variable with respect to that variable, that is, the expected direction of the contribution of that variable to revenue raised.

Subsequently, we assume a semilog linear specification of the relationship proposed in Eq. (2) and proceed to estimate Eq. (3):

$$Rev_t = \beta_0 + \beta_1 LeB_t + \beta_2 LeR_t + \beta_3 Eco_t + \beta_4 Lab_t + \beta_5 Ins_t + u_t \quad (3)$$

where the symbols account for the same variables as in Eq. (2), with the exception of  $\beta_0$  which is a constant;  $\beta$  are the estimated parameters, and  $u_t$  is a vector of error white noise process. All the variables are expressed as logarithms, with the exception of those defined as rates. This allows for the interpretation of the parameters as elasticities.

Ideally, we would estimate an econometric model, as shown in Eq. (3), to quantify the contribution of the factors to the actual amount of revenue raised in the past. We can anticipate that the Engle and Granger (1987) cointegration technique will be employed, if the available time series are long enough to produce robust results. The value added of this approach is that cointegration techniques permit us to estimate an equilibrium relationship that describes the behavior of the variables in the long run, along with an error-correction model which explains the dynamics of the variables in the short run. The Engle and Granger (1987) cointegration technique is a two-step procedure. The first step is to estimate the long-run equilibrium relationship by means of ordinary least squares (OLS). Then, the existence of cointegration among the variables is tested by checking the stationarity of the residuals produced by the long-run relationship. In doing so, the augmented Dickey-Fuller test (Dickey and Fuller 1979, 1981) will be applied to examine whether the residuals are  $I(0)$ . In the second step, the short-run dynamics are modeled by estimating a regression in differences, which also includes an error-correction term. The latter variable, which is built as the lagged residuals term of the cointegrating long-run relationship, shows the percentage of disequilibria eliminated between the short-run and the long-run model in each period.

The estimation procedure will follow the “general to specific” modeling strategy (Hendry and Richard 1983). In this we start by estimating a general model where several variables are included, and in subsequent iterations, we eliminate those variables that are not statistically significant until a parsimonious model where all

the variables are significant is reached. However, there is always a risk that the available data is not sufficient to produce robust econometric results. This could happen if there are only a few observations of data. Typically over 30 observations are needed, but this also depends on the stability of the long-run relationship. Indeed, that the literature review identified very few quantitative analyses does suggest that limited data availability may restrict the approaches that can be used. In this case, OLS and simple correlation analysis will be applied.

Subsequently, once the relevant determinants of the amount of revenue raised are identified, we proceed to the estimation of the potential revenues. This stage uses official economic forecast data, such as data published by the International Monetary Fund (IMF), OECD, or the national statistical office, to build a baseline that reflects potential future development of the economy. Then we apply the estimated parameters to three different scenarios – business as usual (BAU), optimistic, and pessimistic – to produce the estimates. A final stage of the procedure is to validate the estimates by checking the residuals. This should show whether the regression error term (actual revenue raised minus model prediction) displays any pattern that might indicate a tendency to bias.

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## Case Study: Cyprus

This section focuses on the case of Cyprus and use the training levy implemented in the country to illustrate the application of the methodology. Before moving onto the description of the actual estimates, a description of the scheme is provided.

Human Resource Development Authority (HRDA) is the body in charge of managing Cyprus's scheme. HRDA is a semigovernment organization with a tripartite board of directors including government, employer, and trade union representatives. HRDA reports to the government through the competent minister, who according to Regulation 509/2012 is the minister of labor, welfare, and social insurance.

The Cypriot system relies on contributions paid by all employees, with the exception of the self-employed and government workers. By law the Human Resource Development Levy rate cannot exceed 1% of the emoluments paid to each employee. In practice, the levy rate is 0.5% of payroll, with a monthly cap of €4.533 (Regulation 509/2012). Subsequently, HRDA issues grants to employers for approved training as well as allowances to trainees and financial assistance for obtaining training equipment. In general terms, the HRDA subsidizes 80% of the cost of training, although this rises to 100% for "high-priority multicompany training programs."

The training levy is collected by the Social Insurance Department of the Ministry of Labour, Welfare and Social Insurance. Further to the collection of the levy, a commission is paid to the Ministry. This commission has accounted for 0.63–0.73% over the period 2012–14. Cyprus has seen a large increase in the number of benefactors of these grants (growing from 4000 to 54,000 between 1983 and 2005). However, in 2003 only 66% of the total funds at HRDA's disposal went to subsidies (with firms in the construction industry utilizing only 50% of their

contribution). Despite the success of this system, a few limitations need to be mentioned. In particular, the system has not performed as well as expected for low-skilled workers and microenterprises. Both of these categories receive beneficial treatment in the scheme (see also CEDEFOP 2009).

As defined in the HRDA Targets 2015, the mission of the organization “is to create the necessary prerequisites for the planned and systematic training and development of Cyprus’ human resources, at all levels and in all sectors, for meeting the economy’s needs, within the overall state socio-economic policies” (HRDA 2014).

The Authority promotes training by subsidizing 80% of the eligible cost of the programs that enterprises propose, provided the training programs are approved by HRDA. HRDA is the body in charge of managing training funds but is not a training provider. Currently the Authority’s funds come from two different sources: first, the Human Resource Development Levy, which is currently set at 0.5% of payroll, subject to a monthly cap (and as noted above, does not apply to government employees and the self-employed), and second, the European Social Funds (ESF).

An interesting feature of the Cypriot system is its flexibility, which appears to be a key element of its success. The flexibility arises from the fact that HRDA is not a training provider. Instead, training is provided by private institutions, which can adjust rapidly to the changing needs of the economy. Around 150 training institutions are currently operating in the country. Note too that the existing initiatives allow HRDA to finance training abroad. In 2014, HRDA expenditure on human resource development was €21.9 million. Subsidies provided to enterprises accounted for 43.4% of its total expenditure. It should also be noted that although the self-employed are excluded from paying the training levy, this group seem to have shown some interest in contributing so that they can be provided with subsidized training.

For the purpose of this analysis, we focus on the period 2000–2014. This time horizon was determined by the availability of the Labour Force Survey (LFS) data, which started in 2000. Data from Eurostat, HRDA, and the World Bank was collected. The main indicators that were used for this analysis are GDP, average wage, public expenditure on education, employment, unemployment, labor participation rate, educational attainment, tax burden, relative weight of the public sector over the total economy, inflation, GDP deflator, informal economy as a percent of GDP, employees’ remuneration, total wages and salaries, total employees’ social contributions, human resource development levy, levy commission, levy revenues, and subsidies revenue.

However, there are two variables for which some information is missing:

- Data on public expenditure in education (at different levels) are only available for the period 2001–2013.
- The weighting of the informal economy, which is only available between 2008 and 2013. These data were provided by HRDA.

In order to deal with these data constraints, linear extrapolation was used to produce a proxy for the size of the informal economy back to 2000. This might seem

a long period to extrapolate over, but what data exists shows the informal economy to have a relatively constant share of total GDP (around 26% with very little variation), and thus we felt this approach was justified. Additionally, the rate of growth of the last year available was used to fill in missing observations for public expenditure in education.

A preliminary step in the econometric analysis is to apply correlation analysis to identify linear relationships between the variables. In particular, this analysis has revealed:

- (i) The amount of revenue raised by the training levy is highly correlated to variables such as GDP, productivity, and employment, which reflect the economic context and the performance of the labor market.
- (ii) There is also a positive linear relationship between revenue raised and the wage bill (i.e., total wages and salaries).
- (iii) A strong and positive correlation was also identified between the revenue raised and public expenditure on education.
- (iv) A negative linear relationship exists between the revenue raised and the administrative cost of the levy, which is measured by the levy commission.
- (v) A negative correlation was also found between the relative size of the public sector and the amount of revenue raised.

With only 15 years of observations available, there is insufficient information to undertake formal analysis to check whether the various indicators are stationary or not. However, from visual analysis of time series plots, it would seem that most series are nonstationary (with a nonconstant mean and variance over time).

Without a sufficiently long-time series, it is not possible to test for the presence of a long-run relationship using cointegration techniques. Instead, the general form of the models that can be estimated is summarized in Eq. (4):

$$\text{Total revenue} = f(\text{potential revenue}, \text{others}) \quad (4)$$

where *potential revenue* has been calculated by multiplying total employee remuneration in the private sector by the levy rate (0.5%), and *others* includes variables that reflect the economic conditions, the structure of the labor market, and any other elements included in the theoretical framework presented above. An underlying assumption of all these models is that the coefficient of *potential revenue* would be equal to 1 in an “ideal” system with no distortions. A major distortion is caused by the informal economy, which in Cyprus accounted for an average of 26% of total economic activity over the period 2008–2013. Additionally, a cap for employer contributions adds complexity to the system and helps to explain why the parameter deviates from 1. Another element which could explain the deviation is the fact that public employees’ emoluments are exempt.

For the purpose of this chapter, a linear relationship between the variables has been assumed. The relevant parameters that have been estimated using OLS are shown in Eq. (5):

$$\ln(\text{rev}_t) = -0.583 + 1.118 * \ln(\text{revp}_t) + \varepsilon_t \quad (5)$$

where *rev* is the revenue raised, and *revp* is calculated by multiplying employee remuneration by the levy rate.

In the above relationship, the parameter and the intercept are significant, i.e., for each coefficient the probability (p-value) is close to zero so we can confidently reject the null hypothesis that the coefficient equals zero. A 1% significance level has been considered for potential revenue. Preliminary estimates have also found a long-run relationship between the potential revenue that could be raised, *revp*; the level of employment, *emp*; and the relative weight of the public sector in the economy, *pus*. However, the final specification of the model shown in (6) only includes potential revenue as an explanatory variable. Both employment and the relative weight within the economy are not included in the model since they are correlated with potential revenue. A dynamic version of the model presented in (5) was also estimated, although the lagged term of actual revenue was not found significant. That specification of the model presented an estimated parameter for *revp* which was below and close to 1.

As expected, there is a positive relationship between the amount of revenue actually raised and the revenue that could be potentially raised if the existing cap were removed. In particular, the estimates suggest that a 1% increase in the potential revenue will lead to a 1.1% increase in the actual revenue.

The fact that the estimated coefficient is above unity (which we might expect to provide a natural long-run limit) reflects the fact that the cap of the levy has been increasing through time, and, subsequently, the actual revenue has become a rising share of potential revenue. It is interesting to note that, even with the limited time series data available, their graphical representation reflects that there seems to be a pattern in which the ratio of actual-to-potential revenue first rises, then decreases, before rising again to reach a new (localized) peak. The cause of this behavior could involve the periodic increase of the cap and the behavior of firms, although because (to date) the dates of any historical increase have not been provided, this possibility cannot be confirmed.

The process of estimating the econometric model shown in (5) is followed by applying the model in the construction of a baseline and two alternative scenarios. Subsequently, these scenarios are used to calculate the future revenue that could be raised by a training levy.

The relevant forecast for the business as usual (BAU) case is presented in the table below, along with the optimistic and pessimistic cases. In the BAU case, which is consistent with the IMF forecast, it has been projected that HRDA revenue will grow over the period from 2015 to 2020. Similar trends are expected in both scenarios although the amount of revenue raised is different in each one. The IMF Country Report does not include any forecasted data on wages and salaries. In order to deal with this lack of data, the assumption that wages will grow as the same rate as real GDP has been adopted (Table 3).

All scenarios use the model shown in (5) to forecast the available revenue. As the coefficient for potential revenue is greater than unity, this implies an ever-narrowing gap between actual and potential revenue moving into the forecast period. Clearly

**Table 3** Potential private sector resources that could be mobilized for training, 2015–2020

Country	2015	2016	2017	2018	2019	2020
<b>Baseline</b>						
Cyprus (USD 2005 million)	24.0	24.5	25.0	25.6	26.2	26.7
<b>Optimistic case</b>						
Cyprus (USD 2005 million)	24.0	24.6	25.2	26.1	26.9	27.7
<b>Pessimistic case</b>						
Cyprus (USD 2005 million)	24.0	24.4	24.8	25.4	25.9	26.4

Source: Authors' elaboration

such a position cannot continue indefinitely, because ultimately actual revenue would be forecast to exceed potential revenue. However, for the relatively short-term nature of the forecast being considered in this study, such an assumption is considered reasonable. The alternative (assuming a coefficient of unity for the forecast) would naturally result in lower future revenues.

## Conclusion

The literature review has covered a range of different assessments of the effectiveness of training levies which have been implemented across the global economy. The vast majority of the reports which have been reviewed were qualitative in nature. In general terms, levy-based funding approaches are preferred to other types of scheme, such as levy-exemption schemes, although they are not exempt from limitations. The intensity of the impact on the levy-scheme is highly related to contextual factors, as pointed out by the Marsden and Dickinson's (2013) qualitative review and the CEDEFOP (2009) report which demonstrated this finding quantitatively in the context of European countries.

Despite the benefits that have been associated to training levies, special attention should be given to their design in order to minimize deadweight losses and ensure that all firms can benefit from these schemes regardless their size. Although it has been acknowledged that TVETs contribute to improving greater development of human capital, their implementation could introduce distortions that might mean these schemes offset some of their potential benefits. An example of these distortions is that it may be the case that those employers that are paying training levies perceive them as an increase in labor costs which could have negative effects in terms of inflation and employment. If the "cost" of training levies are translated into higher prices, this could also have an impact in terms of firms' competitiveness. In addition to that, the mentioned increases in labor costs could also lead to a situation in which training cost burdens are being faced by employees (through reduced wages). Many of the TVET which have been implemented were underutilized by smaller companies. An important issue to bear in mind when designing TVET is the administration cost, which could get large and reduce the efficiency and positive impact of the TVET.



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# Enhancing Permeability Between Vocational and Tertiary Education Through Corporate Learning

# 32

Thomas Schröder and Peter Dehnbostel

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## Abstract

The restructuring of corporate organizational concepts and the digitization of the working world since the 1980s and 1990s were accompanied by a renaissance of learning at work. Corporate learning is becoming increasingly important for companies particularly in terms of employees' competence development. It is a kind of learning in the process of work, which is connected with non-formal and formal learning both within and outside the company. Additionally, forms of organization of learning combine working and learning while work is taking place in the here and now and apply different models of work-related learning. Digital work expands and intensifies corporate learning by dint of virtual learning components. The competences acquired in corporate learning have to be

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acknowledged via a permeable education system in terms of credit increments integrated into formal educational programs. Validation procedures facilitate the assessment, valuation, and certification of informal and non-formal learning. Informally and non-formally acquired competences can be compared to other educational areas and programs through their association with educational standards.

Educational standards for vocational education and training comprise the content, learning place, and staff-related standards of the Vocational Training Act (BBiG) introduced in 1969 and their implementation in recognized initial and further education and training regulations. The classification of standards-based vocational competencies in the German Qualifications Framework (DQR) enables their comparison with educational programs and modules implemented in academic, i.e., tertiary education. The DQR functions as a framework for reference and permeability.

A shift in workplace learning and additional demographic, labor market, and higher education policy developments have led to the adoption of two pathways toward permeability between vocational and tertiary education that are recognized nationwide. The ideal solution is to acknowledge and award competence-based vocational education based on educational standards.

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### Keywords

Corporate learning · Permeability of vocational and higher education · Recognition and evaluation of competences · Educational standards · Qualifications framework · Corporate learning types · Validation of informal and non-formal learning

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## Introduction

Permeability of the education system should provide the individual with access to formal education and facilitate the transition between different educational sectors. Equal opportunities, social integration, and opportunities for career advancement can certainly be increased by an improved correlation of the education and the employment system. In Germany and in other countries, the permeability between vocational and tertiary education is traditionally being discussed.

The general regulatory framework for permeability of vocational and academic education is currently changing in two crucial ways. Firstly, there has been a reorganization of education systems in many highly developed countries in terms of keywords such as qualifications frameworks, outcome orientation, educational standards, accreditation, competence-based education, validation, and quality assurance (Sloane 2007; Hartz and Schrader 2008; Bolder et al. 2017). The University of Zurich's educational researchers, J. Oelkers and K. Reusser, speak of an "internationally widely accepted change of perspective in education policy," which, in implementing outcome orientation, combines the use of resources and

results, thus making the effectiveness of the education system of the highest priority (Oelkers and Reusser 2008, p. 17).

Secondly, corporate learning has been changing fundamentally since the 1980s and 1990s by dint of new work and organizational concepts, the digitization of work, and workplace learning. Learning in and at work makes a significant contribution to the individual's competence development, and digital and informal learning are continually gaining in importance. Corporate learning is reflected in different models and terms such as work-related, work-based, and workplace learning as well as in different forms of organization of learning. This requires the education system to validate and recognize acquired competences. Recognition can be accomplished via educational standards and qualifications frameworks, more specifically; it is possible for vocationally acquired competences to be credited toward tertiary education courses. Hence, validation of competences or Accreditation of Prior Experiential Learning (APEL) is a highly relevant field of research and development in the international discussion (Bohlinger 2017; ILO 2018).

Before permeability in the educational system and recognition of corporate learning in gaining access to tertiary education are thematized, however, it is essential to provide a fundamental understanding of the companies in which vocational learning is taking place. In this chapter, the activity of public administration, civic, and religious organizations is separate from those of the profit-oriented company, which is the underlying concept here. In organizational research this complies with the usual differentiation between nonprofit and for-profit organizations (Apelt and Tacke 2012). Corporate learning from hereon in refers to actions that involve profit-oriented companies where learning takes place in a field of tension between the economic business goals of the organization and competence acquisition and targeted goals of education.

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## Permeability in the Education System

The decades-long reform demands made on the educational system to produce more permeability are now presented with a fresh opportunity caused by changes in educational policy and changes in learning in and at work. In Germany and many other countries, the tradition is that vocational and tertiary education are strictly separate from one another. Hence, the vocational and tertiary systems are isolated from one another. After many unsuccessful attempts over numerous years to create more permeability and support for reform and parity between vocational and tertiary education (Büchter and Dehnhostel 2012, p. 69 ff.), system changes are now emerging that promise advancement and success. Clear indications are exemplified, for instance, by education policies that enable access to university without university entrance certificate, the parity of master craftsman's certificates and higher education entrance qualifications as well as the recognition of vocationally acquired competences for tertiary education (among others Buhr et al. 2008; Dobischat et al. 2008, p. 53 ff.; Stamm-Riemer et al. 2011).

The change of perspective in education policy requires a change in the abovementioned perspectives which, in place of input factors of education systems, the control and managing of outcome and result-oriented learning now follows first and foremost. Obviously, these are competence-oriented learning and education plans aligned to National Qualifications Frameworks (Raffe 2012) and the European Qualifications Framework (EQR). Qualifications and competences have been allocated into different levels, and procedures as well as instruments for evaluating competences and providing validation have been introduced. Educational standards are required which can grade vocationally acquired competences based on competence ascertainment and validation procedures for acceptance at tertiary levels of education and thereby foster permeability.

Hereby, the primary objective of comparability and reciprocal recognition of qualifications between the various fields of vocational education and tertiary education may be established. The major question here is what can be compared, evaluated, and therefore recognized. Until as late as the 1980s, practical skills and professional knowledge based on vocational education in Germany offered hardly any means for comparison with tertiary education as the levels of qualifications differed too widely and learning processes and achievements were virtually disjunctive. The forward-looking postulates of the education reform from the 1970s on integration and equality of vocational and general education exposed those limits.

What comprised the change in work, to be discussed in the following chapters, and the change it affected in vocational learning, was an elementary change in the fundamentals and starting point as a whole. Intersections increased between vocational and tertiary education, which led, significantly, to the guiding principle of competence development and the reflexive capacity to act in vocational education. The development of vocational education was caused by changes in socioeconomic conditions in an increasingly digitalized life and work world. The qualification demands of restructured work and organization concepts are – for all their inequalities and contradictions – characterized by higher qualification and holistic demands on competencies (Frey and Osborne 2013; Dehnbostel 2015, p. 8 ff.). They imply changed quantitative and qualitative qualification demands. This is the core reason why the traditional blind alley nature of vocational education became obsolete and why “the permeability of the educational system [...] is, at the present, quite high on the political agenda” (Hanft 2014, p. 123).

In this way reciprocal recognition could contribute to terminating the historically produced separation of tertiary education from vocational educational fields and their inherent and forcefully developed mechanisms of authorization, selection, and exclusion. In their place an interface comes into being between and within tertiary and vocational educational fields with the means for transitioning and accessing those fields. Thus, the recognition and crediting of each prequalification is essential, e.g., vocationally acquired competences gained from specific vocational training courses and conversely tertiary education relating to vocational education. The recognition and crediting of vocationally acquired competences for tertiary education is of primary interest here. This permeability is strengthened and linked to education and development pathways that had once been at the forefront of earlier reform initiatives (subsequently rescinded) calling for equal opportunities and social integration.

## Corporate Learning in the Digitalized Work World

In Germany, the rediscovery of learning in the work process was a turning point in the development of vocational learning. From the beginning of industrial vocational education in the last third of the nineteenth century, the so-called dual system, vocational education was increasingly centralized, systematized, and regulated by simultaneous differentiations (Dehnbostel 2007, p. 14 ff.). The debate on corporate learning on the presupposition of decreasing learning potential and opportunities continued far into the 1980s. This also applied to the industrialization and taylorization of work in the second industrial revolution proceeding into the 1970s. Qualification and learning while at work were persistently considered less acceptable from a didactic methodological point of view but also for economic and work and organizational reasons. As an alternative, valid qualifications were obtained from central educational institutes where learning could be systematic and undisturbed. In reality, formal and organized learning in vocational education continued to increase although the larger part of learning took place at the company.

With the introduction of information and communications technologies and the accompanied restructuring of work and reflexive modernization (Beck et al. 1996; Schultz-Wild and Lutz 1997), a countertendency toward centralization of vocational education loomed. Large- and medium-scale companies in particular supported an increase in learning while at work. They were quick to recognize that learning in modern work processes offers new options for learning and qualification that went beyond Taylorism. This realization outlined necessary prerequisites for innovative work organization and forms of organization of learning (Senge 1993). It returned to a kind of learning that belonged, historically, to the work life that had been impoverished in meaning due to industrially organized structures.

These new learning potentials and learning opportunities at work are attributed to the operational restructuring of the 1980s in the change from Taylorism to process- and innovation-oriented work organizations. The change as well as the work and qualification demands stemmed from a variety of causes, in short by so-called megatrends such as globalization, digitalization of the work world, the process and service industry character, and subjectivization (Dehnbostel 2015, p. 11 ff.). This meshing of megatrends formed new company and work concepts. They fundamentally changed work organization as well as the scope of tasks and task procession. The digitalized work world proceeded into the current developments of so-called web-based concepts of Industry 4.0 and in the Internet of Things and services (Botthof and Hartmann 2015).

A brief look at the history of the industrial revolution shows the technological and work organizational change determined by each of the qualification demands comprising the necessary qualification of vocational learning but leaves it undefined.

From as early as the late eighteenth century and the start of the first industrial revolution, the connection between industrialization and vocational qualification including forms of corporate learning remains open: in England, where the first industrial revolution was pioneered, no qualification concept for the industry's water- and steam-driven mechanization was developed. The countries catching up

on the European continent, France, and later Germany drew up supportive qualification functions (Greinert 1999, p. 23 ff.). The emergence of the dual system of vocational education in Germany was the result of problems arising from traditional vocational qualifications and a reaction to the upheavals in work concepts and work culture caused by the changes of the first industrial revolution. Qualification and vocational educational structures were deemed necessary at a quite early stage but were not considered as a dependent variable of qualification requirements of the companies.

At the beginning of the twentieth century, mass production and Taylorism ushered in the second industrial revolution. Its assembly lines, powered by electricity, created a new reference point in qualification. The qualification models used in the industrial countries were extremely diverse: e.g., the “science of industrial work” in the USA dubbed Taylorism in reference to its inventor and the *dual system of vocational education* created as a new qualification type for the skilled worker in Germany (Greinert 1994, p. 22 ff.).

The third industrial revolution of the 1970s involved the increasing influence of information and communications technology at work, facilitated by the use of microelectronics and digital systems. To what extent the propagated Industry 4.0 from the beginning of this decade (as Fig. 1 indicates) marks a historically and technologically fourth industrial revolution remains to be seen. Core characteristics of this industrial developmental step, characterized by the Smart Factory and the Internet of Things and service, are the online networking of machines, operating means, and logistical systems through so-called cyber-physical systems (CPS), which are basically the principle worldwide (Marwedel 2011). The digital transformation via CPS is characterized by the interaction of artificial intelligence and robotics.

In the digital transformation, a work enrichment and extension takes place, of which the basic structure of digital work processes lies in linking reality and virtuality. Digital work takes place in the reality-virtuality continuum; descriptions of this world of work include terms such as “mixed reality,” “augmented reality,”

		<b>3rd Industrial Revolution</b>	<b>4th Industrial Revolution</b>	↑ increasing complexity
<b>1st Industrial Revolution</b>	<b>2nd Industrial Revolution</b>	<ul style="list-style-type: none"> <li>• Programmable logic controller (PLC),</li> <li>• CNC- machine tools</li> <li>• automation of production by ICT (information and communication technology)</li> </ul>	<ul style="list-style-type: none"> <li>• Cyber-physical systems (CPS), mixed reality</li> <li>• Smart factory, internet of things and services</li> </ul>	
<ul style="list-style-type: none"> <li>• Steam engine: Mechanical looms (1784)</li> <li>• Mechanisation of manufacturing /water and steam power</li> </ul>	<ul style="list-style-type: none"> <li>• Conveyor belt assembly line: Cincinnati abattoirs (1870), Fordism</li> <li>• mass production powered by electricity, Taylorism</li> </ul>			
<b>2nd half of 18<sup>th</sup> century</b>	<b>beginning of 20<sup>th</sup> century</b>	<b>1970ies</b>	<b>today</b>	

**Fig. 1** Developmental steps of the industrial revolution



“augmented learning,” and “socially augmented learning” (Tönnis 2010; Fehling 2017). The extended reality (augmented reality) is the normality of the future digital working world. The real workplace becomes virtual by introducing mobile terminals and is therefore expanded by creating virtual workplaces. This augmented learning in the process of work joins the physical with the virtual work world. Project-related activities and tasks are learnt primarily through informal real and virtual learning processes. This means at the same time that augmented learning becomes one of the primary work methodologies for professionals in the digital work world and learning at the workplace is actually an organized part of the work methodology.

Hereby contemporary organization and changes in work require qualifications, competences, evaluations, and fundamentally altered learning options that can be correctly described as epochal. The work activities in the digitalized work world combine operative and demanding dispositive tasks. They are largely self-directed, highly flexible, and determined by situations depending on the task in hand and the problems to be solved. The emerging digital competences combine technical with personal and social competences per se. An important approach to the identification and evaluation of digital competences is contained in the five areas of the comprehensive European reference framework for digital competences that defines eight levels (Carretero et al. 2017).

The corporate learning referred to here appears to have less potential for organizations compared to earlier industrial revolutions, since competence development takes place through informal learning in virtually extended work and learning frameworks, which can often be determined technologically and by the corporation’s narrowed perspective. However, this is only one side of corporate qualification, also termed informal further education. The other side is the connection between learning at the workplace with non-formal and formal learning within and without the company that contains numerous qualification concepts and concepts for work-related learning (Dehnbostel and Schröder 2017) and can, to a large extent, be included in corporate qualification.

Finally, the potential of corporate qualifications and forms of learning in the digital age has grown considerably. As in the previous industrial revolutions, national, company, and cultural differences will have a significant influence on the broadly open organization of qualification and corporate learning. The permeability between vocational and academic education is most certainly a vital organization criterion for corporate personnel development and competence development.

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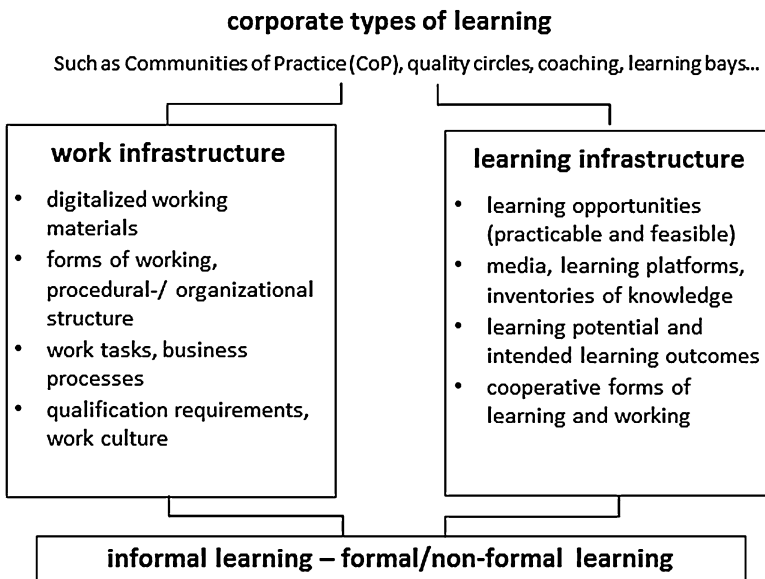
## **Organizational Forms for Corporate Learning**

Newly created forms of organization of learning that take place in the midst of the work process have gained particular importance for corporate learning at work, as they systematically connect formal and informal learning on a high learning level. By contrast with the work methodology, integrated learning constitutes a targeted extension of work around formal and informal learning. They gain in meaning

particularly in regard to the aspects sketched out in the previous chapter on the digitalization of work processes and learning and competence requirements in the organization of work.

Forms of organization of learning connect formal or organized learning with informal and experiential learning. What they have in common is that the workplaces and work processes are extended and enriched by learning systematically and work pedagogic aspects, without being formalized and losing the distinguishing characteristics of informal learning. A framework is consciously created in which learning while at work is promoted and supported by organizations and corporate learning types, e.g., coaching, learning bays, work and learning tasks, and online communities (Dehnbostel 2015, p. 70 ff.). The common structure of forms of organization of learning is depicted in the following illustration (Fig. 2).

As presented in the illustration, corporate types of learning are formed by a double infrastructure: the work infrastructure relates to the work means, work forms, work tasks, and qualification requirements of each work environment and is also embedded in the work culture to which it is related, while the learning infrastructure provides additional spatial, temporal, objective, and personnel resources in an organized framework. Informal learning and formal learning are related systematically on the basis of an interweaving with the work and learning infrastructure. Alongside non-formal learning is also considered to be formal learning because it involves organized learning combined with a learning structure. In the following, two examples of corporate learning types introduced in the 1990s are presented.



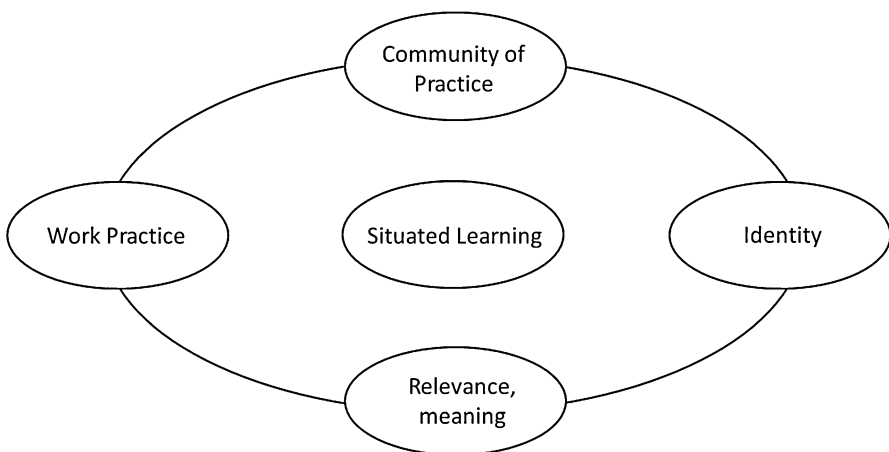
**Fig. 2** Double infrastructure of corporate types of learning (Dehnbostel 2007)

## Communities of Practice (CoP)

With the emergence of digitalization in the modern work world as well as in everyday life, communities of practice (CoP) came about as integrative corporate learning types. They represent a (social) alliance of people, who share common interests and often common life, work, and learning situations. In contradistinction to other corporate learning types, CoP is marked to a high degree by self-organization, equality between members, and learning carried out through and with the group. They overlap with forms of independent or half-autonomous group work.

The communities of practice are positioned within a theoretical foundation as well as in their practical development as a fundamentally situative learning concept (Lave and Wenger 1991; Wenger 1998). It denotes learning through activities and everyday action in a community of practically active people. Through this situated learning, not only knowledge and skills are acquired but also practices, attitudes, and values. In contradistinction to pertinent, cognitive learning concepts, the learning process is embedded in each of the formation conditions and environmental situations and is not separated from it. This also means that learning is not functionally reduced but is in fact a form of enculturation and shall be integrated into each learning and work culture. Four reference categories are fundamental to this process (Dehnbostel 2015, p. 44 ff.) (Fig. 3).

The work practice category signals that the learning process is carried out via live actions and practical experiences in and with the community. The group is a social community, and their individual and collective activities are directed at a common goal. They provide the framework for group learning and mold the learning of the individual. The group as a practitioner community constitutes a community of practice. The identity evolves in a quite often lengthy development of experts as a member of the community. The sense and meaning of learning are developed by placing learning in an authentic and practical context with transparent and shared



**Fig. 3** Reference categories of situated learning (Dehnbostel/Schröder 2017)

goals, and not within an artificially constructed situation that has been designed to initiate learning.

The concept of situated learning is based on experiential learning processes through action within a social context of a specific community of practice and environment. The belonging to a group is supporting and integrative at a social and individual level. Learning and competence development take place between all group members in a common social space. This particularly applies to learning at work: the learning becomes interactive in a binding relation to work tasks and its subsequent organization, planning, and scheduling tasks. Attitudes and values are acquired within the group or the organization via socialization and learning processes. Such an understanding of learning results in another kind of learning than that of institutionalized, formal learning. It is informal learning through which group cohesion, social integration, and participation emanating from its intentional activities lead to learning results.

Online communities as virtual societies represent a current further development of communities of practice (Zinke and Fogolin 2004). Quite long-term work, social and learning relationships emerge from online communities. They are, however, frequently not only maintained in the virtual sense but also supported by encounters outside the Internet or intranet, e.g., sekretaria.de and the Microsoft online community. Online communities, however, do not replace traditional work and communication relationships but extend them. Learning requirements, e.g., for the completing of tasks in temporary work and project groups, can be catered for through online communities that have no equivalent in traditional work relationships.

## Work and Learning Tasks

Work and learning tasks are another example of a work and corporate learning type that has been developed and is also suited to the small- and medium-sized companies. This corporate learning type aims, through its starting point of the work task, directly at the qualificatory requirements of the work and, simultaneously, at the competence development of the employee.

The *work and learning tasks* as a learning method connect work and learning through a didactic transformation of real-work tasks and the fulfillment of the following criteria (Schröder 2009):

1. The tasks satisfy holistic work and learning implementations in which specialist, social, and personal competences are acquired.
2. The processing of tasks takes place with higher self-responsibility and self-direction of continuous training, combined with systematic cooperation with each other and – as long as they make sense in terms of company size – in group work.
3. The learning processes are work and experience related; experience knowledge is gained and linked with theoretical knowledge.
4. Questions on the work design and work organization are reflected upon in a goal-oriented manner and linked to continual improvement processes.

5. Selection and accumulation of work tasks proceed so that they contribute to the achievement of each goal of competence development and further education.

The *model of complete action* is not at the base of these criteria as this is ideally for the vocational school-oriented concept of *learning and work tasks* which is too schematic to depict real-work structures and more fluid work processes. The corporate practice of work and learning tasks follows the logic of work processes and structures that are constitutive. The resources and conditions at hand in the work process will generally be implemented in the accustomed manner in the corporate work. It is crucial for the systematically laid-out work-related learning through work and learning tasks that working and learning are connected and purposefully take place during work processes. Therefore, informal learning is structurally embedded within formal learning and hence can be formalized or counted toward a formal education offer.

Work and learning tasks as a corporate learning type contribute essentially to supporting learning at work and actively shaping and improving work organization. Participants in a work-based qualification obtain scopes of action and degrees of freedom to plan, organize, and evaluate their own work through work and learning tasks. It is especially important that the choice of the work tasks and the didactic methodological support take place with a coach or learning facilitator who takes each individual developmental stage into account thereby avoiding mental over- or underload of the learner. Through self-reflection and the estimation of the learning facilitator, each course of activity is observed and simultaneously supports the competence development and reflective capacity to act. Particularly noteworthy is the dimension of social support, which in collaboration with colleagues and superiors and above all with the learning process guide, can be put into effect. The concept of work and learning tasks was also successfully implemented in action-oriented and work task-related learning arrangements in a virtual work environment (Schröder 2017) and in advanced academic education aiming at the implementation of reform-oriented research projects (Schröder 2014).

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## Validation of Informal and Non-formal Acquired Competences

It is in the interest of companies and employees to recognize competences that have been acquired through informal and non-formal learning on a broad base and to take them on for a personnel or individual vocational educational development, which so far has only been done by individual companies. For the permeability of vocational and academic education, it is a necessary but not a sufficient prerequisite.

### Understanding Validation

Validation, in a broader context, aims at informal and non-formal paths of learning of acquired education skills and learning results (Dehnbostel 2015, p. 119 ff.). In companies, competences acquired via learning are validated but not the learning itself. The evaluation of informal and non-formal acquired competences must be in

line with qualification standards of the economic sectors, companies, and professions or standards of educational areas such as tertiary education. The guiding idea of the validation of education performances comprises the objective recording and assessment of informal and non-formal acquired competences. In line with the validation goes the acknowledgement and, where appropriate, the recognition of acquired competences on vocational development pathways or general or tertiary education courses. While the crediting aims at the shortening of learning times, formal recognition refers to the degree or graduation. It enables either immediate access to an educational course or awards educational attainment or vocational training degrees, which are often linked to an exam.

Alongside this possibility of a public authority-regulated validation, there are a number of recognitions in companies and the employment market of significance to vocational and further education that are relevant for the professional as well as individual development and career opportunities. Up to now, in Germany, no formal recognitions or accrediting in the educational system exist, in particular: work certificates and employee discussions, assessment procedures, competence analyses and balances, diagnostics and work analysis procedures, and certification by manufacturers and educational institutions.

Educational policy has long since been concerned, above all, with the subject of validation (especially) in relation to the European education policy, which is a conceptual element of the European Qualifications Framework (EQR) and the European Performance Point System for Vocational Education (ECVET). Of current significance is the published council recommendation by the European Commission of 20 December 2012 on the validation of non-formal and informal learning (Official Journal of the European Union 2012). It proposes the “validation of learning results in particular knowledge, skills, and competences which have been obtained in non-formal and informal ways” (ibid., p. 1) and recommends the introduction of national “rules for the validation of non-formal and informal learning . . . until 2018” (ibid., p. 3).

Knowledges and experiences on the evaluation of informal and non-formal acquired competences gathered by 26 European states have been summarized in the publication “European Guidelines for the Validation of Non-Formal and Informal learning” (CEDEFOP 2009) and can be described as a European validation concept. The interest of Europe in supporting national strivings for the introduction of validation systems for informal and non-formal learning is above all politically and economically motivated: comparability and transparency of the national system at European level are of great importance if the general advantage that is resulting from the validation is not limited to certain countries, regions, and sectors but unfolds its effects Europe-wide. Mobility of employees within Europe is therefore supported and is vital for the development of an enterprise’s human resources. A large qualified work force pool is available from which enterprises are able to recruit new employees. From the employees’ point of view, the offer of potential workplaces extends across national borders permitting competences to be assessed in a transparent system.

The European policy on the validation of non-formal and informal learning of 2004 (European Commission 2004) paved the way for the validation guidelines of 2009.

Following this policy, the individual is at the center of the validation process. It emphasizes that a validation of their learning must be conducted on a voluntary basis. The perspective of the individual is addressed specifically within an own chapter (Cedefop 2009, p. 57ff.), which deals with possible subjective reasons for a validation of their own learning so that in the context of the individual the appropriate decisions are made regarding that individual's advice and orientation. The validation of informal and non-formal learning is not possible without an institutional and organizational framework. In the European guidelines, a certification authority at government level is suggested, which can secure official recognition of validated non-formal and informal learning (CEDEFOP 2009, p. 42 ff.).

By means of a central evaluation and validation authority, the development of broader levels of applicable procedures can be carried out. Generally, education and vocational education organizations within the education system are particularly crucial for validation, because they can professionally evaluate the comparability of the standards of informal and formal acquired competences. This outstanding position of the formal system can, on the one hand, however, hinder the development of evaluation procedures that do not rely on formal learning environments.

## Five Step Validation Procedures

Validation primarily measures the learning experiences and learning results of individuals that have acquired those through informal and non-formal ways. This is done in a structured procedure that evaluates and certifies them by comparison with established standards. The standards refer to sectors, professions, vocational or tertiary educational courses, or parts of them.

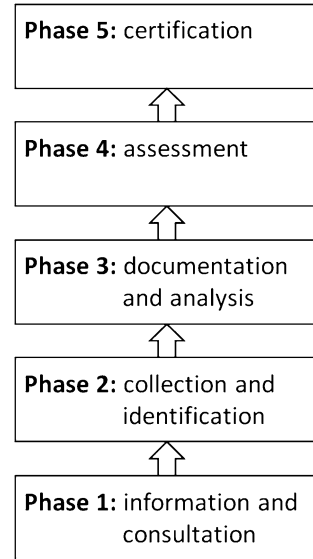
In the validation practice up to now, a five-phase concept for the identification and evaluation of informally and non-formally acquired competencies has been established in Germany and the European Union (CEDEFOP 2009; Official Journal of the European Union 2012; Dehnbostel 2015, p. 110 ff.), which is also at the foundation of the legally secured validation procedures in Switzerland from 2004 (BBT 2009) (Fig. 4).

At the core of the procedure are the three steps in the middle: collection and identification, documentation and analysis, and evaluation. Depending on the objective, the validation can initially be based on either a development-oriented open-ended competence assessment or focus on the assessment of competences which are relevant for the profession and based on standards of professions or educational courses and degrees and are therefore requirement-oriented. In each case the following outlined five phases are carried out:

### Phase 1: Information and Advice

Information and advice given to individuals but also groups on existing possibilities for estimating their competences and having them certified is fundamental for conscious participation in the procedure. Therefore, relevant information and

**Fig. 4** Five phase validation procedures (BBT 2009)



advisory services with addressee-specific structures have to be developed and expanded upon. It can be assumed that the advice structures and offers of regional vocational and further education in use are good enough to continue using.

It is important to note that:

- Different target groups require to be addressed according to their needs, it is especially important to differentiate according to previous education and work situation.
- The advisors accompany the participants in the preliminary stages of validation and, where appropriate, particularly for socially disadvantaged target groups, throughout the entire validation process.

### **Phase 2: Compilation and Identification**

The question that arises is whether or not the advisors should also be responsible for the identification and first evaluation of competences, interests, and the like. In principle, there are indications that a partial separation might be useful, since advisory services are often offered at further vocational education or information and training centers. The validation is carried out later by a separate institutional partner by means of other competence profiles.

It is important to note that:

- Compilation and identification should not only focus on vocational competences but also contribute toward uncovering individual interests and abilities and making them evident. A portfolio which gives detailed information on the development of the participant is crucial for the identification.



- Using different methods like self-assessment and external assessment is recommended when identifying competences and their classification into development-oriented or demand-oriented procedures.

### **Phase 3: Documentation and Analysis**

Documentation and analysis demand professional expertise, i.e., competent experts should be involved in the process. Generally, the documentation is limited to the compilation of documents of the previous phase.

The documentation is the foundation for the analysis; however, it can be supplemented by an interview to extend the basis for analysis. Furthermore, documentation and analysis can also lead to a supplementary qualification at a subsequent intermediate level.

It is important to note that:

- The documentation should be transparent and make an objective analysis possible that subsequently leads to assessment.
- It is preferable to compile the documentation digitally for reasons of analyzability, transparency, and the saving of time.

### **Phase 4: Assessment**

Crucial for the assessment is who conducts it and what qualifications are required to do so. The assessment and the preliminary analysis should be carried out by a single person. The task is particularly demanding since formal assessments of available methods and instruments cannot be applied and transferred. Furthermore, the task includes discussing demands, standards, and results of the assessment with those participating.

It is important to note that:

- The participants are informed from the beginning about the requirements and standards of the assessment.
- Assessment within the validation process should not be based on typical exams but should in fact be assessment criteria related, which need to be developed first with regard to standards that the validation is based on.

### **Phase 5: Certification**

Regarding certification it has to be decided if a vocational, local, or regional certificate is to be issued or whether a vocational degree or a qualification that is based on a qualifications framework classification is documented.

It is important to note that:

- The function and value of the certification has to be specified from the outset for the aim of the validation to be established.
- The certification includes the results of the assessment and, where appropriate, instructions for the recognition and classification in the National Qualifications Framework.

In summary, the validation of informal and non-formal learning can be described as a structured procedure, in which acquired learning and learning results are measured as competences and are subsequently certified. The procedure is conducted in the five sketched-out phases. Furthermore, validation must be undertaken by responsible, authorized establishments. The assessment takes place by reference to standards of a vocation, education courses, education degrees, or qualifications frameworks. In the context of corporate learning and informal and non-formal acquired competences that have been acquired at work, the question is raised which standards and qualifications framework enable the recognition toward acknowledging and accrediting courses toward tertiary education.

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## **Education Standards and Qualifications Frameworks**

Only the classification of corporately acquired competences as education standards enables their comparison with other educational fields and educational courses as well as their recognition and crediting, whereby the concern is with comparability and recognition between education areas of vocational education and tertiary education. Its starting point is corporate learning and the vocational competences acquired from it. By use of descriptors here, qualifications frameworks offer defined classifications and levels of comparison. Classification levels and equivalence criteria enable competence comparison between educational fields.

## **Education Standards as Premises for Comparability and Recognition**

While in Germany the discussion of educational standards within the general educational system has (only) gained broader attention since the debate has been raised by international educational studies like the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Studies (TIMSS), and Progress in International Reading Literacy Study (PIRLS), educational standards for vocational education have been established since the Vocational Training Act (BBiG) of 1969 (Schmidt 2003). The specification and continually new training regulations of recognized education and further education are in accord with the BBiG, and therefore guarantee social acceptance of vocational standards and their comparability with the standards of other education areas. For the scholarly part of vocational education, there exists an independent discussion of education standards bound by regulations of the Standing Conference of Minister of Education and Cultural Affairs (KMK) dealing with matters such as framework curricula and the general agreements binding them (Dehnbostel and Lindemann 2007; Sloane 2007; Schmitz 2009), which does not have an immediate impact on the subject matter of vocational learning and the acquisition of vocational competence.

In the context of the already mentioned changes in direction of the educational system, the discussion of educational standards has acquired an important function. A leading contributor to the discussion, education researcher E. Klieme, shows the connection of competence and education orientation of standards to competence

models. Klieme vehemently criticizes standards of purely test-based performance norms and competence lists: “educational standards adhere (ideally) to the goal of education as the development of personality, acquisition of culture and responsible participation in societal development” (Klieme 2006, p. 68).

In theory and practice, there are considerable differences in the understanding of education standards, and their implementation revealed partly contradictory expectations. The question for all education sectors arises over the goals, function, and structure of education standards. The following overlapping basic understandings exist (Klieme et al. 2003; Meyer 2006; Benner 2007; Oelkers and Reusser 2008; Münk 2008):

Educational standards

- Aim to achieve standardization, unification, verifiability, and comparability of competences which the learners have acquired according to certain educational or qualification procedures.
- Facilitate the verifiability as well as the reliable measurability of competences on the basis of performances in terms of successes and failures of the learner.
- Are instruments for the management, control, and surveillance of education and competence development processes as well as instruments for the comparison of education areas and education systems.
- Serve as quality control, quality improvement, and evaluation of the education system.

In vocational education, recognized education and further education regulations in accordance with the vocational education laws (BBiG) present a standard, which actually enables comparability with other education courses and education areas on the foundations of the competence basing of regulations. Introduced in 1969 and revised in 2005, the BBiG is the foundation for educational standards in vocational education. They relate to the vocational principle and are valid for the legally secure areas of vocational education and various forms of vocational further education. In the legal requirements and regulations content, learning location and personnel-related standards are established.

The standards are not set in stone in order for technological innovations and changes in organizational developments to be taken on at any moment in procedures where time can be of essence. For the German system of vocational education, professionalism is constitutive as a structured principle. Standardization examples such as those defined in the framework of the BBiG provide, for the purpose of international comparison, an orientation framework for vocational qualifications (Schmidt 2003; Deutscher Bundestag 2013). In terms of standardization processes, they set the competence and level-related benchmarks of qualifications.

## **DQR as Reference and Permeability Framework**

The introduction of qualifications frameworks is a part of the aforementioned restructuring of the education system. They form a platform for the comparability

of various education courses and education areas and moreover enable reciprocal recognition and crediting.

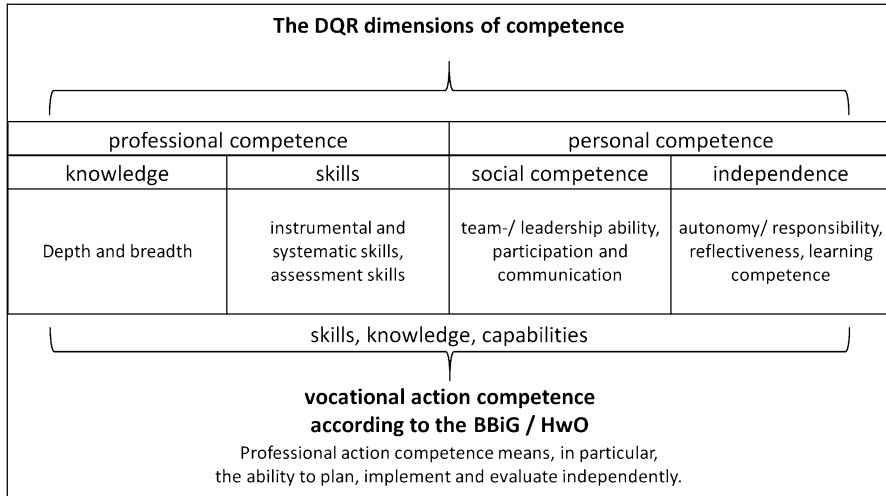
Education courses were previously characterized by content structure, admission prerequisites, and teaching and learning processes, that is to say through elements of an input and process management. Now qualifications frameworks have to enable management by means of learning results and outcome. In national and international contexts, they should not only serve the purpose of transparency and comparability but also – in relation to the validity of qualifications and competences – generate a confidence-building effect. With the help of qualifications frameworks, the use of “knowledge, skills, and competences” shall be optimized (European Union Commission 2005, p. 17).

The DQR is therefore outcome-oriented (AK DQR 2010). It sets out to support the mobility of the learners and employed between Germany and other European countries and in conjunction with the EQR take on the regulations and European comparability with qualifications acquired in Germany. The DQR relates to competences and qualifications that have been acquired in secondary and vocational education, tertiary education, and further vocational education. The improved permeability between the individual education areas is the outlined goal. This means that in the German Qualifications Framework implemented since 2013, “the goal is, to make equivalencies and differences of qualifications for educational institutions, companies and employees transparent and in this way support permeability” (AK DQR 2010, p. 2).

The permeability of vocational and academic education is impeded in this way as for both educational areas differing standards and understandings of competences exist. This is where the DQR comes into play, which – just like the EQR, functions as a translation device to compare the learning outcomes at different educational levels. Underlying the DQR is a general concept of competence with the dimension of expertise and personal competence at its base, which is compatible with competence understandings of individual education areas as well as vocational and tertiary education. At European level, the relevant terms of each national qualification and competence are subsumed in the general understanding of the EQR. Outcome orientation is the structural orientation of the qualifications framework that facilitates the comparison of qualifications and competences.

The compatibility in vocational education acquired competences specified in the DQR has been defined by the authorities responsible for vocational education in Germany (BIBB 2014, 2015). As the following illustration shows, the defined goal for vocational and further education regulations of “vocational action competence,” defined via “skills, knowledge, and capabilities,” correlates with the competence dimensions of the DQR (Fig. 5).

Vocational education in Germany is thereby classified in the DQR, which in turn stands in relation to the EQR and other National Qualifications Frameworks. The comparison of vocationally acquired competences with other educational fields and their recognition and crediting is enabled thereof at a national as well as a European level.



**Fig. 5** Compatibility of vocational activity skills and competence dimensions of the DQR (BIBB 2014)

## Conclusion: Competence-Based Crediting of Vocational Education

In Germany, the change shown in corporate learning and further demographic, employment market, and university policy developments (Buhr et al. 2008, p. 23 ff.; Wolter 2013, p. 197 ff.) lead to options of permeability of how vocational education can be credited toward tertiary education: firstly there is the possibility of entering a university after having successfully completed vocational training via one of various means to acquire tertiary education entrance certificates and the recognition of vocationally acquired competences. Secondly, study is possible for nontraditional student professionals without higher education entrance qualification (A-levels) by means of admission entitlement awarded through recognition of vocationally acquired qualifications studies (Wolter 2013, p. 204 ff., Hanft 2014, p. 24 f.). Realistically, at present, the first pathway accounts for a fourth of all students in Germany; the second pathway indicates a mere 3% of all beginner students (Hanft et al. 2015, p. 13 f.).

The second pathway has been established in 2009 via a resolution on “university access for vocationally qualified applicants without formal high school university entrance qualification” by the Standing Conference of Ministers of Education and Cultura Affairs (KMK 2009). Following that the graduates obtain further vocational training such as “Meister” (DQR 6) in technical vocations and in business administration or are holders of comparable degrees of tertiary entrance qualifications, they will receive a university entrance qualification. In a similar way, this applies for

vocationally qualified applicants without advanced further training who obtain a subject-related university entrance qualification, as long as they satisfy certain prerequisites, e.g., a minimum of 2 years of vocational education and a minimum of 3 years of professional practice in a study course area in a subject that complies with the field to be studied at the university. These generalized rights are based on formal qualification completions and time-limited vocational experience, i.e., this indicates permeability without any previous competence comparisons, validations, and competence recognition.

Regarding the first pathway, for the vocationally qualified with tertiary education entrance qualification, permeability shows itself in part by the acquisition, but primarily in the crediting of informally and non-formally acquired vocational competences. The Standing Conference of Ministers of Education and Cultural Affairs in 2008 prepared a resolution on the “crediting of knowledge and skills acquired outside university education for university studies (II)” (KMK 2008), which was already adopted in 2002 in its first version. Crediting can – as already documented in 2002 – comprise a maximum of 50% of courses and examination performances of a university degree program. In the long run, this is a tenable limitation of permeability as a look at other countries demonstrates.

Even though the obligation of crediting knowledge and skills or competences acquired outside university is taken on by Laws on Higher Education by each state of the Federal Republic of Germany, however, in reality no state or state-wide valid regulations are actually put into effect at university level. Standardized or uniform competence assessment and validation procedures are out of the question. A. Hanft and W. Müskens, two university researchers who practice recognition, ascertain: “As neither the resolutions of the KMK nor the corresponding Federal University regulation outline procedures or standards for crediting, their implementation usually takes place in the form of non-transparent individual case decisions” (Hanft and Müskens 2012, p. 245, Hanft 2014, p. 129).

Nonetheless the regulated crediting of vocational education toward university studies is the correct and crucial development option for permeability to university. Comparisons and equivalences between vocationally acquired competences and degrees on the one hand, and university study courses with competence-oriented modules on the other, should be made the basis of educational standards. A fundamental extension takes place and, in part, also a replacement of current validation and certification procedures, in which permeability between vocational and academic education would, as a developmental perspective, be a regulated part of an overall permeable education system.

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# Vocational Student Organizations and Student Success

# 33

Chris Zirkle and Jeremy Jeffery

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At the present time, vocational education in the United States is known as “career and technical education,” and student youth organizations are known as “career-technical student organizations.” The names were changed in 1998 as part of an effort to address the negative perceptions surrounding vocational education. However, for the purposes of this chapter, the terms vocational education and vocational student organizations will be used throughout.

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### Abstract

A key part of any vocational education program at the middle school, high school, or postsecondary level in the United States is a vocational student organization (VSO). Funding nationally was first provided for these vocational student organizations with the passage of the Smith-Hughes Act of 1917. A vocational student organization is cocurricular and is meant to complement the curriculum of a particular vocational education content area. Vocational student organizations are offered in conjunction with business and industry and are aligned with business and industry standards. Vocational student organizations allow students to participate in realistic activities that are related to their chosen vocation. These activities can include campaigning and running for an elected office, skill competitions, service learning and community service, and activities that prepare them for college and a career. In the United States, despite the noted value of vocational student organization to the overall student experience, there has been intermittent and, at times, scarce research regarding the relationship of vocational student organizations to student success. This chapter will provide an overview of vocational student organizations, interspersed with relevant research.

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### Keywords

Leadership · Competitions · Cocurricular · Success · Competency

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## Introduction

Vocational student organizations play an important part in vocational education programming in the United States. Broadly speaking, these organizations are built upon four common goals: academic and career achievement, leadership development, professional development, and community service (Virginia Department of Education 2017). This chapter will explore the various vocational student organizations that are an integral part of a vocational education program and the different ways in which students demonstrate success through their participation.

At present in the United States, there are currently more than two million students participating in a vocational student organization (National Coordinating Council for Career and Technical Student Organizations 2017). Students participate in vocational student organizations in order to demonstrate the skills and knowledge that they have learned within a specific vocational program (Zirkle and Connors 2003).

Vocational student organizations are cocurricular in nature, and students apply what they have learned in the classroom in a real-world setting through authentic learning (Aragon et al. 2013; Reese 2011).

In the United States, vocational student organizations were first introduced with the passage of the Smith-Hughes Act of 1917 (Aragon et al. 2013; DeBates and Pickard 2008; Threeton and Pellock 2010; Zirkle and Connors 2003). Although not formally recognized by the Smith-Hughes Act, funding initiatives were established for agricultural teachers including advising and supervision responsibilities of vocational students in agriculture (Vaughn et al. 1993). By 1920, in the United States, high schools had begun instituting vocational student organizations (DeBates and Pickard 2008). Since that time, they have evolved over the years into name changes and expansion to other territories and countries outside the United States. Students can pursue vocational education at the secondary level, and they also participate in vocational education student organizations as part of their vocational education training in postsecondary settings.

Vocational student organizations are described as “cocurricular,” which allows students to extend and apply their learning and knowledge from academic lessons to real-world situations and scenarios making learning more authentic (Aragon et al. 2013). Many of these activities are “extended” learning opportunities, completed by students outside of regular school hours in addition to the learning activities that take place during regular school hours (Stone 2014).

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## **Overview of Vocational Youth Organizations Within Each Career Field**

Students who elect to participate in a vocational education program also participate in a vocational youth organization that is a part of their chosen program. Vocational youth programs are available to students at the middle school, high school, and postsecondary levels (see Table 1). Students participate in a vocational youth organization that is associated with a career field (agriculture, business, technology, and others) for which they have a demonstrated interest. As part of the cocurricular student organization, students have many different opportunities available to them as they are led by their teacher/adviser. Further details are presented about youth organizations in the following sections.

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## **Structure of Vocational Student Organizations**

Each vocational student organization has its own structure and operates according to a set of standards, policies, and activities that have commonalities across all the organizations. Vocational student organizations are generally formed into chapters at the local level with advisors and sponsors, with support from state departments of education in the form of state advisors, and with administrative

**Table 1** Secondary and postsecondary vocational student organizations

Secondary vocational student organizations	Postsecondary vocational student organizations
Business Professionals of America	Business Professionals of America
DECA	DECA
Educators Rising	Future Business Leaders of America
Family, Career and Community Leaders of America	Health Occupations Students of America
Future Business Leaders of America	National Postsecondary Agricultural Student Organization
Health Occupations Students of America	SkillsUSA
SkillsUSA	
Technology Student Association	
The National FFA Organization	

and financial assistance (Gordon 2014). The national offices associated with the organizations listed in Table 1 provide policy and curriculum development assistance to the state and local units.

One important component of a vocational youth organization is electing student representatives, with students campaigning for office at local, regional, state, and national levels (Association for Career and Technical Education 2011). A second component of vocational youth organizations allows students access to authentic learning through various skill competitions. In addition, students in vocational student organizations also participate in a diversity of service learning and community engagement activities.

Another integral component of a youth vocational organization is the involvement of the vocational teachers, who serve as advisors for the various chapters at the local, regional, state, and national levels. Teachers as advisors help to promote excellence within each organization by providing leadership and guidance to help motivate students to accomplish different goals of each chapter such as competitions, service learning, and community service. Each of these components is described in greater detail in the following sections.

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## Student Elected Representatives

As part of their participation in a vocational student organization, students are encouraged to elect representatives who will serve as officers to provide valuable leadership to the organization beginning with the local/district level. Students who want to hold an elected office as a student representative may campaign for an office at each level including local/district, state, and national/international (Fiscus and Hyslop 2008). Students may choose to campaign for a variety of elected offices including parliamentarian, historian, treasurer, public relations officer, vice president, and president. Elected student representatives are valuable resources for a student organization as they make sure that their chapter sets and achieves goals, serve as a role model to other students, and will function as the liaison between the local/district level and the state and national/international associations (BPA 2017).

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## Competitive Events

Competition among students in a given vocational area of interest is a key component of a vocational youth organization, and students can display their skills competence through various competitions. Competitions occur at different levels, and students who perform at an exceptional level have the opportunity to compete against a broader group of students. Competitions are authentic in nature and are meant to be reflective and indicative of different situations within each career field. These competitions permit students to form solutions to real-world problems according to their own abilities (Litowitz 1995). Vocational student organizations are aligned with business and industry standards, and these competitions can prepare students for careers once they graduate from high school or postsecondary training (Brand et al. 2013).

When it comes to competitions, students can choose to participate in competitive events either individually or as a part of a team (Future Business Leaders of America 2017). Vocational youth organizations also allow students to compete against each other within their respective vocational area. Students are assessed and judged within each competition by industry-recognized judges, and these judges assess them according to a set of indicators (Brand et al. 2013). High-performing students receive recognition for their achievement in front of their peers (Threton and Pellock 2010; Litowitz 1995).

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## Service Learning and Community Engagement

Service learning and community engagement are also important aspects of vocational student organizations. These important characteristics of a vocational student organization help to define the role of student excellence. Service learning helps to promote and extend civic awareness for students participating in a vocational student organization by allowing students to strengthen their twenty-first-century skills including collaboration and communication (Young 2014). Also, service learning is an experiential opportunity that allows students to put learning that occurs from inside the classroom into practice in the real world by completing projects that contribute to the betterment of the community (Aragon et al. 2013; Reese 2008). Students complete community service projects that are supervised by their teacher/advisor, and the projects are ways to give back to the community through volunteering (Reese 2008).

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## Teachers/Advisors

Each chapter of a youth vocational student organization has a vocational teacher who also serves as an advisor (Reese 2011; Stone 2014). The teacher/advisor oversees the operation of the youth vocational organization at the local level (sometimes referred to as the regional level) and is also in charge of preparing students for competitions (Stone 2014). They also play an important role in promoting student

excellence through various chapter activities. As mentioned, such competitions can include running for an office, officer training, service learning, and skill competitions at the local, state, and national levels (Gordon 2014). Also, teacher/advisors use their skills to effectively mentor, guide, take initiative, motivate students, and manage each chapter as part of their duties when they are in charge of a chapter of a vocational youth organization (Stanislowski and Haltinner 2009).

Teachers/advisors are responsible for distributing their knowledge and expertise to make sure that students are ready for competitions. The teacher/advisor prepares students both academically and for their career content knowledge to make sure that students understand how to correctly use technical terms associated with each career field (Reese 2011). In addition, leadership is an important attribute of a vocational youth organizations, and teacher/advisors are responsible for modelling leadership to their students (Reese 2008). Teacher/advisors impart the confidence and the ability to perform competently, whether the student is running for an elected office or is preparing for a competition. Teachers/advisors spend many hours preparing students for the functions associated with vocational student organizations (Gentry et al. 2008; Reese 2011). This extra work may be compensated via a supplemental salary, but oftentimes the teacher/advisor does the work voluntarily.

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## **Types of Vocational Student Organizations**

Vocational student organizations are available in the major content areas associated with vocational education including agriculture, business, family and consumer science, health occupations, marketing, technology education, and trade and industry programs (Taylor 2006). The US Department of Education (2016) recognizes 11 vocational youth organizations that are a part of vocational education programs in the United States. The 11 vocational youth organizations include Business Professionals of America (BPA); DECA; Future Business Leaders of America-Phi Beta Lambda (FBLA-PBL); Educators Rising; Family, Career, and Community Leaders of America (FCCLA); Health Occupations Students of America (HOSA); National FFA; National Postsecondary Agricultural Student Organization (PAS); National Young Farmer Educational Association; SkillsUSA; and Technology Student Association (TSA). Students who choose to pursue a vocational education course or program can participate in the vocational youth organizations associated with that particular course or program.

### **Business Professionals of America**

As a result of research conducted in 1964 by the American Vocational Association (AVA) which indicated a need for a student organization related to business, the Vocational Office Clubs of America (VOEA) was founded in 1966 (Camp et al. 2000). The VOEA changed its name to Business Professionals of America (BPA) in 1988. BPA currently has 45,000 members in over 1,800 chapters in 25 states and Puerto Rico (Business Professionals of America 2017). Business Professionals of America is the vocational youth student organization for

students interested in careers related to business management, office administration, information technology, and other related business fields (Business Professionals of America 2017; Reese 2008). Students also compete in the Workplace Skills Assessment Program which allows BPA students to demonstrate the skills and knowledge that they learned by actively participating in different BPA activities (Reese 2008). The Workplace Skills Assessment also allows students to display excellence within each BPA chapter as they compete against others using the knowledge they acquired related to the field of business.

### **DECA: Delta Epsilon Chi**

Incorporated in 1946, DECA is an acronym that previously stood for “Distributive Clubs of America,” but today the vocational student organization is referred to only as DECA. DECA is the youth vocational organization for students interested in marketing career areas such as hospitality, finance, sales and services, business administration, and entrepreneurship (DECA 2017; Geddes et al. 2016; Reese 2008). At the high school level, there are 200,000 members spread across 3,500 local chapters. There are DECA chapters in all 50 states, the District of Columbia, Canada, China, Germany, Guam, Mexico, Puerto Rico, and Spain (DECA 2017). Students take part in skill competitions related to business management and administration, entrepreneurship, marketing, finance, and hospitality and tourism. DECA competitions are offered at the regional, state, and national/international levels.

### **Educators Rising**

For students interested in becoming a teacher, Educators Rising is the youth organization associated with the career field of education. Founded in 1937 as the student organization Future Teachers of America, Educators Rising prepares students to enter the field of education and also provides them with hands-on learning opportunities including competitive events. At present, 2,400 secondary schools in the United States have Educators Rising student organizations (Educators Rising 2017). Students complete performance-based assessments as competitions where they demonstrate their skills, knowledge, and dispositions as future teachers. Students in Educators Rising also have the option to participate in events at the regional, state, and national levels. Unlike the other student organizations, Educators Rising is not affiliated with a specific vocational education program.

### **Family, Career, and Community Leaders of America**

The Family, Career, and Community Leaders of America (FCCLA) vocational student organization was founded in 1945 and is focused on students interested in the broad career field of family and consumer sciences. There are 164,000 members in approximately 5,300 chapters within 49 states, the Virgin Islands, and Puerto Rico (FCCLA 2017).



When FCCLA was originally founded in 1945, it had a primary focus on the roles and structure of the family (formerly home economics programs). Since then, FCCLA has evolved to prepare students for the responsibilities and challenges of adult life, to promote a greater understanding between youth and adults, and to prepare both men and women for the multiple roles within society today (FCCLA 2017). Students from public and private schools through twelfth grade in a family and consumer sciences course or program can join FCCLA.

### **Future Business Leaders of America-Phi Beta Lambda**

Similar to Business Professionals of America, Future Business Leaders of America (FBLA) is a vocational student organization associated with the business career field. FBLA was developed in 1937 by Dr. Hamden Forkner of Columbia University, with the first high school chapter officially launched in 1942. FBLA is now comprised of more than 235,000 students in nearly 6,000 chapters in secondary schools. A related postsecondary division of FBLA, Phi Beta Lambda, has more than 500 postsecondary chapters with more than 10,000 students (FBLA 2017).

Students who are active within FBLA participate in competitions related to business and career-related activities. The main office of FBLA is located in Reston, Virginia, with five regions across various locations in the United States. There are 60 different student competitions offered, and they cover many different facets of business including technology, public speaking, business, finance, and management.

### **Health Occupations Students of America**

Health Occupations Students of America (HOSA) is the vocational student organization associated with the health sciences career field. Health Occupations Students of America was founded in 1976 and now has more than 200,000 members in the United States, American Samoa, Puerto Rico, Canada, Germany, and Italy (HOSA 2017). Through participating in HOSA, students display their knowledge, skills, and abilities related to the healthcare industry. Student competitions include six different areas: health sciences, health professions, emergency preparedness, leadership, teamwork, and chapter recognition of service and achievement. Due to the rapid technological advances in the health sciences and the corresponding growth in vocational courses and programs in the health sciences, HOSA has experienced significant growth in the number of HOSA chapters and students in the past two decades.

### **National Postsecondary Agricultural Student Organization**

Officially organized in March of 1979, the National Postsecondary Agricultural Student Organization (PAS) was established for students interested in the field of agriculture at the postsecondary level. Membership now includes 1,400 members

from 62 chapters located in 18 states. PAS is available to students in agriculture/agribusiness/natural resources postsecondary programs in approximately 550 institutions across all 50 states (National Postsecondary Agricultural Student Organization 2017). The goals of the National Postsecondary Agricultural Student Organization are to prepare students for career development and leadership activities. Students can choose to compete in different collegiate programs with a specific focus on an agricultural career field.

## **SkillsUSA**

Formerly referred to as Vocational Industrial Clubs of America (VICA), SkillsUSA is the vocational youth organization designed to prepare students for the world of work through various activities including skill competitions and running for an elected office (Camp et al. 2000; Reese 2008). VICA was established in 1965 to meet the needs of students interested in trade and industrial education. SkillsUSA encompasses more than 335,000 students and advisors, organized into 18,000 chapters and 52 state and territorial association (SkillsUSA 2017). SkillsUSA is dedicated to improving the “quality of America’s skilled workforce through a structured program of citizenship, leadership, employability, technical and professional skills training” (SkillsUSA 2017).

## **Technology Student Organization**

Students displaying an interest in STEM (science, technology, engineering, and math) may join the vocational youth organization known as Technology Student Organization (TSA). The Technology Student Organization was first established in 1965 and was chartered as the American Industrial Arts Student Association (AIASA). The name change occurred in 1986, due in part to a greater emphasis on the role of technology (Camp et al. 2000). Students in TSA have the option to participate in competitions either individually or as a part of a team. Students can choose different categories in which to compete including agriculture and biotechnology, website design, dragster design, flight challenge, film technology, computer-aided design (CAD) with 3D modelling, desktop publishing, impromptu public speaking, radio-controlled transportation, or scientific visualization (Technology Student Association 2017).

## **The National FFA Organization**

Originally founded in 1928 and initially referred to as Future Farmers of America (Reese 2008), students interested in agriculture and leadership may join FFA. The National FFA Organization now includes 649,355 student members in grades 6 through 12 who belong to 1 of 7,859 local FFA chapters throughout

the United States, Puerto Rico, and the US Virgin Islands (the National FFA Organization 2017). Students involved in FFA can also run for office and participate in competitive events where they demonstrate their leadership skills related to a career field of agriculture. Students who participate in FFA can also prepare for careers in business, marketing, science, communications, education, horticulture, production, natural resources, forestry, and many other agriculture-related fields.

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## **Defining Student Success Through Participation in Vocational Student Organizations**

This section of the chapter contains a caveat. Despite the long history of vocational student organizations, there has not been a sustained research agenda examining the relationship between participation in these organizations and student success in vocational courses and programs. This has been cited by several authors and respective studies (Alfeld et al. 2007; Camp et al. 2000; Lankard 1996; Malone 1983; Zirkle and Connors 2003). Much of the research that has been conducted has focused on the area of leadership development. Other areas, such as the acquisition of employability or “soft” skills and positive personal attributes through professional development, technical skill development, and the effects of community service and service learning, have not been researched in significant detail. However, the following discussion will provide some insight into the relative benefits of participation in vocational student organizations and their associations with indicators of student success. The discussion will be partitioned into distinct categories.

### **Leadership Development**

Developing effective leadership skills and exhibiting these skills are a primary goal of participation in a vocational student organization. Students involved in a vocational student organization have reported higher levels of experiences related to leadership through their involvement within their organization (Clark 1978; Hansen et al. 2003). Students have been able to demonstrate leadership by participating in competitions where they display leadership traits that they have learned within their vocational program and student organization (Alfeld et al. 2007; Reese 2011). Many students who were former members of a vocational student organization have obtained leadership roles in such capacities including business, government, and education; one such notable leader who was a former participant in a vocational student organization was former President Jimmy Carter, who participated in FFA (Reese 2011).

A significant portion of participation in a vocational student organization and increasing student excellence is the impact of preparing students to become leaders (Clark et al. 2010; Reese 2008; Townsend and Carter 1983). Students can enhance their leadership skills and acumen by completing competitions and other activities as part of their vocational student organization. Among needed skills for success as a leader are those skills which are identified as “soft skills.” Soft

skills include employability, dependability, teamwork, trustworthiness, and taking initiative, many of which have been enhanced by students participating in a vocational student organization (Ullrich et al. 2007). Students participating in vocational student organizations exhibit and use their soft skills as they compete in competitions, which are also needed to better prepare them for the world of work.

Students in vocational student organizations can develop additional skills related to leadership such as public speaking (Decken 2012). The ability to work in teams and develop teamwork skills has been cited as well, as students learn to work together and create a sense of unity among all members involved in the organization (Blakely et al. 1993; Reese 2010a). Partnerships with other organizations have also resulted in success in the development of student leadership skills. Reese (2008) described the relationship between the Technology Student Association and the DuPont Leadership Academy, in which students learned and demonstrated leadership skills through their involvement in the academy. Students were then encouraged to communicate their newly learned leadership abilities with other members of their chapter.

## **Personal Attributes and Employability Skills via Professional Development**

Alfeld et al. (2007) described professional development as “the acquisition of knowledge and competencies that will be useful for future work in the profession” (p. 5). The development of employability or soft skills needed to be successful in the workplace is perhaps the cornerstone of participation in a vocational student organization. As a cocurricular activity, participation in these organizations’ activities supplements the primary academic and technical instruction found in vocational education programming and provides for the development of these competencies and associated knowledge.

Surprisingly, few studies have examined the impact of participation in vocational student organizations and the development of these attributes and skills. SkillsUSA members found their perceived level of personal and professional development was increased as their participation in SkillsUSA increased (Gordon et al. 1995). The study by Alfeld et al. (2007) found a positive relationship between participation in vocational student organizations and the development of employability skills for the workplace.

Another benefit of participation is the opportunity to network and meet business leaders. Business and industry leaders play an important role in making sure that students are aware of real-world expectations and ensuring students are job ready (Dortch 2014). The practical experience gained through networking increases student excellence through continued experiential learning activities (Threeton et al. 2010).

## **Technical Skill Development**

Needed technical skills for student success, including the development of digital literacy and technical literacy, are emphasized through various activities within the vocational

student organization, as well as how they are connected to specific occupational fields (Stone 2014). Students complete skill-building activities related to their chosen vocational area as part of a vocational student organization. Such activities can include practice for and competition in skill contests (Aragon et al. 2013; DeBates and Pickard 2008; Threton and Pellock 2010; Zirkle and Connors 2003).

Participation in a vocational student organization has shown to have positive impacts on different variables related to student technical skill competency development. Students participating in organizations including National FFA and SkillsUSA have reported increases in technical skills competence as a result of involvement in activities within each vocational student organization (Ulrich et al. 2007). In a student survey, Blakely et al. (1993) found students in FFA felt learning an area of knowledge and developing a skill were important aspects of participation in a vocational student organization.

The area of technical skill development may be a less-emphasized area with respect to vocational student organizations because the development of these skills is a primary focus of a standard vocational curriculum, where a majority of instruction is focused on technical ability (Kuijpers et al 2011). Participation in vocational student organizations may give students the opportunity to display these skills through competitions, but not necessarily as a mechanism for their development, and serve as an incentive for students to develop and enhance their technical competence.

## **Academic Knowledge and Skills**

Students in vocational education programs need to comprehend a variety of information in order to be successful in the workplace. Being familiar with health and safety standards, reading and comprehending the rules and regulations of a given workplace, and being able to demonstrate the correct usage of spelling and grammar and to communicate effectively are imperative (Threton and Pellock 2010). Thus, academic skills such as reading, writing, and computational ability are essential. Participation in a vocational student organization can help to strengthen these skills as students provide evidence of their ability to complete tasks related to each type of vocation through competitions (Threton et al. 2010).

In probably the most comprehensive research study of the effects of participation in vocational student organizations, Alfeld et al. (2007) indicated a positive association when students participated in a vocational student organization among the variables of academic motivation, academic engagement, and grades in comparison to students who did not participate in a vocational student organization. A fairly significant number of studies have examined the relationship of the development of student academic knowledge and skills, including a recent study by SkillsUSA (2017) in which students involved with SkillsUSA reported a perceived gain in grade point average in math, English, and science. Additional studies detailing participation in vocational student organizations and positive effects on student performance when it comes to academic grade point average have also been conducted (Kosloski and Ritz 2014; Manufacturing Institute 2015). Positive gains in student cognitive skills have

been documented by students who participated in the vocational student organization Technology Student Association (Taylor 2006). Increases in a student's grade point average have been attributed to participation in activities where academic learning is contextually relevant and is problem-based (Kosloski and Ritz 2014). The emphasis on the blending of academic learning with vocational student organizations is illustrated by student skill competitions. For example, SkillsUSA has embedded skills related to core academic courses including math, English, and science within its competitions. This allows students to demonstrate excellence in academic skills attainment coinciding with technical skills attainment (SkillsUSA 2017).

## Community Service and Service Learning

Students who participate in a vocational student organization are exposed to a variety of opportunities that prepare them for a career. They can demonstrate civic responsibility and play an active part in bettering the community in which they live through participation in a vocational student organization. Civic responsibility, as a component of a vocational student organization, is exhibited in two major ways, including service learning and community service. Each vocational student organization engages in some form of community involvement, and in a study of state directors, teachers/advisors, and student member, Collins (1977) found that participation provided significant benefits in aiding students to become well-rounded members of society. Alfeld et al. (2007) and Threeton and Pellock (2010) each found some measure of benefit to participation in community service activities through a vocational student organization. Young (2014) discussed the effects of participation and found students to be better prepared for life through the development of skills including collaboration, communication, and project management.

The concept of collaboration for civic benefit is a common theme with most of the vocational student organizations, as many partner with other groups and organizations for community service activities. An example of this collaboration is the national FCCLA annual outreach project, which works with a partner organization to reach into the community and help work toward a cause. Recent efforts have focused on assisting those in poverty and facing hunger and those dealing with the effects of natural disasters (FCCLA 2017).

Unfortunately, this aspect of the vocational student organization experience and how it relates to student success has not been studied in significant detail (Alfeld et al. 2007). Much of the evidence of the effectiveness of these efforts is limited to local outcomes and is anecdotal in nature.

## College/Career Readiness

Participation in a student vocational organization can also help to prepare students for success after high school by allowing them to further develop their interests in a particular career. With a growing concern from employers regarding a lack of

skills for a particular job field (Threeton and Pellock 2010), students participating in a student vocational organization can start to prepare for the world of work and develop their career skills. Students are also exposed to a variety of careers, and in a recent survey, 43% of students in vocational student organizations indicated a willingness to pursue a career in their career and technical field of study (The Manufacturing Institute 2015).

Students participating in vocational student organizations are exposed to a variety of career readiness initiatives including teambuilding, peer networking, and employability skills. Decken (2012) found students who participated in HOSA and related activities felt more prepared to make career decisions, which positively affected their college and career readiness since they were exposed to a variety of experiences.

Students can also demonstrate their desire to further their educational experiences beyond the secondary level through different career awareness activities as part of their vocational student organization. By preparing for competitive events and discovering more about their selected career field, students are engaged in making the determination to continue their education to the postsecondary level (Sun and Yuen 2016). Lifelong learning occurs through the various roles and functions of the vocational student organization and students building an awareness about what motivates them and how this motivation can help them further their careers by engaging and participating in activities of the vocational student organization (Stanislawski and Haltinner 2009).

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## Conclusion

This chapter has provided an overview of the basic goals and objectives of vocational student organizations, their structure and their organization, as well as an introduction to the various organizations in operation. A discussion of the associations and relationship to determinants of student success to participation in these vocational student organizations was also provided.

As discussed, vocational student organizations are an integral part of a vocational education program offered at the middle school, high school, and postsecondary school level. They are considered cocurricular and are meant to complement the curriculum of a career and technical program. Vocational student organizations were first established through funding from the passage of the Smith-Hughes Act of 1917, and since then vocational student organizations have grown in both the number of organizations and the students who are served.

Despite their long history, and the level of embeddedness in the US vocational system, the relationship between participation in vocational student organizations and their purported impacts on student success has been sparsely researched over the last six decades. Studies of the benefits of these organizations to students have been largely anecdotal or focused on onetime studies in one vocational student organization.

The roles of teachers/advisors in vocational student organizations have been defined and described, yet little is known about their impact on the success



of students. Many teachers/advisors are not compensated for their time with a vocational student organization, and thus, quality of effort likely exists.

It is suggested that a renewed research focus be placed on the participation in vocational student organizations and the resulting effects on indicators of student success. In 2007, the National Research Center began a study (Alfeld et al. 2007) that was cut short due to budgetary and legislative concerns. Thus, no significant study related to this issue has been conducted.

Regardless of these research shortcomings, vocational student organizations still receive significant support at local, state, and national levels, and their presence is keenly felt in the vocational education community. As mentioned previously, over two million students are presently participating in a vocational student organization in the United States (National Coordinating Council for Career and Technical Student Organizations 2017). This statistic is an indicator of the level of interest in having these organizations available to students. However, as this chapter indicates, more information is needed regarding the true benefits of these organizations.

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# Skill Mismatch Research: Skill Dimensions in Vocational Education and Training

# 34

Seung Il Na

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## Abstract

The purpose of this chapter is to contribute to the understanding of skill mismatches, by providing a comprehensive review of the various concepts, dynamic processes, and consequences as well as emerging trends in skill mismatch research. A skill can be understood as either the nature of the skill in itself (work ability or competence) or the individual worker or workforce. Thus, a skill mismatch in terms

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of the nature of skills is the qualitative discrepancy between what is possessed by an individual and what is needed, whereas a mismatch in terms of the workforce is the quantitative discrepancy between supply and demand of workers. Past researchers have proposed a variety of skill mismatch types according to whether the skills are viewed qualitatively or quantitatively and to the scope in which the mismatch phenomenon covers. The research trends surrounding the concept of skill mismatch have developed greatly since its beginnings when only indirect proxies were used. Now, various research topics on skill mismatch are possible as there is more development in data of skill mismatches.

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**Keywords**

Skill mismatch · Skill dimension · Skill types · Qualification · Vocational education · Vocational training · Mismatch research

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## Introduction

Since the start of the skill-biased technological change in the economy in 1990, the term skills as “a new global currency” has gained prominence in international education and training policies; many policies emphasize employability of students through the linkage of education and training systems to the labor market to respond to the increasing demand of skilled workforce (Desjardins and Rubenson 2011; Keevy and Chakroun 2015; OECD 2012). However, as the supply for skills has increased due to these policies, another major concern that arose is the problem of skill mismatch, the solution, to which is now deemed as the next important agenda in many countries (Desjardins and Rubenson 2011). As such, the European Commission (2010) has presented mismatches such as skill shortages and skill gaps as some major challenges to be addressed in the labor market, and OECD (2015) has refocused its priority to discussions regarding youth skill mismatch.

Skill mismatch, a very complex and dynamic phenomenon increasingly spreading across OECD countries (Quintini 2011), is a disparity between skill supply and demand, either quantitatively or qualitatively (Cedefop 2009). Interest in the skill mismatch phenomenon began when the supply of college graduates in the United States in the 1970s exceeded the demand in the industry, and the scope of the concept subsequently expanded (ILO 2014). As the unemployment rate of young people increased due to the global economic crisis in 2008, interest in skill mismatch also increased (Cappelli 2015; Cedefop 2015a). In addition, the skill mismatch phenomenon can be seen at various levels, such as individual worker, organization (Cedefop 2010a), and country (Cedefop 2009, 2010a).

However, researchers from different academic fields and various institutions have defined skill mismatches differently. Due to this lack of unified conceptual understanding, problems arise when these concepts are operationalized during studies about skills and skill mismatch, leading to incomparable statistical data (Vallas 1990).

Thus, the focus of this chapter is to review and describe the concept of skills as a multidimensional notion. This is achieved by reviewing past literature including scholarly journals and reports from international organizations, such as reports from ILO, Cedefop, and UNESCO on “skills”, “competence”, “skill mismatch”, and “mismatch”. The aim of this review is to contribute to the growing literature on skills and skill mismatch and to act as a conceptual guideline for empirical research.

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## Concept of Skills and Skill Dimensions

### Concept of Skills

There are a variety of definitions and understanding about skills in the literature, which are conceptualized based on different perspectives and purpose of the researches. Skills can either be described as a psychomotor domain of learning, or as a work ability, or as the entire set of workforce skills themselves.

### Skills Described as a Learning Domain

Bloom has identified three domains for developing educational objectives, which are the cognitive, affective, and psychomotor domains (Simpson 1966). Skills, according to some researchers such as Gagne (1949), Mohr (1960), Seashore (1940), can refer to behavior or an action that pertains to only a small part of these learning domains which is the psychomotor domain of learning of Bloom’s Taxonomy of Learning (as cited in Simpson 1971, p. 11). For instance, Pear (1927), one of the earliest researchers to define skill, refers to skill as “the quality and quantity of motor performance of an individual” (as cited in Winterton, Delamare-Le Deist, and Stringfellow 2006, p. 10). Since then, other researchers have started to include not only physical qualities of an individual but also the mental function or cognitive performance of an individual. For instance, according to Hans Renold (as cited in Winterton et al. 2006, p. 10), skill is “any combination, useful to industry, of mental and physical qualities which require considerable training to acquire.”

### Skills Described as Work Ability

Skills could also be viewed as a holistic construct, as it is recently used interchangeably with competence (OECD 2011b) and covers all the cognitive, psychomotor, and affective domains of Bloom’s taxonomy (Cedefop 2013b; Keevy and Chakroun 2015). Skills (or competences) are defined as “the bundle of knowledge, attributes and capacities that can be learned which enables individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning” (OECD 2011b, p.12). This not only describes about what skills are demanded to perform a task successfully, but they also allow for the understanding of how these skills can be achieved and assessed. As the emphasis on enhancing work productivity has increased, skills could be broadly described as ability to

perform a task or a job optimally (Cedefop 2009; ILO 2008; Stoevaks 2017). For instance, Stoevak (2017, p. 11) refers to skill as “the innate or learned ability to apply the knowledge acquired through experience, study, practice or instruction, and to perform tasks and duties required by a given job.” While Welford (1968, as cited in Winterton et al. 2006, p. 11) mentioned that skill is a “combination of factors resulting in ‘competent, expert, rapid and accurate performance’”, he regarded this as equally applicable to manual operations and mental activities. In many researches, skill is mostly defined through the educational-economist point of view, which views skills as a form of human capital. Skills from this perspective are regarded as acquired technical abilities, such as cognitive skills and non-cognitive skills, which contribute to higher productivity in the labor market and also in return able to provide the skilled person with better benefits such as higher wages (Green 2011; Plesca and Summerfield 2014).

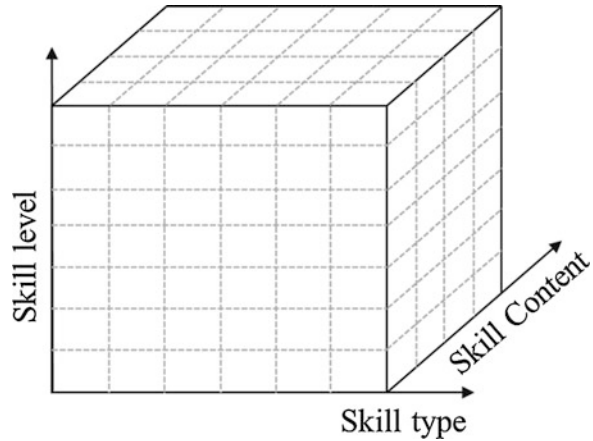
### **Skills Described as Skilled Worker**

In the perspective of demand and supply of skills in the labor market, the term “skills” may refer to an individual skilled worker, a group of skilled workers in a firm or in an occupation, or as the entire population of skilled workforce in the labor market. For example, Bejaković and Mrnjavac (2014) asserted that skill shortage appears when the number of individuals with certain skills is lower than the number of jobs requiring those skills, and skill surplus occurs in the opposite situation. Here, “skills” refer to an individual skilled worker. Cappelli (2015) referred to the problem of shortages of engineers or information technology specialists as “skill shortage,” whereby the term “skills” refers to the number of engineers and specialist demanded in the occupation. Similarly, Reymen et al. (2015) have reported a problem of occupation-specific labor shortages or quantitative skill shortages within EU member states, which is a result of the lack of number of jobseekers with the demanded skills applying to recruiting companies. These skill shortages can be alleviated by attracting foreign workers, which also represents a large population of skilled worker supplied across nations and regions. Rothwell (2015) also refers to skilled technical workers as the group of workers working in middle-skilled occupations such as trade workers, technicians, and craftsman.

### **Skill Dimensions and Multidimensionality**

As the previous section has shown, the different conceptualization of skills in literature, this section seeks to clarify the different multidimension of skills. Skill dimensions refer to the different aspects or angles in which skills can be viewed. In the context of vocational education and training, skills are multidimensional in nature as these three dimensions: skill type, skill level, and skill content. Referring to Fig. 1, the number of levels and the extent of the skill type and content are not fixed, but rather they are dependent upon the focus and context of the researchers. More often, a literary research for “skill dimension” or “competency dimension” yields a number of studies that refer only to the skill type as a dimension (Brewer and Coryn 2015; Müller and Turner 2010). However, skills are not one-dimensional, as each skill type could be arranged into hierarchical levels depending on the complexity and the difficulty of the

**Fig. 1** Three dimensions of skills



skills demanded in a job (Chang and Birkett 2004; Na et al. 2003; Stoevaks 2017). While skill type and skill level are more broad and generic, the specific descriptions of required skills within a given level can be understood as skill content.

## Types of Skills

Skill type refers to a number of skills that are grouped together due to their common characteristics or qualities. Various skill frameworks exist, each proposing different lists of skills and their types, as these skill frameworks were developed for certain purposes and according to different national context. For instance, ACT WorkKeys (2014) was developed as a standard for assessing basic skills, whereas some frameworks are developed as a standard reference for curriculum developers to develop curriculum that could cover most of the skills demanded by the industry (CareerOneStop 2017). Thus, it is difficult to generalize the whole list of skills into definite categories. Analysis of several frameworks, as shown in Appendix 1, indicated that there are commonalities in the skill types and these major skill types can be (i) core skills, (ii) industry-specific skills, and (iii) occupation or job-specific skills.

### Core Skills

Core skills are skills which are not related to work performance but are important for lifelong learning, adaptability, and flexibility in work (Brewer and Coryn 2015). Across the frameworks and studies analyzed, it could be seen that core skills can be further clustered into three major groups, which are basic skills, personal and interpersonal skills, and other core skills needed for work. Basic skills refer to the most rudimentary skills that must first be acquired in order to receive further education and training and before a worker can obtain other skills such as other work skills. These include reading, writing, mathematics, and communication skills including listening and speaking (ACT WorkKeys 2014; Brewer and Coryn 2015; CareerOneStop 2017; Casner-Lotto and Barrington 2006; O\*NET Resource Center 2017; O'Neil et al. 1992; SCANS 1991; Stoevaks 2017; UNESCO 2014).

These frameworks have also identified personal competencies which are not only important for a worker to thrive within a workplace, such as self-management, self-esteem, and dependability, but also important in maintaining healthy social relationships with co-workers or clients, such as interpersonal competencies, social skills, honesty, and integrity. An individual's lifelong learning and initiative for learning was also identified as an important skill in several frameworks (CareerOneStop 2017; Casner-Lotto and Barrington 2006; Curtis and McKenzie 2001). Other core skills such as higher complex thinking skills for problem-solving; skills to manage financial resources, time and human resources, and information literacy; and skills to apply technology in the workplace have been commonly identified across all of these frameworks. Some frameworks have included leadership (Brewer and Coryn 2015; Casner-Lotto and Barrington 2006) and fundamental skills in business management (CareerOneStop 2017; Na et al. 2003).

Although core skills are basic, each occupation may demand the same skill with a different level of proficiency. For example, writing skills in SCANS can be divided according to five levels, whereby the first level includes basic recoding of information such as writing a simple job application, whereas level five refers to more complex writing such as writing synthesized information from different sources (Bramucci et al. 2000). Some occupations require level one of basic writing skills at entry level, while other occupations like journalists will require level five of basic writing skills at entry level.

### **Industry-Specific Skill Clusters**

Several frameworks have also identified a skill type that is specific to industry or that is common to occupations within the same industry (CareerOneStop 2017; Na et al. 2003; Singapore Workforce Development Agency 2017). In other words, the skills that are contained within an industry-specific skill cluster can be utilized transferably in several different occupations which stem from a similar family of occupations or professions (Geel and Backes-Gellner 2009). For instance, according to the state of Minnesota (CareerOneStop 2017), a competency model for automation includes two tiers for industry skills, which are industry-wide technical competencies (e.g., design and development life cycles, operations management skills) and industry-sector technical competencies (e.g., context of automation, industrial automation).

Developing industry-specific skills in a workforce has several important implications, especially for labor mobility. Evidence has shown that displaced workers who find new jobs in different occupations of the same industry earn higher than those who switched industries (Weinberg 2001). Industry-specific skills can help reduce the adverse effects of labor market shocks, such as economic failure or occupation becoming obsolete due to advent of artificial intelligence. Moreover, the combination or cluster of skills can be applied in the development of curriculum of an integrated modular training approach for a group of occupation (Randhawa 1978).

### **Job-Specific Skills**

Job-specific skills are also called technical skills (Brewer and Coryn 2015; Stoevaks 2017), vocational skills (Brewer and Coryn 2015), specialized skills (UNESCO,



2014), or occupational competencies (CareerOneStop 2017; Na et al. 2003; Singapore Workforce Development Agency 2017). Job-specific skills are skills required in a certain type of occupation that enable workers to gain benefits in terms of profits or opportunities for better and higher-wage jobs (Brewer and Coryn 2015). Job-specific skills can include specialist knowledge needed to perform job duties, knowledge of particular products or services produced, ability of operating specialized technical tools and machinery, and knowledge of materials (Stoevaks 2017).

## Levels of Skills

Skill level means the position of skills which is assigned to a rank depending on its complexity and its difficulty. Skill levels have a variety of meanings. Depending on the context, it can broadly refer to the skill level based on (i) performance level (Chang and Birkett 2004; Na et al. 2003); (ii) education level, which in earlier researches is taken as an approximate measure skill; (iii) grade level of qualification or certification (Na et al. 2010; Na et al. 2011; Uh et al. 2015); (iv) required skill level to perform a particular occupation or job (ILO 2008; Stoevaks 2017); and (v) the levels or grades that express a successful worker in a National Qualification Framework (Cedefop 2013a, b). Knowing the level of a skill in advance can be useful for measuring skill, assessment and qualification design, education program, and mutual recognition agreement.

### Skill Level Based on Individual's Level of Proficiency

Skill levels could be reflected based on the individuals' level of performance. For example, Na et al. (2003) reviewed about the levels of skills that can be applied during the assessment of a worker's basic competencies and have applied three levels of basic competencies, in their research: high, middle, and low level. These competency levels were derived through a systematic review of various literature including SCANS levels of proficiency, which include five levels from preparatory to specialist and the levels in O\*NET (Na et al. 2003), and are based on the level of proficiency an individual is expected to perform in a task or job.

In another example by Chang and Birkett (2004), the dimension competency includes individual attributes, task performance, and organizational context, which is set on a hierarchical level based on Dreyfus and Dreyfus' (1980) expertise levels (Chang and Birkett 2004). Here, the skills that are expected from a novice worker are less complex than those who are more proficient in the field and have worked for a longer period. Dreyfus and Dreyfus (1980) levels have been used in many researchers for mapping the proficiency level of a worker (Gannon et al. 2016).

### Skill Level as Level of Educational Attainment

Educational levels can serve as an indirect signal for skills and competence (Eurostat 2016). The latest 2011 International Standard Classification of Education has eight levels in total (UNESCO Institute for Statistics, 2012). These levels show the different steps during an educational progression, whereby each step or level has a different degree of complexity and specialization of the content of an education

program. However, the education programs that an individual has participated in or has successfully completed are only an approximation of the skills, knowledge, and competencies mastered at the time of completion (UNESCO Institute for Statistics 2012). It does not include the complete skills obtained outside of the education program. Several researchers (Fouarge et al. 2013; Steedman and McIntosh 2001) have used the ISCED to define low-skilled individuals as individuals who are at ISCED level two or lower or those who completed lower secondary school or lower, as low-skilled or low-educated individuals, in their research. Conventionally, the minimum level of education depicted by ISCED required in an occupation has always been focused more. Therefore, in many researches, skill mismatch was studied using academic ability instead of skill level.

### **Skill Level as Grade Level of Qualification or Certification**

The grade of a qualification is also another aspect of skill level. For instance, in the UK, the NVQ level consists of five levels (UK NARIC 2017), while in Sri Lanka, there are seven levels of National Vocational Qualification (ADB 2011). In Korea, the National Technical Qualification has five levels of qualification which includes craftsman, industrial engineer, engineer, master craftsman, and professional engineer (Na et al. 2010).

Moreover, within a specific qualification level, a particular a certificate can be divided into several levels. Na et al. (2011) proposed three grade levels of basic competencies certificate depending on the passing mark of assessment. For example, those who had obtained a passing criterion of more than 90% in an assessment of basic competencies can be given certificate level 1, while those with a score of over 75% could be eligible for certificate level 2 (Na et al. 2011). Similarly, in Korea, certifications for vocational trainers are also divided into three grades which reflect their skill levels: 1 to 3, depending on the length of their initial training program, participation in professional development programs, and experience in teaching (Uh et al. 2015).

### **Skill Level as Levels in Occupational Standards**

In this perspective, skill level can be determined according to the complexity and difficulty of the required skills to perform a specific occupation (Stoevaks 2017). While some researchers such as Stoevaks (2017) categorize the level broadly to low-level, moderate-level, and advanced-level occupation, the International Standard Classification of Occupations (ILO 2008) offers more explanation on the meaning of skill levels. According to the International Standard Classification of Occupation (ILO 2008), two dimensions of skill are used to arrange occupations into groups which is skill level and skill specialization. The concept of skill level is applied mainly at the top (major group) level of the classification.

However, it is important to note that the main purpose of educational or occupational and skill classifications such as those in the table below was to ease statistical data collection and information. Several problems will arise if researchers rely too much on educational and occupational classification to garner information on skills

because jobs and tasks may not be updated frequently into the ISCO classification (Beblavý et al. 2016; Martinaitis 2010).

### **Skill Levels in a National Qualification Framework**

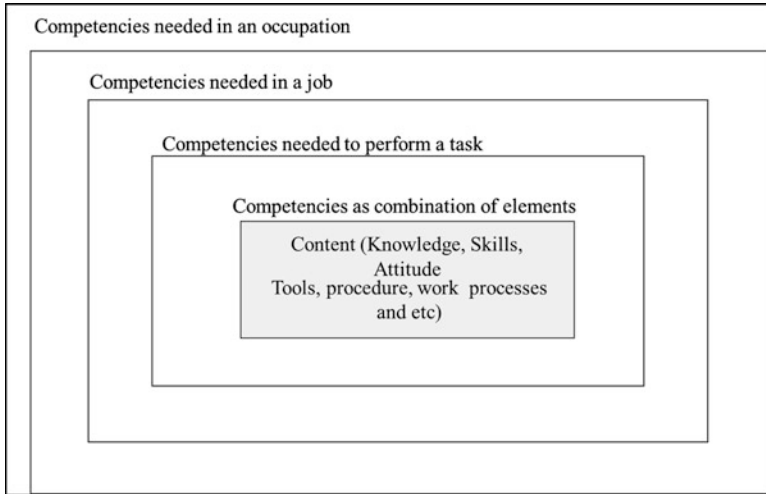
Qualification framework is a standard instrument to develop and classify qualifications according to fixed criteria in the form of level descriptors (Tuck 2007). It is a framework that can be compared based on the interchangeability of various qualifications in the qualification framework. The levels in NQF represent comparable standards that can be recognized for achieving the level of qualification required to engage in a particular occupation. For instance, EQF and ASEANQF have eight levels, while the Southern African Development Community Qualification framework has ten levels. The number of qualification levels in some countries is determined based on the characteristic and range of their own national qualification system, their own learning outcomes in existing curricula, and programs, based on benchmarking to regional qualification frameworks such as EQF, QF-EHEA descriptors, or Bologna descriptors which is adopted to suit national context (Cedefop 2013a, b) and linkage to Bloom taxonomy or level of learning (Keevy and Chakroun 2015). It is very useful for promoting the movement of people in the global society. It is important to emphasize that skill level is finally considered in comparing and judging this. NQF qualifies a certain level of manpower rather than a complex level of skill, because it is a framework that judges and recognizes a certain degree of difficulty on the assumption that there are various paths instead of one path. Qualification frameworks were developed to facilitate international mobility as it integrates all the skill levels in educational attainment, academic and vocational qualification standards, occupational standards, as well as the levels of proficiency (levels of competency).

### **Skill Contents**

Skill content is the specific component and composition of skills needed in an occupation. ISCO 2008 refers to skill content as skill specialization in each occupation. In ISCO, within each major group, occupations are arranged into unit groups, minor groups, and sub-major groups, primarily on the basis of aspects of the specific skills that are needed in each group (ILO 2008). This skill specialization is considered in terms of four components, which are the field of knowledge required, the tools and machinery used, and the materials worked on or within an occupation.

An occupation itself can be deconstructed into a hierarchy such as job, a task, and an element of a task. Each of this hierarchical level of occupation requires specific components of skills, which includes competencies, as well as tools required, the procedures, and work processes. The competencies are the combination of knowledge, skills, and attitude (Cedefop 2013a), which means that an individual has applied knowledge and skills with their own autonomy and responsibility to perform a task successfully (Cedefop 2013a) (Fig. 2).

Understanding about skill contents and its components have important implications for an individual's acquisition of skills. When creating curriculums for



**Fig. 2** Content of skill by hierarchy of occupation

delivering the skills needed, developers have always focused on trying to develop contents that could deliver the skill type that is proposed in frameworks. However, skill types and its content vary according to levels, and most skill content only refers to broad skill specifications of an occupation or a job. Recently, employer surveys indicate that occupation-specific skills are no longer sufficient to meet the needs of the labor market (OECD 2011a). Thus, for vocational education and training, developers should consider a systematic evaluation of knowledge, skills, and attitude needed to perform a task, the tools, its procedure, and work processes that are required especially for an element of tasks to guide the curriculum development so that proper skill sets are delivered.

## Concept and Types of Skill Mismatches

### Definition of Skill Mismatch

There are numerous definitions in literature, whereby, as summarized in Table 1, each of these definitions has a different focus depending on the nature of the skill data.

Researchers which view concept of skills as workforce have defined skill mismatch as the as the discrepancy between quantity of skilled worker demanded by the labor market and that is supplied (European Parliament 2015; Liu et al. 2016; Manacorda and Petrongolo 1999). While some focused on the number of worker at a particular skill levels (Lundgren and Cohen 1998), others have focused on researching about the discrepancy of demand and supply of workforce having a particular skill type (Holzer 2013).

**Table 1** Skill mismatch defined according to various natures of skill data

Nature of skill data		Definitions	
Quantitative	General	Any imbalance between the demand and the supply of skills (Manacorda and Petrongolo 1999, p.182)	
		A quantitative shortage refers to a situation where labor demand is larger than labor supply (European Parliament 2015, p. 32)	
		Mismatch between the skills supplied by college graduates and skills demanded by hiring industries (Liu et al. 2016, p. 2)	
	Skill level	Mismatch between the skills in demand in the urban labor market and the skill levels of large numbers of the urban poor (Lundgren and Cohen 1998, p. 109)	
	Skill type	Demand <i>for certain skills</i> exceeds the supply of such skills (Holzer 2013, p. 1)	
Qualitative	General	The gap between the skills required on the job and those possessed by individuals (World Economic Forum's Global Agenda Council on Employment 2014, p. 7)	
		Actual mismatch between acquired and required skills (Allen and Velden 2001, p. 436)	
	Skill level	Situations in which workers' skills exceed or lag behind those employers seek (Handel 2003, p. 136)	
		Situation in the labor market where the level of skills of individuals does not match the level of skills required in the jobs (EU Skills panorama 2017)	
		When skills possessed by the workers exceed or do not meet the skills required at their workplace (Perry et al. 2014, p. 138)	
			Actual match between a worker's skill proficiency and the level of skills required by the worker's job (Flisi et al. 2014, p. 1214)
	Skill type	Discrepancy between the skills – both specific and general – possessed by a worker and the skills required by his/her job (OECD 2011a, p. 194)	
Skill level and/or type	A situation in which the level and/or type of skills and abilities of an individual is less or more than the required level of skills and abilities in the job (European Commission 2013, p. 14)		
		Situation of imbalance in which the level or type of skills available does not correspond to labor market needs (Cedefop 2014, p. 231)	
Holistic		Either in terms of excess (over) or deficient (under) qualifications or skills possessed by individuals relative to job requirements (Cedefop 2012, p. 11)	
		Constructed by comparing the skills (or qualifications) of an employed worker with the skill (or qualification) requirements of her job (Pellizzari and Fichen 2017, p. 4)	
		A situation where there is a (qualitative) discrepancy between the qualifications and skills that individuals possess and those that are needed by the labor market (Cedefop 2015a, p. 27)	

*(continued)*

**Table 1** (continued)

Nature of skill data	Definitions
Qualitative + Quantitative	[it] does not only refer to imbalances between formal qualifications and required qualifications in work settings but also to discrepancies between skill demand and supply in a more holistic sense (Cedefop 2009, p. 5)
	[. . .] not only to skill shortages or gaps but also to qualifications, knowledge, and skills exceeding job requirements (Cedefop 2010b, p. 6)
	Skill mismatch refer to when the supply of skills and the demand for skills could be out of synch in either direction. . . A skill shortage is obviously of skill mismatch, and a skills gap could be a general form of mismatch (Cappelli 2015, pp. 252–253)

In contrast, researchers who view the concept of skills as work ability or competence have defined skill mismatch as the difference in the actual skills that are possessed by an individual and the skills required in a job (Allen and Velden 2001; World Economic Forum’s Global Agenda Council on Employment 2014). As mentioned previously, the dimension of skills includes levels, type, and its content; thus, some researchers focus on the mismatch in skill level (EU Skills panorama 2017; Flisi et al. 2014; Perry et al. 2014), while some focus on skill type (OECD 2011a), and others examine the mismatch of a more holistic concept of skills, which is encapsulated in qualifications (Cedefop 2012, 2015a; Pellizzari and Fichen 2017).

More recently, however, reports by institutions related to vocational education and training such as Cedefop have defined skill mismatch from a more integrated perspective, which includes both the number of workforce and the quality of the skill (Cappelli 2015; Cedefop 2009, 2010b). This implies that, in efforts to address skill mismatch globally, vocational education and training institutions have realized that studying about qualitative mismatch is as important as the quantity of desired skill workforce.

### Scope of Skill Mismatches

These definitions have set some boundary or target area which describes the extent to which skill mismatches scope reaches, and this can be shown in Fig. 3. According to Cedefop (2010b), “skill mismatch is a complex phenomenon that affects citizens, enterprises, economies and societies.” This implies that skill mismatch is a concept that could cover both a broad and narrow scope. Some literature reports on skill mismatches data which covers the wider labor market or international (Cedefop 2015b; European Commission 2013; Frogner 2002). As skills are an important capital for both the productivity of organization, skill mismatch concept also covers a narrower scope such as mismatch of skills of a group of workers in a firm and organization (Bennett and McGuinness 2009; Forth and Mason 2006;

**Fig. 3** Scope of mismatch in skill mismatch definition



Jackson and Chapman 2012; McGuinness and Ortiz 2016). Also, it covers a more micro- (Bejaković and Mrnjavac 2014; European Commission 2013; Handel 2003) or individual level (Béduwé and Giret 2011; Kim et al. 2014; Mavromaras and McGuinness 2012; Mavromaras et al. 2015; McGuinness and Sloane 2011; Pouliakas and Russo 2015; Robst 2008; Sanchez-Sanchez and McGuinness 2015; Sloane 2014), which involves the mismatch between individual's skills and those which are required by the organization he is working in.

### Type of Skill Mismatch

Skill mismatch types, in general, refer to both the inconsistencies in the supply and demand of workforce and any occurrence when skill at a particular level or type does not match. The types of skill mismatches investigated in previous studies can be summarized as shown in Table 2 and are categorized according to the scope of the mismatch. Skill mismatch types can vary depending on the topic, scope, and interests of the study.

The type of skill mismatch reported in various literatures include shortage of worker in firm (Forth and Mason 2006; Haskel and Martin 1996; Bennett and McGuinness 2009) or shortage of worker in a macro level (Frogner 2002; Cedefop 2015b; European Commission 2015).

Worker shortage, which views skills as workforce, occurs when the demand of manpower exceeds supply. For example, Bennett and McGuinness (2009) reported that worker shortage had a negative impact on firm-level performance. Cedefop (2015a) argues that there is a difference in worker shortage between European countries and has a negative effect on organizational productivity and performance.

**Table 2** The type of skill mismatch according scope

Mismatch	Scope	Researcher
Shortage of worker	Firm	Forth and Mason (2006); Haskel and Martin (1996); Bennett and McGuinness (2009)
	Macro	Frogner (2002); Cedefop (2015b); European Commission (2015)
Overskilling	Micro	Béduwé and Giret (2011); McGuinness and Sloane (2011); Mavromaras and McGuinness (2012); Mavromaras et al. (2012); Sloane (2014); Kim et al. (2014); Mavromaras et al. (2015); Sanchez-Sanchez and McGuinness (2015)
	Macro	OECD (2011a); OECD (2015)
Underskilling	Micro	Béduwé and Giret (2011); Kim et al. (2014); Sanchez-Sanchez and McGuinness (2015); Pouliakas and Russo (2015)
	Firm	Jackson and Chapman (2012); McGuinness and Ortiz (2016)
	Macro	OECD (2011a); Cedefop (2015b); OECD (2015)
Horizontal mismatch (unmatched skill type)	Micro	Robst (2008); Béduwé and Giret (2011)
	Macro	Robert (2014); Montt (2015)

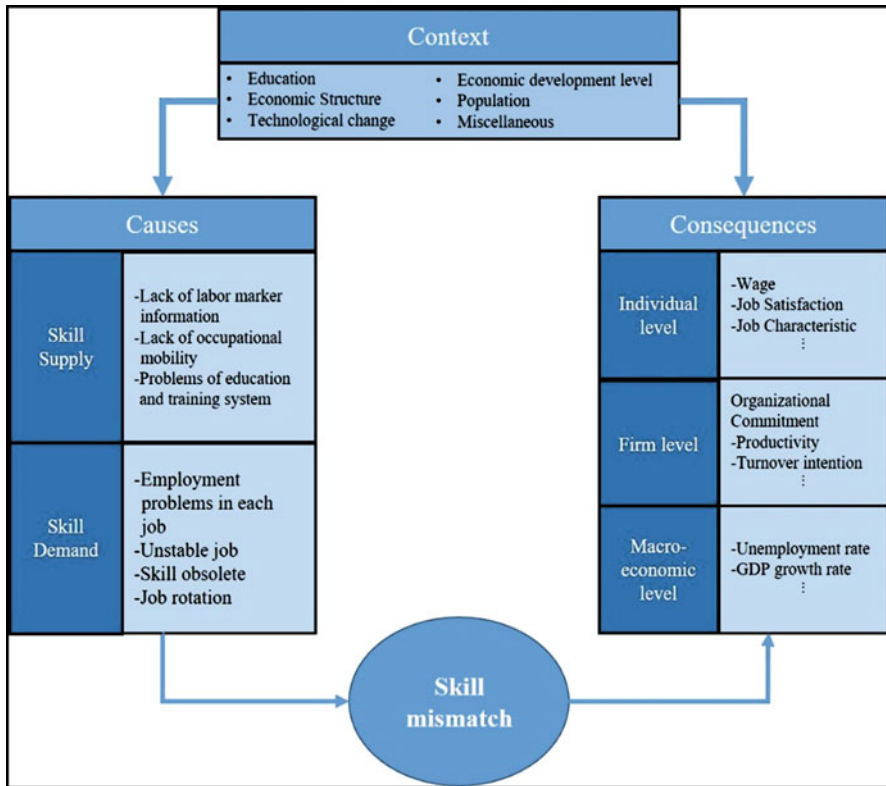
Overskilling and underskilling are another type of mismatch which defines skills according to the qualitative aspect and occurs when the required skill levels are above or below that is demanded, respectively. Much of the studies of overskilling are done at a more microlevel (Béduwé and Giret 2011; McGuinness and Sloane 2011; Mavromaras and McGuinness 2012; Mavromaras; Sloane 2014; Kim et al. 2014; Mavromaras et al. 2015; Sanchez-Sanchez and McGuinness 2015), while only regional institutions such as OECD had reported about overskilling from a macro perspective (OECD 2011a, 2015). In addition to micro- and macro scope of skill mismatch, studies of underskilling also occur at firm level (Jackson and Chapman 2012; McGuinness and Ortiz 2016). Furthermore, in some studies about over- and underskilling, when a particular skill level is unmatched, this is also called vertical mismatch (Béduwé and Giret 2011; McGuinness and Sloane 2011), and when the level is insufficient, this is referred as skill gap (McGuinness and Ortiz 2016).

Horizontal mismatch is a type of mismatch that occurs when a certain type of skill that is demanded is unmatched, and this includes specific type of skills that is encapsulated in a degree major (Robst 2008) or field of study (Béduwé and Giret 2011; Robert 2014).

### Causes and Consequences of Skill Mismatch

Skill mismatch is caused by the imbalance between the supply and the demand of skills, and there are various causes in both skill supply and skill demand side that may contribute to this imbalance (Cedefop 2009; Handel 2003), which is influenced by various contextual factors, as shown in Fig. 4. The consequence of skill mismatch can be seen at various levels, including individual, firm, and macroeconomic, and affects factors such as individual wage, organizational commitment, and workforce unemployment rate (Cedefop 2009).





**Fig. 4** Causes and consequences of skill mismatch

### Contextual Factors

There are several contextual factors that can affect the outcome of skill mismatch including education (Kim et al. 2009), economic structure (European Commission 2013; Quintini 2011), technological change (European Commission 2013; ILO 2014; Perry et al. 2014), economic development level (European Commission 2013; ILO 2014), and population (European Commission 2013; ILO 2014; Perry et al. 2014). The European Commission (2013) found that skill mismatch is consistently influenced by coordination delays and market failures both as a result of complex interactions between skills demand and supply in the market economy and contextual factors. ILO (2014) classifies skill mismatch into two aspects according to skill acquisition and skill requirement and suggested that contextual factors such as economic level and structure, technological shifts, and institutional mechanisms influence skill mismatch. Perry et al. (2014) suggest that skill mismatch increases the demand of certain types of skills because skill change is generally skill-biased in terms of economic structural change, and it has been suggested that gender stereotyping in occupations affects skill mismatch. In addition to this, structural changes

such as the adoption of new technologies and the long-term unemployment rate (Quintini 2011), the phase of business cycle (Gambin et al. 2016; Quintini 2011), and the limits of college education (Kim et al. 2009) also influence skill mismatch.

## Causes of Skill Mismatches

There are various drivers for generating a mismatch of skills according to several researchers and research institutes (Cedefop 2010b; Gambin et al. 2016; Handel 2003; Kim et al. 2009; MERCER 2011; Pavlovska 2014; Quintini 2011). These drivers, as shown in Fig. 4, can be divided into the supply and demand side of the skill.

In terms of skill supply, the causes of skill mismatch include incomplete information on the labor market (Cedefop 2010; MERCER 2011) and education and training system problems (Cedefop 2010; Gambin et al. 2016; MERCER 2011), inadequate investment in training and education (Gambin et al. 2016; Pavlovska 2014; OECD 2011a; Cedefop 2010), lack of intersectoral or interregional mobility (Gambin et al. 2016), lack of information on job seekers (Gambin et al. 2016; Kim et al. 2009), incomplete career counseling and guidance (European Commission, 2013), and lack of preparation for job seekers. Quintini (2011) mentioned about the shifts in unstable job as a cause of skill mismatch, such as time and shift workers, while Pavlovska (2014) suggested that changes in responsibilities at work, the temporality of skills, and the increased demand for working speed were the causes of skill mismatch. The European Commission (2013) presented employment, vacant jobs, job to work, skill requirements and design, recruitment friction, and wage rigidity by division, vocational, and education. In addition, it is explained that when the skill becomes obsolete (Gambin et al. 2016; OECD 2011b, 2015), the skill level in the job and the skill level of the worker are inconsistent and mismatch arises.

Although the causes of skill mismatch are presented in various ways, it is a complicated problem that cannot be confined to either the supply side such as the problem of the education and training system or the demand side such as the employment problem. Therefore, when researching about skill mismatch, it is necessary to give an equal amount of attention to both causes in the demand side and the supply side of the system.

## Consequences of Skill Mismatches

Effects of skill mismatch occurs at various levels including individual level, meso level, and macro level, as suggested by Cedefop (2009) report, while Mauries (2016) distinguishes the consequence of skill mismatch into two perspectives according to individual level, firm, and country level. The individual level mainly deals with the effects of skill mismatch on individual wages, job satisfaction, and job characteristics. Regardless of whether it is temporary or not, the skill mismatch has a negative effect on wages. Firm level mainly deals with the effect of skill mismatch on organizational commitment, productivity of company and organization employing

workers, and turnover intention. For instance, Lim et al. (2017) suggested that organizational commitment is lower where there is mismatch. Similarly, Feldman et al. (2002) suggested that organizational commitment decreases in skill over employment, underemployment, and incomplete employment. Furthermore, Pavlovska (2014) found that one-third of bankers experiencing skill mismatches caused instability and had a negative impact on work productivity. Cedefop (2009) also confirmed that the skill mismatch resulting from skill aging had a negative effect on the productivity of the company as well as underestimated skill. In the case of turnover intention, Cha and Chu (2010) confirmed that workers with overskills had a static effect of 1.5 times more on turnover intention than workers with appropriate skills showing that both the overskill and the underskill directly increase the turnover intentions. Due to the desire to find the right skill and job, the skill mismatch suggests a positive (+) effect on turnover intention (OECD 2012; Sloane 2014).

The macroeconomic level mainly deals with the effects of skill mismatch on the unemployment rate and GDP growth rate of the region or country. For example, Quintini (2011) suggested that the proportion of underskilled worker has a negative impact on the unemployment rate of the United States. Moreover, OECD (2009) concluded that the skill mismatch caused by oversupply of workers with a certain skill enhances unemployment.

This section has been derived from a review of the many studies about the causes and effects of skill mismatches or over education. These interest for an in-depth study about the causes and effects of overeducation and mismatches at individual and a more aggregate levels such as country level or regional level which had initially stemmed from early studies by Freeman in 1976. Freeman had analyzed educational mismatch in the United States between the 1960s to 1970, by examining the match between levels of education of college graduates, with the level of education required by the labor market. These studies were followed by more research of the same topic such as that by Duncan and Hoffman (1981).

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## Trends of Skill Mismatch Research

Although the interest about overeducation still perseveres to date, with the developments of databases such as PIAAC which enable skills to be measured skill directly, the concept of skill mismatch is now gaining more attention by policy-makers and researchers alike. The megatrends on skill mismatch were examined and presented as follows.

Firstly, in terms of regional perspective, by taking European Union countries as examples, there is a shift of focus from the quantitative to qualitative skill mismatch. Skill mismatches in the EU countries have been developed in a variety of ways according to skills-intensive nature of much economic and technological change (Cedefop 2009, 2010a). The study of skill mismatches in the EU has received renewed attention since the international economic crisis of 2008–2009 (Cedefop 2010a; Flisi et al. 2014). This is due to the deterioration of the labor market due to the slowdown in economic growth since the global economic crisis (Cedefop 2010a,

2014). In Europe, the study of skill mismatch has focused mainly on solving the structural divisions in the labor market and the labor supply and demand (Gregory 2015; Ryu 2014; Zimmer 2012). In recent years, however, studies on the effects of mismatch on labor market performance have been expanded according to the nature of vocational education and training. In addition, research on qualitative mismatches such as skill utilization and proficiency (Allen and Velden 2001; Bender and Heywood 2009) is increasing actively as well as skill mismatch research in terms of supply and demand of manpower.

Secondly, in terms of international organizations, strengthening of education and vocational training as a countermeasure for skill mismatch has been gaining more attention. As part of its international efforts, international organizations have been constantly engaged in discussions to maximize the effectiveness of policy interventions, human resource deployment, and utilization to resolve supply-demand disparities in the labor market and to balance the supply and demand of human resources (McGuinness et al. 2017; OECD 2005).

Since the 1990s, large-scale panel data has been developed as a response to the increasing interest in studying about skill mismatch internationally or nationally. Internationally, the system which provides strong links between education and training and labor market, such as vocational education, has been identified as a tool to address and prevent skill mismatch (The World Economic Forum 2014). These tools however need to be supplied with correct information about labor market, and hence the skill outlook and skill strategy have been discussed recently on how to predict future skill needs. Furthermore, in cases where skill mismatch has already occurred due to the lack of quality education and training system, efforts to mitigate or “treat” these skill mismatch have also been considered (ILO 2014).

Within individual countries, research institutions and governments are no longer focusing on examining the distribution of skill mismatch and their causes and consequences that affect their country. Rather, they have shifted to focus more on international comparisons of skill mismatch situation with other countries to identify the weakness in their own systems or to benchmark other systems. Research trends for skill mismatch at individual country levels vary from country to country depending on the region, especially economic development level. In regions where data on the labor market are relatively structured, such as advanced countries like the United States, Australia, and Canada, data or policy efforts have been developed for a relatively long period of time. Moreover, they have developed their own panel data from the 1970s and have been actively conducting research on skill mismatch measurement using databases on employment and the labor market. Since then OECD has been working on large panel data to collect information about skills in OECD countries. On the other hand, in developing countries or non-OECD countries, systematic research to measure skill mismatches in countries and specific regions (Marelli et al. 2014) has been actively conducted only recently by constructing panel data while comparative researches are also increasing.

The megatrend on skill mismatch topic shows a shift from just debates and literatures about policies on a macro level to the diversification in research topics to include studies about causes and consequence of skill mismatch and various other

discussions that arise through comparative analysis studies. Skill mismatch has begun to be studied as a labor market problem related to employment, whereby unemployment rate is identified to be the cause for skill mismatch and various human resource policies were discussed in relation to this (Greehalgh 1999). Since the 1990s, the research on skill mismatch have been steadily growing and diversified. The study of the causes and consequences of skill mismatches was conducted, and the drivers of skill mismatch including gender (Cedefop 2010b) and ethnicity (Cedefop 2010b) were discussed, while the effects of the skill mismatch are mainly discussed in terms of wage (Bárcena-Martín et al. 2012), job satisfaction, and turnover intentions (Béduwé and Giret 2011). There was also a study on the comparison between countries (OECD 2011a, 2015; Cedefop 2015b; Quintini 2011).

Research methods of skill mismatch have also shifted greatly from only a focus on review of literature and concepts of the skill mismatch phenomenon to include more empirical studies using a wide variety of data as mentioned in the measurement section of this chapter. Skill mismatches have begun with related research on the concept and phenomenon (Murphy 1985). Survey research was conducted to analyze the phenomenon of skill mismatch using large-scale survey data at national level (Cedefop 2015b; Mont 2015; OECD 2011a, 2015) and surveys by individual researchers (Sgobbi and Suleman 2013). Survey initially used proxy values such as education level and changed to measuring specific skills such as skill level, type, and utilization. In recent years, survey data that measures more direct skills such as literacy and numeracy have also emerged.

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## Conclusion and Implication

Until now the understanding of skills and the researches of skill mismatches have undergone significant developments. In the past, studies of skills and skill mismatch have used indirect proxies such as level of education or qualification. However, due to the availability and developments of databases and surveys which offer direct measurement of skills such as PIAAC, skill mismatches are now entering a new stage whereby the actual skills could be collected rather than using less informative proxies. Despite such developments, there is still room for more contribution to the debate about concepts of skills, its dynamic processes, and its consequence. In this chapter, we do not propose a clear-cut definition of skills and skill mismatches. This is because all the definitions and concepts provided in past literatures have their own importance and emphasis and have been used according to different purposes and context. Rather, we suggest that skills and its mismatches could also include a more holistic perspective and can be viewed through a multidimensional lens.

As the detrimental effects of skill mismatches reach all levels from individual to firm and organizational, country and globally, policies or ways to alleviate these effects should be addressed more seriously. Vocational education and training, as well as workforce development, are one of the tools for the *prevention and treatment* of effects of skill mismatches. Vocational education and its curriculums, which are systematically informed about the prospects of skills needed by employers, can play

**Table 3** Skill types by institutions and researchers

		ILO		UNESCO	US	
Common skill type		Brewer and Coryn (2015) analysis of six countries	Stoevska (2015) generic type	UNESCO (2014)	CareerOneStop (2017)	O*NET (2017)
<b>Core skills</b>	<b>Basic skills</b>	<b>Basic or foundational skills</b> - Literacy - Numeracy	<b>Basic skills</b> - Writing and reading skills - Numeracy	<b>Foundation skill</b> - Basic academic knowledge - Literacy - Numeracy	<b>Academic competencies</b> - Reading - Writing - Mathematics - Science - Communication (listening and speaking) - Critical and analytic thinking - Basic computer skills	<b>Basic skills</b> - Reading comprehension - Active listening - Writing - Speaking - Mathematics - Science - Critical thinking - Active learning - Learning strategies - Monitoring
	<b>Personal or professional skills</b>	<b>Professional or personal skills</b> - Honesty, integrity - Work ethic	<b>Generic/transferable/soft portable skills</b> - Professional and personal skills (punctuality, honesty, reliability, dependability, self-organization, teamwork)	<b>Transversal skills</b> - Interpersonal skills (e.g., presentation and communication, organizational skills, teamwork) - Intrapersonal skills (self-discipline, enthusiasm, perseverance, self-motivation)	<b>Personal effectiveness competencies</b> - Interpersonal competencies - Integrity - Personal acceptability - Initiative - Dependability and reliability - Lifelong learning	<b>Cross-functional skills</b> - Social skills
	<b>Other core skills</b>	<b>Core work skills</b> - The abilities to learn and adapt - <i>To think creatively</i> - <i>To solve problems independently</i> - To read, write, and compute competently - To listen and communicate effectively - To manage oneself at	<b>Generic/transferable/soft portable skills</b> - <i>Problem-solving skills</i> - Decision-making skills - Communication skills - ICT skills	<b>Transversal skills</b> - Global citizenship (respect for diversity) - Media and information literacy	<b>Workplace competencies</b> - <i>Creative thinking and problem-solving</i> - Business fundamentals - Teamwork - Adaptability and flexibility - Marketing and customer focus - Scheduling and coordinating - Checking and examining and recording	<b>Cross-functional skills</b> - <i>Complex problem-solving skills</i> - <i>Systems skills</i> - <i>Resource management skills</i> - <i>Technical skills</i>

				Singapore	Australia	Korea
Casner-Lotto and Barrington (2006)	O'Neil et al. (1992)	SCANS (1991)	ACT WorkKeys (2015)	Workforce skills qualifications (2017)	Curtis and McKenzie (2001)	Na et al. (2003)
<b>Basic knowledge skills</b> - Speaking - Reading - Writing - Mathematics - Science - Economy - Foreign language	<b>Basic skills</b> - Reading - Writing - Computation - Arithmetic - Communication skills - Academic skills	<b>Basic skills</b> - Reading - Writing - Mathematics - Listening - Speaking	<b>- Reading and using work-related text</b> <b>- Applying mathematical reasoning to work-related problems</b>	<b>Foundational competencies</b>	<b>Basic skills</b> - Thinking skills - Contextual understanding - Organizational skills	<b>Basic competencies</b> - Literacy - Numeracy - Communication skills
<b>Applied skills</b> - Teamwork/collaboration - Diversity - Lifelong learning/self-direction - Professionalism/work ethic - Ethics/social responsibility	<b>Personal characteristics and attitudes</b> - Responsibility - Self-esteem, Self-management - Integrity - Personal work habits <b>Interpersonal and teamwork skills</b> - Serves customers, - Works with diversity - Leadership - Teamwork, organizational structure - Interact socially	<b>Personal qualities</b> - Responsibility - Self-esteem - Sociability - Self management - Integrity/honesty <b>- Interpersonal</b>		<b>Cross-cutting competencies</b>	<b>Personal attributes</b> - Continuous learning - Personal attributes - Interpersonal skills	<b>Basic competencies</b> - Interpersonal skills - Self-development
<b>Applied skills</b> - Critical thinking/problem-solving, - Creativity/innovation - Oral communications - Written communications - Information technology application - Leadership	<b>Higher-order thinking skills</b> - Creative thinking - Decision-making - Problem-solving - Reasoning - Drawing conclusion - Etc.	<b>Thinking skills</b> - Creative thinking - Decision-making - Problem-solving - Knowing how to learn - Reasoning <i>Resources, information, literacy systems technology</i>	- Problem-solving - Critical thinking - Information literacy - <b>Comparing, summarizing, and analyzing information</b> -		<b>Intellectual abilities</b> - Thinking Skills - Contextual understanding (understand interrelationship in work process and systems) - Organizational skills (resource management, coordinate task, etc.	<b>Basic competencies</b> - Problem-solving - Information organizational skills - Business/management skills - Physical ability - Technical skills

(continued)

**Table 3** (continued)

		ILO		UNESCO	US	
Common skill type		Brewer and Coryn (2015) analysis of six countries	Stoevska (2015) generic type	UNESCO (2014)	CareerOneStop (2017)	O*NET (2017)
		work - To interact with co-workers - To work in teams or groups - To handle basic technology - To lead effectively, as well as follow supervision			- Working with tools and technology	
	<b>Industry Specific Skills</b>				- Industry-wide technical competencies - Industry-sector technical competencies	-
	<b>Occupation Specific Skills</b>	<b>Vocational/ technical skills</b> - Specialized skills, - knowledge or know-how needed to perform specific duties or tasks	<b>Job-specific skills/ technical skills</b> - Specialist knowledge needed to perform job duties - Knowledge of particular products or services produced - Ability of operating specialized technical tools and machinery - Knowledge of materials worked on	<b>Specialized skills</b> - Specific “know-how” needed for a fulfilling and meaningful life and decent employment	- Occupation-specific requirements - Management competencies	-



				Singapore	Australia	Korea
Casner-Lotto and Barrington (2006)	O'Neil et al. (1992)	SCANS (1991)	ACT WorkKeys (2015)	Workforce skills qualifications (2017)	Curtis and McKenzie (2001)	Na et al. (2003)
				<b>Industry competencies</b>		<b>Common industrial competencies</b>
				<b>Occupational competencies</b>		<b>Work performance competency</b> (which also includes <i>common industrial competency, mandatory competency, and optional competency</i> )

a role in delivering the required supply of skilled worker that is demanded by the labor market and thus prevent skill mismatch at initial stage of employment. On the “treatment” aspect, skill mismatches that arise due to the lack of specific skills can be alleviated by developing vocational training which facilitates the upskilling of workers or jobseekers in a targeted skill. A continuous workforce development is especially important for employees to upgrade their skill and keep up with the constantly changing demands of the labor market. However, all of these would not be possible without a proper labor market information system which constantly feeds information about current situation on skills to these vocational education and training and workforce institutions.

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## Appendix 1: Common Skill Types by Institutions and Researchers

See Table 3.

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## Part IV

# Private Training Markets

*Michael Gessler, Larissa Holle, and Susanne Peters*





# Concepts of Apprenticeship: Strengths, Weaknesses, and Pitfalls

# 35

Michael Gessler

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## Abstract

Apprenticeships are one of the oldest, yet most popular forms of training at the interface of work and learning and/or the world of education and the world of work. In the first section, we examine the characteristics of different aspects of apprenticeship such as logic, formality, work, learning and teaching. In the second section,

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we discuss different paradigms which often lead to misconceptions: (1) the private-training-market paradigm, (2) the young-person paradigm, (3) the advanced-economy paradigm and large-company paradigm, (4) the low-skilled and blue-collar-worker paradigm, (5) the technical and men paradigm, and (6) the discrimination paradigm. In the third section we summarize the results in an “Apprenticeship Maturity Model” with six levels: (1) informal apprenticeships, (2) semiformal apprenticeships / time-served apprenticeships, (3) output-oriented apprenticeships, (4) input-oriented apprenticeships, (5) process-oriented apprenticeships, and (6) collective apprenticeships. The proposed Apprenticeship Maturity Model follows a development logic: A problem arises, is then addressed, and might be solved, and a new problem arises. This process leads to a development with different concepts of apprenticeship which can be described in terms of maturity levels.

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**Keywords**

Apprenticeships · Workbased learning · Vocational education and training · VET · Maturity model

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## Introduction

The UNESCO “Education For All” program of the 1990s (WCEFA 1990) and the UN Millennium Development Goals (UN 2000) initiative put basic education and primary schooling for all at the center of international interest and moved vocational education and training (VET) out of the spotlight. In 2000, the OECD started the Programme for International Student Assessment (OECD 2000) to evaluate education systems by testing school-related skills and knowledge in reading, mathematics, and science among 15-year-old students. Neither the work orientation of the education systems nor the work readiness of the students were part of the assessment. The global financial crisis of 2007–2008 abruptly changed the situation because young people were hit especially hard. Transfer into employment once again became a central topic, and alongside this increasing problem, VET was rediscovered as the connecting link between education and employment systems. Examples of current international studies include “Learning for Jobs” (OECD 2010a), “Youth and Skills: Putting Education to Work” (UNESCO 2012), “Skills Beyond Schools” (OECD 2014), and “Engaging Employers in Apprenticeship Opportunities: Making It Happen Locally” (OECD/ILO 2017).

In 2016, the unemployment rate among young people aged 15–24 years stood at around 13% according to OECD statistics, more than twice as high as the average of the general population (OECD 2018). The unemployment rate among young people in countries with a dual apprenticeship system was considerably lower than that of these rates, which leads to the conclusion that VET – in line with the labor market – facilitates employment, especially among young people. “Youth unemployment certainly tends to be less often a problem (relative to adult unemployment) in countries like Germany with strong ‘dual’ apprenticeship systems” (OECD 2010a, 34). This assumption has mobilized political engagement to implement or improve

apprenticeship systems in many countries. In the meantime, the assumption has been proven in a cross-country econometric analysis: “one percentage point increase in the apprenticeship coverage rate is associated with an increase in the youth employment rate of 0.95 percentage points and a reduction in the youth unemployment rate of 0.8 percentage points” (Lodovici et al. 2013, 4).

Regardless of the political context, the first and most central characteristic of the concept of apprenticeship is that this form of learning is embedded in the authentic work context and situated in the workplace. “Situated learning” (Lave and Wenger 1991), with all its pros and cons, is therefore the first and dominant learning approach of an apprenticeship. Nevertheless, the shift from informal to more formalized apprenticeships with the creation of the “time-served apprenticeship” was the result of public authority intervention.

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## **Invention of the Time-Served Apprenticeship**

Formal apprenticeships have a long history, and their major purposes were, at least at the beginning of the ninth century, intended neither to train young people nor to develop skilled workers. The early medieval “time-served apprenticeship” is probably the earliest formal apprenticeship within a legislative framework, in contrast to the already existing purely private “informal apprenticeship.” The time-served apprenticeship was not invented by the medieval guilds but by the medieval cities. Young men were, on one hand, highly mobile and free to travel between cities and, on the other hand, were important as future draftees who would protect the cities against aggressors. To restrict the young men’s mobility and accumulate human capital, medieval cities established “laws lengthening an apprenticeship’s year of service with a master substantially beyond that which free contracting would produce” (Hickson and Thompson 1991, 140). Apprentices committed themselves to the town and, in return, earned the right to open a shop and become a master after a certain period of time. On the contrary, apprentices who fled their masters lost their rights. Even if the mandatory duration differed between industries and cities, all apprenticeship rules obligated young men to serve until they were at least 25 years old. If a familial attachment to a city was assured, masters were allowed to pass their privileges onto their sons. Applicants were rarely rejected on account of their learning abilities, but in case of unsuitability for future military combat, applicants were rejected (Hickson and Thompson 1991). The intention of the time-served apprenticeship was, therefore, to tie young people to the cities. The Statute of Artificers (1563), an act of Parliament in England, stipulated very similar the lengths for apprentices to serve: 7 years and until age of 21 (for married apprentices) and 24 (for not married apprentices) years at least. The intention was to exert control over artisan production and societal life. “Apprenticeship was used to enforce an extensive conception of social order, control and loyalty” (Snell 1996, 305).

On the basis of the first formalized apprenticeships, many different forms of apprenticeships were developed, depending on the local manorial structures and shifts in power. Key actors included the supranational, national, provincial, rural and

urban clerical, temporal, and commercial authorities, which sometimes acted in opposition to each other and were occasionally joined in more or less fragile alliances.

Time-served apprenticeships were very stable in some countries. In Ireland, for example, they survived until 1990. In 1991, the standard-based apprenticeship system was implemented with a National Craft Certificate as a compulsory requirement (O'Connor and Harvey 2001).

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## **Invention of Standard-Based Apprenticeships**

Guilds, which represented the private craftsmen and trading sector, rose to power with political influence in many medieval cities between the ninth and thirteenth centuries (Mocarelli 2008). They played a major role in the further development of specific requirements for “standard-based apprenticeships” through the control and regulation of apprenticeships (e.g., entry restrictions and trade examinations). The rise of standard-based apprenticeships was less a cause than an effect of the functions fulfilled by the guilds. Guild functions included the creation of wealth (De Moor 2008), the implementation of minimum product qualities and maximum nominal prices (Hickson and Thompson 1991), the enabling of technological invention and diffusion (Epstein 1998), the market exploitation abroad (Soly 2008), the defense of cities in case of attack (Haupt 2002), and the creation of social peace by means of their own jurisdiction (Caracausi 2017). In a record from 1261, for example, a master in London was forbidden by the guilds’ court from enticing the apprentice of another (Seybolt 1917). The intention of the guilds’ standard-based apprenticeship was not only to train and educate young people but to provide cultural socialization. These collectives and their apprenticeship systems offered a strongly interconnected professional and social-cultural character.

One explanation for the decline of the guilds’ power – which began in the sixteenth century – can be seen in changing consumer preferences; if consumers are not willing to pay for quality products and services, a system oriented toward the creation of quality would be in trouble (De Munck 2008). Another explanation is that the guilds “disappeared not through adaptive failure but because national states abolished them by decree” (Epstein 1998, 684). Especially in northern cities and provinces (e.g., Flanders), the guilds were in opposition and often even in open rebellion against the cities and authorities (Haupt 2002). In some countries (e.g., Germany), this tradition was nevertheless restored by monarchic authority in the nineteenth century to strengthen the merchant, craft, and (young) industry sector and was led in combination with a corporatist philosophy to the foundation of a robust and widespread apprenticeship system based on quality and nationwide legal standards (Gessler 2017b). In other countries (e.g., the United Kingdom), this tradition was not restored by democratic authority, which led, in combination with a liberal philosophy, to a fragmented apprenticeship system based on a *laissez-faire* approach (Fuller and Unwin 1998).

Guilds and other forms of corporate collectives were not only present in medieval Western Europe but also in China (Moll-Murata 2008), Japan (Nagata 2008), and India (Roy 2008). However, there is still little research about their impact on apprenticeships.

In the next section, we will extract the underlying characteristics of the concept.

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## Characteristics of Logics, Formality, Work, Learning, and Training

### Logics: Employment and Education

Angelo Varetto, Head of Standards, Qualifications, and Apprenticeships at Skills for Health (the United Kingdom), defines apprenticeships as follows: “An apprenticeship is a job that includes training” (Varetto 2017, 26). On one hand, this definition seems to be self-evident in an age where lifelong learning and training are basic demands for every job or occupation (Volles 2016). On the other hand, many countries (e.g., the United States and the United Kingdom) face a major challenge under this definition, since employers are often unwilling to train their employees (Cappelli 2015; Green et al. 2016). If employers offer an apprenticeship, the tasks of “training and learning” become part of the job description, even if there are still many ways in which to enable learning on-the-job and to offer training on-, near-, and off-the-job.

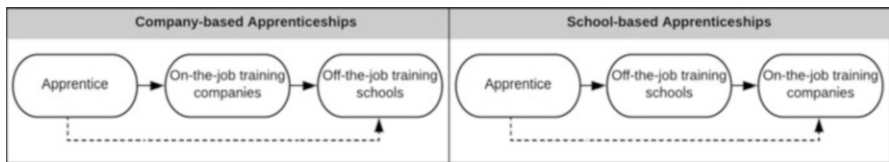
The slogan “Apprenticeship is a job” is grounded in an employment logic. Beyond this employment logic, Iannelli and Raffe (2007) describe a second logic or second reference: the education logic. These two logics were used to distinguish between company-based (In the European Commission’s report, the term “work-based apprenticeship” is used. Work-based learning is also possible in schools. The difference between the two schemes has blurred; therefore, we prefer the term “company-based apprenticeships.”) and school-based apprenticeships (European Commission 2012). The basic differences between these apprenticeship schemes (or ideal types) are summarized in Table 1.

The analysis of the apprenticeship systems in Europe identified a few countries with primarily school-based apprenticeship systems and others with primarily company-based apprenticeship systems. In most of the countries, “company-based apprenticeships coexist with other vocational training schemes which are mainly school-based” (European Commission 2012, 30).

A major difference between the two approaches has to do with who has the lead. In company-based apprenticeships, the interested person has to apply for an apprenticeship directly with the company (Fig. 1). The company then selects the apprentice and formalizes the contract. The apprentice is part of the community of practice at the company and has a status equal to that of an employee. It is for this reason that wages are often paid. The involvement and commitment of the company are high, but selection is intensive, and social inclusion is normally low. The dual systems of Germany and Switzerland are company-based apprenticeships.

**Table 1** Basic differences between company-based and school-based apprenticeship schemes (European Commission 2012, 120)

Mainly company-based	Mainly school-based
Training in enterprises $\geq 60\%$	Training at school $\geq 60\%$
Companies offer places Students actively search for places	Training centers and students search for companies
Work contract: Enterprise-apprentice Apprentice = employee	Training agreement: School-enterprise Apprentice = student
High share of financing by enterprises	Public sector is the main source of funding
Apprentice receives remuneration	Apprentice may receive compensation
Companies define training plan	Schools establish training plan



**Fig. 1** Typical governance structure

In school-based apprenticeships, (public) schools (or colleges) are selected by interested persons. The level of social inclusion is mostly high, but the involvement and commitment of the companies are mostly low. Nevertheless, the temporary stay at the company has to be formalized (e.g., trainee contract). The apprentice is not a full and permanent member of the community of practice, and wages are not normally paid. An apprentice is more a student than an employee.

The distinction between employment/education or company-based/school-based raises the question of which of the two forms should be promoted and implemented. The dominant contemporary trend is toward the company-based model (OECD/ILO 2017) because of the expected negative effects of school-based learning (skills mismatch, difficult transition into the labor market) and, on the contrary, the positive effects of company-based learning (skills match and better transition into employment). Learning without work potential is only one side of the coin, the other being work with/without limited learning potential. This aspect requires further elaboration.

**Characteristics of Formality: Informal, Semiformal, and Formal**

Formality seems to be a prerequisite of a nationwide VET approach. The informal apprenticeship model is nevertheless a common approach in countries with a dominant informal economy and with mainly micro and small enterprises, as in many countries in Africa, Asia, and South America. Informal and formal

apprenticeships can also exist side by side (Smith and Kemmis 2013). Steedman (2015) defines two principal attributes of an informal apprenticeship: (1) on-the-job learning and (2) master-apprentice relation. Wages are sometimes paid in cash or in natural goods. In this section, we focus on informal apprenticeships, while formal apprenticeships will be examined later.

Even in cases of informal apprenticeships, a higher degree of formalization is possible through local informal artisan associations, often called informal sector organizations (ISO). These informal organizations sometimes set standards, offering off-the-job training, assessments, and even certificates. In a way, their role is comparable with the influence of the medieval western guilds in the early stages. However, in an informal apprenticeship, contracts between the master and the apprentice are not normally legally binding (although there might be a strong interpersonal commitment), national training standards are not necessary (not existing or not followed), certificates are not recognized, governmental funding is not available, and the informal apprenticeship approach is not part of the national VET policy. The improvement (or upgrade) of the informal apprenticeship approach is directed toward these deficits: including informal apprenticeship in the VET policy (e.g., Niger), setting standards for contracts and training (e.g., Zimbabwe), national recognition of certificates (e.g., Benin), and off-the-job training for informal apprentices (e.g., Egypt). At least six actions might improve an informal apprenticeship system (ILO 2011):

- Capitalizing on the existing system: Strengthening the role of ISOs (if existing)
- Strengthening the apprenticeship contract: Defining the minimum terms (e.g., daily work time, duration of a trial time and the apprenticeship, requirements for completion, liability, how to solve conflicts)
- Bringing new skills into informal apprenticeships: Compensating learning deficits at the workplace through short courses and/or rotation between workplaces at different companies
- Enhancing the quality and reputation of informal apprenticeship: Improving the quality of learning, assessment, and certification (e.g., standards, logbooks, checklist of competence, valid assessments, creditability, and trustworthiness)
- Improving equal access to informal apprenticeships: Improving equal access (e.g., pre-apprenticeship training, involvement of ISOs, information)
- Including informal apprenticeships in the national training system (e.g., recognition of prior learning, defined pathways for former apprentices into the formal VET system)

Two informal apprenticeships should therefore be distinguished: (1) informal apprenticeships and (2) semiformal apprenticeships. The basic logic of all forms is the employment logic. The learning potential of an apprenticeship is, on one side, related to the degree of formalization (duration, certification, curricula) and, on the other side, to the degree of the learning potential of the work and its work environment.

## Characteristics of Work: Defensive and Expansive

An influential and often-criticized study focusing on the influence of the work environment on the performance of workers have been the Hawthorne experiments of the 1920s and 1930s (Gillespie 1991). Embedded in this wider tradition, Hackman and Oldham published the Job Diagnostic Survey, intended “to diagnose existing jobs to determine if (and how) they might be redesigned to improve employee motivation and productivity” (Hackman and Oldham 1975, 159). From the perspective of the work psychology, motivation is a key issue. From the VET perspective, learning is the key issue (including motivation). Even if the goals are not identical, the key dimensions overlap. The original five dimensions of Hackman and Oldham (skill variety, task identity, task significance, autonomy, and feedback) can nevertheless be used to identify the learning potential of work. These criteria are necessary for such an identification, but not sufficient. For our purposes, the dimensions were further developed (Table 2). The perceived individual observation of these dimensions, combined with the individual ability and motivation to shape the perceived potential in relation to the extended peer support, can increase or reduce the learning potential of a workplace.

The criteria in Table 2 are sorted from more work-related (e.g., completeness and complexity of work) to more work-environment-oriented (e.g., development and mistake orientation). The criteria are nevertheless interrelated. Based on these criteria, work/work environment with learning potential (expansive) and work/work environment without learning potential (defensive) should be distinguished. Work and its environment do not automatically enhance learning and promote the development of self-, social, and professional competence. However, some work and work environments, e.g., project work, contain permanent challenges and unsolved problems and promote and require permanent learning on-, near-, and off-the-job (Gessler and Stübe 2008).

Other learning barriers have to be considered within a VET perspective. The learning potential within the workplace is limited to the expertise of the master craftsmen/supervisor, the expertise within a company, the expertise within a region, and the expertise within a country. Apprenticeships mainly reproduce pre-existing knowledge, competences, and expertise. These barriers can be overcome through rotation within a company (internal job rotation), cooperation between companies (external job rotation, e.g., training in a network), reorganization of processes and division of labor within a company (internal job enrichment) or across companies (external job enrichment, e.g., development of new occupational profiles and curricula such as mechatronics or systems engineering), organization of in-company training (internal training enrichment), cooperation with an external training provider (external training enrichment), and knowledge exchange between regions and countries either company-based (internal knowledge exchange and creation, e.g., journeyman, joint ventures) or industry-based (external knowledge exchange and creation, e.g., international cooperation).



**Table 2** Expansive and defensive work and work environments

Job Diagnostic Survey	VET perspective	Relation between work and Learning	
		Expansive learning potential	Defensive learning potential
Task identity	Completeness of action	A low division of work with wide-ranging tasks/problems and related single activities, including problem definition, goal setting, planning, execution, and evaluation (evaluation: Feedback through work)	A high division of work with a focus on isolated activities (e.g., just planning, just execution of narrow activities, external evaluation instead of self-evaluation)
Skill variety	Complexity	Diversity and variety of work, high degrees of vagueness and problems	Monotony of work with equal skills requirements and repetitive activities
–	Time structure	The work organization includes and allows time for self-reflection	Time pressure at work prevents self-reflection
Task significance	Goal orientation and significance	The goal, importance, function, and context of a task or problem is clear	The purpose of the task is unclear
Autonomy	Autonomy and responsibility	High degrees of freedom and decision-making in the work require and create responsibility	Decisions are given by routines, rules, guidelines, specifications, rules; reduced responsibility
Feedback	Social embeddedness, support, and feedback	Suggestions, support, and feedback from colleagues, the team, supervisor, and customer; communality	Limited feedback about the individual, social, and professional performance; individuality
–	Development orientation	Tasks are demanding and within the zone of proximal development	Excessive and overstrained demands, or demands are too low
–	Mistake orientation	Mistakes are used to improve performance	Mistakes are penalized

### Characteristics of Learning: Implicit and Explicit

Polanyi starts from the fact that “we can know more than we can tell” (Polanyi 1966/1983, 4). The way in which cognition is dependent on personal conditions cannot be fully formalized, as one is unable to independently express one’s own dependence (Polanyi 1966/1983, 25). Due to this personal restriction to experience, implicit knowledge cannot be completely expressed. The development of competences at work requires taking implicit knowledge into account, and this aspect has been taken up by the apprenticeship model. It is typical of the learning situation in apprenticeships that there first be cooperation between the apprentice and master craftsman (or experienced worker) while working with real tools on real work pieces within an authentic work environment on behalf of a client. Learning matter is highly

orientated toward real application. The degree of task difficulty, while being guided by the expert, gradually increases over time. The learning is situated (Lave and Wenger 1991) and a social-cultural activity (Guile and Young 1998).

Following the systematization provided by Nonaka and Takeuchi (1995), this counter-practice enhances the transfer and development of implicit knowledge through *socialization*. Professional competences as well as values and social and personal competences are developed through this form of learning from a role model (Bandura 1977). By means of practice, the tacit knowledge is experienced, internalized, and routinized. The strengths of this learning mode are the development of implicit “know that” (declarative implicit knowledge), implicit “know-how” (procedural implicit knowledge), implicit “know when” (conditional implicit knowledge), and, to some extent, implicit “know why” (conceptual implicit knowledge). Crooks and Alibali (2014, 348–349) distinguish six forms of conceptual knowledge: (1) connecting knowledge (“understanding of relationships and connections within a domain”), (2) general principal knowledge (“understanding of principles that govern a domain”), (3) knowledge of principles underlying procedures (“understanding the basis for procedures or knowing why a procedure works”) (4) category knowledge (understanding the “categories that can be used to organize knowledge within a domain”), (5) symbol knowledge (“awareness of what symbol means”), and (6) domain structure knowledge (understanding of the underlying structures of a domain). Some of these can also be learnt through socialization (e.g., symbol knowledge). Others require explanation (e.g., domain structure knowledge). Self-development is limited to the availability of external role models and does not incorporate systematic improvements. “Implicit learning” (Eraut 2004) is mostly defensive, unconscious, and limited to the reproduction of given practices in the workplace.

Further learning requires the externalization of implicit knowledge (from both sides) in order to enhance *dialogue*. The development of explicit and conscious “know that,” “know-how,” “know when,” and “know why” needs, in addition, first, a *reflection* in and on the practice and, second, a *workplace recontextualization* to develop knowledgeable practice and action-taking (Evans 2016). In the event of difficulties, the master craftsman, an expert in his field, can now support the learner with advice and explanations (Brown and Cole 2000). Through dialogue, the learning potential expands. Learning is mainly situated, but it is also cognitive (Anderson et al. 2000). It is also partly defensive, reactive, and limited to the reproduction of given practices within a community of practice. Eraut (2004) calls this modus “reactive learning.”

Another step would be, first, the *validation* of the insights (verification or falsification) relating to, and compared with, explicit knowledge, the state of the technique in a landscape of practice (Wenger-Trayner et al. 2015), in combination with, second, the *workplace recontextualization* of the validated knowledge. With this step, the apprentice, as well as the role model (e.g., the master craftsman), crosses the boarder of a local community of practice. Learning is mainly cognitive but also situated. It is less defensive or analytical but limited to the reproduction of given practices within a landscape of practice. Eraut (2004) calls this modus

“deliberative learning.” We have to differentiate horizontally the levels of embedding and apprenticeship: the workplace, the community of practice, and the landscape of practice.

Vertically, again through reflection (self and with others) and based on the validated or unvalidated *explicit* knowledge, *meta-knowledge* (meta-declarative, meta-procedural, meta-conditional, and meta-conceptual knowledge) can be developed through metacognitive learning. Meta-knowledge includes knowledge and regulation of cognition. Meta-knowledge enhances strategic thinking and self-regulated learning and is a prerequisite for expansive learning and innovations (Kuhn 2000; Hacker et al. 2009). “In expansive learning, learners learn something that is not yet there” (Engeström and Sannino 2010, 2). Metacognitive learning requires *learner recontextualization*, which is critical to the development of professional and occupational identity (Evans 2016). This learning mode is subsumed under deliberative learning in the typology of informal learning proposed by Eraut (2004). We suggest a distinction between implicit and explicit (reactive, deliberative, expansive) learning and reactive and deliberative learning, on one hand, and expansive learning on the other. Also reactive learning can, to some extent, be expansive, while deliberative learning is not necessarily expansive. Meta-knowledge can be referenced to the workplace, the community of practice, or the landscape of practice and is, therefore, also reliant on workplace recontextualization to become productive.

It is obvious that the quality of learning within apprenticeships rises in relation to horizontal and vertical expansion. A third dimension has to be considered: horizontal and vertical expansion, and internalization and routinization require time. Dreyfus and Dreyfus (1986) distinguish between different skills levels: (1) novice, (2) advance beginner, (3) competence, (4) proficiency, and (5) expertise (Dreyfus 2004). Empirical results for different domains showed that at least 10 years of relevant experience – supported by training – was necessary to reach the status of an expert (Ericsson 2014a). Nevertheless, “10 years of experience in a domain does not guarantee that expert performance is attained” (Ericsson 2014b, 10). The progress of skills acquisition does not seem to be linear. The length of time required to reach a higher level extends from level to level (Ericsson 2014b, 11). These results lead to the following exemplaric relation between the duration of skills acquisition and the skill level attained (Table 3).

The duration of an apprenticeship (including training) should therefore be as a rule of thumb between 3 and 4 years so that the apprentice can at least attain the level competent after the completion of his/her apprenticeship. Becoming an expert require more than just time or the acquisition of skills. The character of expertise

**Table 3** Duration and skills level

Ericsson (2014b)											
Years	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	>10th
Forms	Novice	Advanced beginner		Competent			Proficiency			Expert	

Dreyfus and Dreyfus (1986), Dreyfus (2004)

is described with different terms and concepts, such as “knowledgeability” (Wenger-Trayner et al. 2015), “vocational Bildung” (Tyson 2016), “competence 3.0” (Mulder 2017), “wisdom” (Hawse and Wood 2017), or “mindfulness” (Hyland 2017).

## Characteristics of Training: On-the-Job and Off-the-Job

The career of workplace learning began in the early 1990s. It was the result of the discontent surrounding the output of institutional learning. On one hand, institutional learning seemed to overeducate, yet, on the other hand, it did not teach and train the skills required at the workplace (Fitzgerald 1986). Learning at the workplace “may benefit from being unfettered from the constraints of formal settings” (Billett 1992, 152). In the late 1990s, the constraints of workplace learning became visible. For example, the limited development of conceptual knowledge at the workplace was observed (Billett and Rose 1997). At the beginning of the 2000s, the complementary function of workplace learning (on-the-job) and formal learning (off-the-job) was discovered: “Learning on-the-job was perceived to be more real life and focused on the ‘how’. Learning off-the-job was less pressured, broader in scope, more theoretical and concerned with ‘why’. The findings indicate that these two environments make valuable, but different contributions to apprentices’ learning and support the need for both” (Harris et al. 2001, 26). This finding supports dual apprenticeship approaches. A recent study on the effectiveness of the dual apprenticeship approach in Germany shows “that during vocational instruction, apprentices significantly improve their performance (a large effect). [. . .] The results strengthen the proposition that dual vocational learning is a powerful system for skill acquisition. [. . .] For instance, we are yet unable to say which part of the dual education – the learning at a vocational school or the working and learning at a training company – contributed most to this finding, given that ‘instruction’, for our sample, refers to the dual VET treatment as a whole” (Deutscher and Winther 2018, 27–28).

The next question concerns the precise quantitative relationship in which the two approaches ought to be placed. Based on several surveys and conclusions (Verespej 1998; Bruce et al. 1998; Marsick and Watkins 1990), as a rule of thumb, it can be summarized that about 60% of the competences needed in a workplace are acquired at the workplace through incidental learning (not intentional, not highly structured) and informal learning and training (intentional, normally not highly structured). About 40% of the required competences are therefore acquired through more or less structured nonformal and formal training.

These data fit the European Commission’s (2012) definition of company-based apprenticeships (training in companies  $\geq 60\%$ ). School-based apprenticeships (training in schools  $\geq 60\%$ ) would therefore generate a systematic mismatch, which makes training for graduates necessary, even after completion of a school-based apprenticeship. Nevertheless, other factors also affect the education-job match, especially social background (Livingstone 2010). Moreover, training for graduates would also be needed after completion of a company-based apprenticeship if the apprentice changes company (Geiben and Grollmann 2017).

Forms of informal learning/training at the workplace include self-directed learning, guided on-the-job training, study visits, participation in learning and quality circle, coaching/supervision, mentoring, and networking. The informal training of apprentices was further elaborated in a literature review (corpus: 18 research articles) by Mikkonen et al. (2017). The authors identified six major guidance practices at the workplace (experts and novices working together: experts monitoring, providing help if needed; explanations, providing information, categorization, transferring tacit knowledge; reflection, conversations, discussions, feedback; scaffolding and fading; observation and demonstrations; independent work and experimentation) offered by four providers (the entire work community, including designated trainers, fellow workers and employers and clients, peers, teachers from vocational institutes, and designated workplace trainers). The guiding principles demonstrate that mostly (limited) horizontal expansion is enhanced through informal training at the workplace. Informal training is necessary, but not sufficient. For this reason, additional structured in-company and off-site training is needed to expand both horizontal and vertical.

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## Paradigms, Conceptions, and Misconceptions

In this section, we discuss different paradigms which often lead to misconceptions about the concept of apprenticeship: (1) the private-training-market paradigm, (2) the young-person paradigm, (3) the advanced-economy paradigm and large-company paradigm, (4) the low-skilled and blue-collar-worker paradigm, (5) the technical and men paradigm, and (6) the discrimination paradigm.

### The Private-Training-Market Paradigm

Apprenticeships can be seen as goods developed on a private training market. The points of view range from “very unattractive option” to “attractive option under certain conditions” to “very attractive option.” The perspectives can be grouped: we distinguish between a *deficit-orientated perspective* and a *resource-orientated perspective*. Arguments supporting a deficit-orientated perspective include:

- *The poaching argument:* Companies offer little or no apprenticeship “if they are located in a region with many nearby firms that could potentially poach their apprentices” (Mühlemann and Wolter 2011, 561). This increases the demand for school-based and publicly financed apprenticeship models.
- *The levy argument:* Companies are risk-averse in making investments. Investments in apprenticeships are considered relatively risk-free if offered to a firm’s own employees and if costs and expected dropout are low. A levy reduces some of the financial risk, but it does not guarantee that more employers will become engaged or that engaged employers will train more (Gambin and Hogarth 2017).

- *The subsidy argument:* Subsidies or tax reductions are offered to share costs and stimulate engagement. In countries where subsidies are offered, unintended effects may become visible. Employers “are actively incentivized to relabel training courses as apprenticeships that they previously paid themselves” (Richmond 2018, 21).
- *The precarious workers argument:* Apprenticeships may “locks-in” already disadvantaged young people to precarious pathways, and reinforces the nature of an already highly gender-segregated [...] labour market’ (Klatt et al. 2017, 473).
- *The information asymmetry argument:* Companies may capitalize on trainings because information asymmetries are in place and can pay wages below the productive added value (Acemoglu and Pischke 1998).
- *The inequality argument:* Recruitment of companies (if not targeted at low-skilled and low-paid jobs) is selective and depends on the expected characteristics – e.g., sociocultural background, gender, age, behavior, skills – of a prospective apprentice. This leads to exclusion and publicly financed substitutes (Deissinger 2015).
- *The well-run economy argument:* Company-based apprenticeships are widely dependent on a functioning economy. The collapse, e.g., of the Irish construction industry (2008–2013), led to a collapse of the apprenticeship system which was until then a well-functioning system in this sector and which was “exalted as a model of excellence when economic drivers were favourable” (Murchadha and Murphy 2016, 383).
- *The outcome argument:* Embedded within a framework of neoliberal thinking, only the criteria specified as learning outcomes (usually in terms of behavioristic skills or competencies) must be met. Rules and processes for selecting and agreeing appropriate learning and training content, syllabuses, curricula, training ordinances, supportive infrastructure, qualified apprentice supervisors, and trainers, being embedded in a community of learners, are seen as unnecessary. The key message: Abolish institutional or formal training, leave apprentices alone, and privatize skills acquisition to achieve the same (bad) learning and training conditions for all (Young and Allais 2011).
- *The flexibility argument:* Occupations are too broad to train and learn them. After defining occupations and standards for these occupations, the occupational standards are broken down into functional units – by ignoring the interdependence, the real work processes and the necessary work process knowledge – through task analysis, functional analysis, or the DACUM approach, which are then transformed into units of competence (equivalent to a qualification) which are further described by competencies (usually in terms of behavioristic skills). Each unit of competence or qualification can be trained, learned, and assessed in an isolated manner. This enables short-term training and “flexibility” for employers and learners (Mansfield and Mitchell 1996). In sum, this approach produces thousands of units that are no longer controllable, confusion on the employer and learner site, a shift from a logic of quality and content orientation to a logic of registration and bureaucracy orientation, increase of assessment expenditure

(with the rise of the assessment and private consultancy market), and, finally, low-skilled (best case) or unskilled (worst case) employees (Allais 2016).

- *The global connectivity argument:* Businesses are globalizing their supply chains, markets are international, and labor is internationally mobile, but apprenticeships are still traditionally oriented toward local and national needs. “In short, the more that nations push VET down local and national paths, the more they undercut its value by depriving it of the greatest of all economic and social advantages in today’s world: internationalism” (Shaw et al. 2016, 102).
- *The rethinking argument:* In some sectors, the poor training culture cannot be changed. Apprenticeships have to be rethought, and alternatives, such as virtual learning environments and workplace simulations, should be considered (Abdel-Wahab 2011).
- *The not my business argument:* Many employers “tend to be reluctant to invest in apprenticeship training, as they expect the broader E&T system, funded by individuals or the taxpayers, to produce appropriately-trained employees that they can hire using competitive pay strategies” (Chankseliani et al. 2017, 61–62).

Arguments supporting a resource-orientated perspective include:

- *The social partnership argument:* Nationwide, apprenticeships are more successful if they are based on social partnership agreements between key stakeholders, such as employers, trade unions, and government (Nyhan 2009).
- *The equality and trade union argument:* Apprenticeship programs, organized with trade union participation or by trade unions, are better at integrating minorities (Bilginsoy 2005) and women (Berik and Bilginsoy 2000) and have higher completion rates (Bilginsoy 2003) than programs organized without trade union participation.
- *The pre-training competencies argument:* Pre-training competencies – especially problem-solving competences – acquired in schools before starting an apprenticeship are “associated with higher productivity of apprentices, which in turn lowers the firms’ training costs” (Jansen and Pfeifer 2017, 57).
- *The profit argument:* Apprentices are less productive than skilled workers, but they are nevertheless productive. Under certain conditions and in certain occupations (trade, commercial, craft, construction occupations), this can lead to gross company profits in the short term. However, apprentices in manufacturing occupations produce net training costs during their apprenticeships, but long-term company profits thereafter (Mohrenweiser and Zwick 2009).
- *The benefit argument:* Qualitative apprenticeships can have several positive effects such as innovation and the transfer of ideas, better organizational fit, a pool of specifically skilled workers, savings from the non-recruitment and induction of workers from external sources, easy replacement of ageing workers, lower labor turnover, more committed employees and the cultivation of a culture of sincerity and loyalty, overall greater competitiveness of the organization, and an enhanced reputation for the business and organization (Asghar et al. 2016).



- *The sectoral levy argument*: Sectoral levies (e.g., building and construction) can work if the levy is bargained on the basis of collective agreement and commitment from mostly equal companies (not dominated by major players) and if the money is used as an investment to improve the cross-company training capacity (e.g., sectoral training centers) within an industrial sector (Billett and Smith 2003). If the collective money can be privatized (single companies, single stakeholders, e.g., consultants), deadweight effects occur (Kuczera 2017).
- *The nonfinancial subsidies argument*: Nonfinancial subsidies – E.g., adjustments in apprenticeship design to make apprenticeships attractive for employers and apprentices, assisting employers in providing apprenticeships with the purpose of “capacity building” (e.g., better apprentice supervisors and trainers) – “could make apprenticeships profitable for an employer” (Kuczera 2017, 11).
- *The relative wages argument*: Wages increase over the apprenticeship period relative to the growth of individual productivity, which depends on individual abilities and the share of demanding skilled work conducted (Mühlemann 2016). Some companies pay wages relative to the level of productivity, and the grades achieved in the off-the-job training in vocational schools/colleges/universities (Gessler 2017a).
- *The occupation argument*: The development of competence – “as an integrated set of capabilities acquired by professionals which enable them to effectively carry out tasks, solve problems, shape innovations” (Mulder 2017, 1098) and occupational identity (Fuller and Unwin 2013) – requires time, supportive conditions, and an orientation toward a coherent and holistic bundle of skills, occupations or occupational profiles (not parceled and fragmented occupational standards), needed at the workplace (Brown et al. 2007).
- *The youth employment argument*: An “increase in the apprenticeship coverage rate is associated with an increase in the youth employment rate” (Lodovici et al. 2013, 4).
- *The transferability of skills argument*: If apprenticeships foster the acquisition of special skills through on-the-job training and general or transferable skills through off-the-job training, apprentices can switch between employers and occupations, which can enhance individual wealth, overall advantage, and further the development of expertise within a sector (Mueller and Schweri 2015).
- *The social media argument*: The use of social media technology can enrich vocational education and training and especially improve the connectivity between in-company learning and formal learning in educational institutions, thereby also bridging private learning environments with public learning environments (Neumann and Ueberschaer 2014).

A misconception in this context means that an argument is considered absolute. While the different arguments in certain contexts are true, they are interrelated and often conflicting – e.g., engagement and intrinsic motivation/subsidization and extrinsic motivation; centralization/participation; readiness for immediate employment/readiness for higher education; high equality/high esteem; flexibility/occupation – which can lead to a moving target reform process (Jørgensen et al. 2018).



## The Young-Person Paradigm

For centuries, the concept of apprenticeship was placed within a specific progression (apprentice-journeyman-master) and focused on the relationship between an older and experienced person or group (guilds) who shared his, her, or their experience in a specific field with a younger and inexperienced person in the same field (Reyerson 1992; Epstein 1998). This basic concept, which we call the young-person paradigm, still exists, especially in countries where apprenticeships comprise part of upper secondary schooling and compulsory education (e.g., Switzerland and Germany). The Swiss scholar Gonon (2011, 33) defines apprenticeships as follows: “Apprenticeship is a mode of learning, focusing on a specific learning site as well as a form of legitimate organisational setting in order to qualify and educate young adults for work and society.” The apprenticeship system in Germany also predominantly addresses young people, but this orientation is in transformation. The mean age of all apprentices rose from 18 years in 1993 to 19.7 years in 2016, and the proportion of 24+ rose from 3.4% in 1993 to 11.9% in 2015 (BIBB 2018, 167). Under pressure from demographic change, companies have already started pilot projects to train younger and older apprentices in the same program (Nordmetall 2014). Nevertheless, a survey of Swiss-German companies showed that there are still many companies oriented toward younger people and who discriminate against older applicants (Imdorf 2012). In other countries, such as Australia, apprenticeships are available for both younger and older persons (Sparks et al. 2009), and in some countries (e.g., Canada, Finland (Finland is currently reforming the system so that apprenticeships can also be offered to young people.), and the United States), apprenticeships are predominantly for adults (Smith and Kemmis 2013; Virolainen and Stenström 2014).

The young-person paradigm also featured in an early definition by the International Labour Organization (ILO). In a 1939 definition, an apprenticeship was defined as “any system by which an employer undertakes by contract to employ a young person and to train him [or her] or have him [or her] trained systematically for a trade for a period the duration of which has been fixed in advance and in the course of which the apprentice is bound to work in the employer’s service” (ILO 1939, quoted from ILO 2012, 2). By the time of the ILO’s 1962 definition, the term “young person” had been abolished. An adequate and nondiscriminatory framing of the concept of apprenticeship would focus on the difference in expertise between a learner and a trainer, mentor, supervisor, or instructor – in line with the novice-expert paradigm (Dreyfus and Dreyfus 1986).

## The Advanced-Economy Paradigm and the Large-Company Paradigm

Some advanced economies (e.g., Austria, Denmark, Germany, and Switzerland) are known for their extensive apprenticeship system, even if the differences between the concepts in practice are large (Bauer and Gessler 2017). However, apprenticeships in

other advanced economies (e.g., the United States) play only a minor role (Lerman and Rauner 2012). Seldom recognized in the international discourse is the fact that middle-income countries (e.g., Peru) have also an established dual apprenticeship model since the 1980s (Angles and Lindemann 2019). Therefore, an advanced economy is neither a necessary precondition nor a guarantee for the establishment of an apprenticeship system, especially if the beginning, where the grounding of the medieval apprenticeship model in the craft sector is considered. Technological invention and diffusion were not a precondition but an effect of the medieval apprenticeship system.

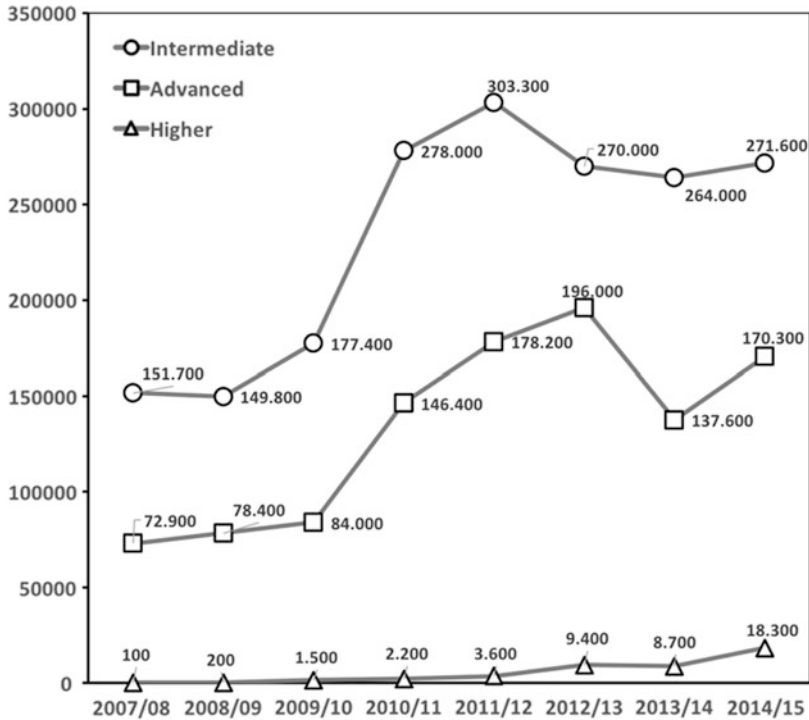
The large-company paradigm is akin to the advanced-economy paradigm. In line with the European Commission's definition, a micro company has fewer than ten employees, a small company fewer than 50 employees, and a medium-sized company fewer than 250 employees. These markers are not applicable to countries with a smaller population (e.g., Uruguay) or even in countries with larger populations (e.g., China). The concept "large company" is a cultural, societal, and economic construct. The second aspect is that larger companies might have a special human resource department, but productivity and commitment to apprenticeships are not dependent on the number of employees. Other factors (e.g., readiness to train) are more important. Therefore, a large company is neither a precondition nor a guarantee for the establishment of an apprenticeship, especially if, once again, the beginning and grounding of the medieval apprenticeship model in micro and small organizations are considered.

## **The Low-Skilled Paradigm and the Blue-Collar-Worker Paradigm**

For decades, countries with a strong apprenticeship tradition (e.g., Germany and Switzerland) and a high proportion of employed apprentices were criticized for their low proportion of tertiary graduates, and the conclusion was drawn that "reforms are necessary in a number of areas. Most importantly: tertiary graduation rates need to be lifted further to ensure a sufficient supply of highly qualified labour" (OECD 2010b, 125). In the same year, the OECD praised the strong dual apprenticeship system of Germany (OECD 2010a, 34). The recommended academic drift is now often associated with the terms "skills mismatch" (McGuinness et al. 2017) or "labor mismatch" (Mateos-Romero and Salinas-Jiménez 2018).

Nevertheless, the low-skilled paradigm is a challenge, especially in the context of a desire to rapidly expand a national apprenticeship system. An example of this challenge is the rapid growth of the apprenticeship system in the United Kingdom (see Fig. 2) (More recent data about apprenticeships by level were not available in January 2018. FE Data library – Apprenticeships: <https://www.gov.uk/government/statistical-data-sets/fe-data-library-apprenticeships#apprenticeship-participation>).

The reintroduction of the apprenticeship system in the United Kingdom (the previous program was abolished by the Thatcher government, 1979–1990) led to some unexpected effects:



**Fig. 2** The development of the apprenticeship system in the United Kingdom (Department of Education and Education and Skills Funding Agency, last updated 2017)

- Between 2009/2010 and 2011/2012, there was rapid growth in very short apprenticeships, “with some lasting just six weeks” (Pullen and Clifton 2016, 9). The government reacted and, in 2012, introduced the minimum standard of at least 12 months.
- Over two-thirds (64%) of all apprentices in 2014 were “internal recruits” (i.e., they were already employees of the company before they began their apprenticeships) and were mostly aged 25+ (BIS 2014, 22). Most apprentices over the age of 19 (80%) had already reached the qualification level they would gain in the “‘Intermediate Apprenticeship’ (European Qualification Framework [EQF]: Level 2), and many apprentices over the age of 19 (56%) who started an ‘Advanced Apprenticeship’ (EQF: Level 3) already had a full Level 3 qualification before commencing. The terms “internal recruitment” and “already reached qualification levels” may lead to the conclusion that growth in the apprenticeship system “was largely driven by employers seeking to secure government funds for workplace learning” (Pullen and Clifton 2016, 9).
- In 2014/2015, 59% of all apprentices in the United Kingdom were enrolled in EQF level 2 (so called “Intermediate Apprenticeship”), 37% in EQF level 3

(so called “Advanced Apprenticeship”) and only 4% in EQF Level 4 (so called “Higher Apprenticeship”). In comparison, Germany’s dual apprenticeship system is not offered at EQF Level 2, as 1-year apprenticeships are prohibited by the Federal Vocational Training Act/Crafts Code. 8.5% of apprentices are enrolled in EQF Level 3 for occupations requiring 2 years training, and 91.5% are enrolled in EQF Level 4 for occupations requiring 3–3.5 years training (BIBB 2018, 128).

The low-skilled paradigm is, therefore, not a characteristic of an apprenticeship system but can be an effect of an insufficient political and legal framework, in combination with low employer commitment. The blue-collar-worker paradigm is related to the low-skilled paradigm. Another abbreviated version of the apprenticeship concept is the sole focus on blue-collar workers. This orientation overlooks apprenticeships that operate in certain sectors (e.g., healthcare), certain occupations (e.g., business administration), and in cooperation with higher education institutions, such as colleges or universities. These “degree apprenticeships” (the United Kingdom), “dual higher education study” (Germany), or “licence professionnelle” (France) were, at least in Germany (Hahn 2012) and France (Calmand et al. 2014), fast-growing sectors. In Germany, for example, 39,622 companies and 64,358 student apprentices were inscribed in 1014 dual higher education programs in 2013. In 2016, these figures reached 47,458 companies with 100,739 student apprentices inscribed in 1592 dual higher education programs (Hofmann et al. 2017). Dual higher education studies are especially appropriate for countries with a weak apprenticeship tradition and a well-developed higher education system such as in the United States (Powell and Fortwengel 2014; Gessler 2017a) or Chile.

## The Technical Paradigm and the Men Paradigm

Even if the term “technical vocational education and training” is used in Asia, vocational programs are not limited to technical fields. At least four major fields can be identified: (1) engineering, manufacturing, and construction; (2) business, administration, and law; (3) health and welfare; and (4) services. On average, across OECD countries, most of the diplomas earned in upper secondary vocational programs are from “engineering, manufacturing and construction,” but the share is just 33% (OECD 2017, 56). This figure demonstrates that there is a technical bias in the system. Nevertheless, the technical field is one among many. The technical paradigm, for instance, is often related to gender.

On average, across OECD countries (OECD 2017, 54), the share of female graduates from upper secondary vocational programs in “health and welfare” is much higher (around 90%) than in “engineering, manufacturing and construction” (around 10%), while the shares in “services” and “business, management and law” are high (around 60%). This figure demonstrates that the technical bias is related to a

gender bias. Male and female attendance is not balanced in the different fields, and gender segregation and unequal pay and career opportunities are still a reality in many countries (Penn 1998; Fuller et al. 2005). The gender aspect leads to the last paradigm: the discrimination paradigm.

## The Discrimination Paradigm

Even if there is insufficient research on the correlation between discrimination and the two types of apprenticeships mentioned above, it is probable that company-based apprenticeships are more prone to discrimination than school-based apprenticeships.

The discrimination paradigm is not a misconception. In fact, if discrimination is a characteristic of the economic or societal system in which the apprenticeship system is embedded, then the apprenticeship system also includes discrimination. In some countries, this has been obvious (e.g., South Africa: McGrath 2004, 2012), while in others, it has been less so (e.g., Denmark, Switzerland, Germany, and the United Kingdom). Five groups are hit especially hard by patterns and acts of discrimination, even if the grades vary between countries and in time: ethnic groups (e.g., in South Africa: McGrath 2012); ethnic minorities (e.g., in Denmark: Colding et al. 2005); persons with mixed parentage (e.g., in Germany: Chadderton and Wischmann 2014); elderly persons (e.g., in Switzerland: Imdorf 2012); and females (e.g., in the United Kingdom: Fuller et al. 2005). Often, apprenticeship systems are characterized by multi-discriminatory patterns within the system, such as ethnic and gender segregation, and conservative governments often fail to address or change traditions of social exclusion (Penn 1998).

However, national educational systems themselves often discriminate through the lack of connections between the initial vocational and education system and the academic system. In such contexts, vocational education and training is often seen as a “second-choice option” or as a form of “lower education” in contrast to “higher education” in the academic system. It is a two-sided problem: (1) Access to university is often limited because of the incompatible curricula of the two tracks (Eichhorst et al. 2015). Solutions might be *integrated* courses: the integration of vocational courses into academic upper secondary education or the integration of academic courses into vocational upper secondary education (Polidano and Tabasso 2016). A second solution are *consecutive* courses following an apprenticeship (Harney 2018; Tønder and Aspøy 2017). (2) Access to university is also often limited because of restrictions, institutional barriers and traditions, especially regarding universities themselves. Recognition of prior learning and institutional reforms are thus needed to improve permeability (Cedefop 2012). In opposite, a qualitative apprenticeship can also be attractive. In the “additive double qualification pathway” in Germany, people with a qualification required for entry to higher education (the “Abitur”) can decide to do an apprenticeship instead of (or before) a study at the university. About 30% of the new apprentices in Germany have a university entrance qualification (Edeling and Pilz 2017).

## Apprenticeship Maturity Model

The ILO provides an overview of five forms of workplace-based learning (Table 4).

The graduation of the criteria is helpful to distinguish the different forms of workplace learning. Nevertheless, the description of apprenticeships seems more prescriptive than descriptive and analytical. Especially in company-based apprenticeship systems, e.g., in the United States, learning programs are not necessarily standard (Lerman and Rauner 2012). In school-based apprenticeship systems, e.g., in Spain, wages are not necessarily standard (Marhuenda-Fluixá et al. 2017). Moreover, in countries following a “flexible” market logic, e.g., in the United Kingdom, minimum durations are defined (since 2012) but are not necessarily applied (Fuller 2016). A differentiation is needed.

The proposed Apprenticeship Maturity Model follows a development logic: A problem arises, is then addressed, and might be solved, and a new problem arises. This process leads to a development which can be described in terms of different maturity levels. Apprenticeships on higher levels normally show a higher competence in addressing and solving problems.

The first systematization is based on the differentiation of the *economic context* and the related distinction between informal and formal apprenticeships. The apprenticeship models presented in Table 5 have already been introduced. Two forms show similarities: “developed semi-formal apprenticeships” and “time-served apprenticeships.” They are therefore grouped on the same level.

The second systematization is an inside-out perspective, with a focus on the internal configuration of the apprenticeship. Our assumption is that no standard-based apprenticeship is possible without an internally produced but externally recognized certificate, and a recognized certificate is not possible without a formal mode of assessment. Output-based apprenticeships are therefore the basic maturity level of standard-based apprenticeships. How these outputs are developed (formal in institutions or informal at the workplace) is normally not described on this level. Nevertheless, some rough orientations (e.g., learning hours) can be delivered.

Following the “black box logic,” it is feasible and practical to define the input after the output and allow the problematic process to be unobserved, open, and undefined. The next step on the maturity ladder will, therefore, be a combined output-input-based apprenticeship model. We can call it input-oriented apprenticeships (because the output orientation is a basic feature, which is included). Input standards are, e.g., defined curricula, defined infrastructure, and/or defined qualification criteria for the persons involved (trainers in company-based models and teachers in school-based models). For example, the ILO has taken up this topic with the focus on “high-quality teacher training system” (Axmann et al. 2015). The additional focus on inputs enhances the widening of the scope. Through more or less intensive cooperation, other institutions can contribute and enrich the input (e.g., schools/colleges contribute to company-based apprenticeships or companies contribute to school-based apprenticeships or the apprenticeship of another company – companies contribute to company-based apprenticeships).

**Table 4** Principles of workplace-based forms of learning

	Workplace based	Wage	On-the-job training	Legislative framework	Program of learning	Off-the-job training	Formal assessment	Duration	Recognized Certification
<b>Traineeship</b>	Yes	Maybe	Maybe	No	No	No	No	Variable	No
<b>Internship</b>	Yes	No	Maybe	No	No	No	No	Variable	No
<b>Informal apprenticeship</b>	Yes	Pocket money or in kind	Maybe	No	No	No	No	Variable	No
<b>Workplace learning</b>	Yes	Yes	Maybe	No	No	No	No	Variable	No
<b>Apprenticeship</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Fixed	Yes

**Table 5** Informal and formal apprenticeships

Informal Economy		Formal Economy	
Nonexistent		Standard-based apprenticeship	Several criteria accepted and applied
Semiformal apprenticeships	Informal sector or artisan organizations recommend and sometimes stipulate certain criteria (e.g., duration, certification)	Time-served apprenticeship	Formal organizations (or the state) recommend or stipulate certain criteria (especially the duration)
Informal apprenticeship	Form of apprenticeship is individually negotiated between master and apprentice	Nonexistent	

Following the definition of the input and output, the problem arises that expectations (related to the investment on the input side) are not fulfilled on the output side. A discrepancy is observed: e.g., skills mismatch, high dropout, and a low transition rate into the labor market. These problems lead to measures of quality improvement, focusing until now on unobserved processes. Remedial measures include the definition of training plans, inspections, evaluation, enhancing peer learning, and feedback and organizational development. An example is the use of e-portfolios in Norway to bridge the gap between school and work (Nore and Lahn 2014).

Access to the internal processes of an organization (companies and/or schools) leads to another problem: influence, transparency, and power. The process-oriented apprenticeship can be stabilized through cooperation between the main stakeholders (state, employer, employee). This might lead to a tripartite model, as in Germany, or a cooperation between two stakeholders, e.g., state and professional organizations (Organisationen der Arbeitswelt), as in Switzerland.

In 2017, the ILO published a “Toolkit for Qualitative Apprenticeship.” The ILO approach is based on six key building blocks: (1) meaningful social dialogue, (2) a robust regulatory framework, (3) clear roles and responsibilities, (4) equitable funding arrangements, (5) strong labor market relevance, and (6) inclusiveness (ILO 2017). In 2018, the Council of the European Union (2018, 3) published comprehensive recommendations on a “European Framework for Quality and Effective Apprenticeship.” The framework sets out 14 criteria which can be assigned, as well as the ILO key building blocks, to the different levels. In Table 6, the proposed six levels are summarized.

On one hand, the maturity model differentiates between development levels. On the other hand, the higher level can also be initiated, even if the problems on the lower level are not completely solved. The establishment of a school-based apprenticeship starts, e.g., on Level 4, the definition of output and input, but the problem of Level 1, the involvement of the companies, is persistent and remains often unresolved.



**Table 6** Outline of the apprenticeship maturity model

Level and apprenticeship form	Characteristic	Addressed problem	Unsolved problem	Criteria (EU and ILO)
6 Collective apprenticeships	Negotiated and agreed cooperation between major stakeholders (state, employer, employees)	Cooperation on the macro level, rights and obligations	Cooperation on the meso level, school-workplace connectivity on the microlevel	Involvement of social partners (EU) Flexibly pathways and mobility (EU) Meaningful social dialogue (ILO) Regulatory framework (EU) robust regulatory framework (ILO)
5 Process-oriented apprenticeships	Additional interventions into the operation and processes of the system	Ratio between work and learning, relationship between formal, nonformal, and informal learning (on-the-job, off-the-job/ in schools), quality development	Divided responsibilities	Transparency (EU) Quality assurance and tracking of apprentices (EU) Career guidance and awareness rising (EU) Work, health, and safety regulations (EU) Clear roles and responsibilities (ILO)
4 Input-oriented apprenticeships	Additional standards for the input are defined and applied	Financing, curriculum (off-the-job training), training plan (in-company),	Unclear implementation and practice	Pedagogical support (e.g., in-company)

*(continued)*

Table 6 (continued)

Level and apprenticeship form	Characteristic	Addressed problem	Unsolved problem	Criteria (EU and ILO)
3	Output-oriented apprenticeships	qualifications of teachers and trainers, infrastructure	Lack of involvement of either schools or companies, skills mismatch	Financial and nonfinancial support for companies (EU) Equitable funding arrangements (ILO) Inclusiveness (ILO) Learning outcomes (EU)
2	Semi-formal apprenticeships / time-served apprenticeships	Recognized certification, formal assessment, some legislative framework	No formal state certificate, separated from the formal economy and education	Written agreement (EU) Pay and/or compensation (EU) Social protection (EU)
1	Informal apprenticeships	Embedded in a community of practice, on-the-job-training	Lack of protection, lack of recognized competences and mobility	Workplace component (EU) Strong labor market relevance (ILO)

## Conclusion

Informal apprenticeships create informal private training markets characterized by two fundamental conditions: master-apprentice relation and informal on-the-job training. These informal private training markets pursue a resource-oriented employment logic. This is why, from an employer perspective, arguments in favor can be applied, such as the profit argument and the benefit argument. Nevertheless, it is a barter: lower wages are paid in exchange for training services within a learning framework of socialization. The possible learning development of an apprentice is related, on the one hand, to the expertise of the master and, on the other hand, to the role model of a work-process oriented occupation. The master-apprentice relationship is closed, privatized, independent from external control, and susceptible to multi-discriminatory patterns, such as not training a person (social exclusion). These informal private training markets are also characterized by a deficit-oriented private training market logic, such as precarious workers, information asymmetry, and inequality. Time-served apprenticeships or semiformal apprenticeships partly limit the power of the master (employer), with the purpose of reducing the deficits of informal apprenticeships. Limitations could be “defined duration,” “defined daily work time,” “defined off-the-job trainings,” or “defined competences that should be developed.” The position and interest of the apprentices are strengthened by an external “advocate,” for example, the state, or an informal sector organization. Learning becomes more explicit. These semiformal training markets are also based, from the perspective of an employer, on a resource-oriented training market logic, such as profit and benefit. Nevertheless, the two-sided formula is reduction of work productivity (e.g., defined duration, defined daily work time) and expansion of learning productivity (e.g., defined off-the-job trainings, defined competences that should be developed).

The output-oriented apprenticeships interrupt this logic of learning expansion and ignore the importance of embeddedness in a community of practice. This approach ignores the process of working and the process of learning, as well as the basic principle of this private training market: working for learning. The output-oriented apprenticeships are an artificial logic developed outside of the world of apprenticeships and not grounded on principles of apprenticeships (e.g., master-apprentice relation). The output-oriented approach generates a cut in the private training market (division between process and results), with the establishment of a private certification market. This certification market is not embedded in work life and turns in a short time into a symbolic market where the trade of (competence) descriptions becomes an end in itself – the map becomes the territory, and the “private training market” turns into a “private consultant market.” The input- and process-oriented apprenticeships are approaches to win back the training perspective, where the off-the-job training logic is strengthened, school-based apprenticeships arise, and the employment logic is weakened. Learning becomes less reactive and more expansive. This development can lead to an imbalance between “work to learn” and “learn to work” until a point where the benefit argument, from the perspective of an employer, gets lost and the private market contract “working for learning” is broken. The result

is again the dead end – not to train a person (social exclusion). To come out of this dead end could be facilitated through dialogue and negotiation between the advocates of the employment logic and the advocates of the education logic, within the framework of a collective apprenticeship.

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## Abstract

The fast-changing competitive landscape requires continuous skills updates and improvements at all levels, from blue collars to CEOs. A skills update is particularly relevant for executives because of their considerable influence on the performance of the organizations they work for. However, executives' learning and development has some peculiarities, such as:

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- While organizations design or recommend training programs for their employees, executives are often out of the loop, as they have the autonomy to decide whether they need to develop or improve a particular skill set themselves and, if this is the case, how to acquire such skills.
- Their development has an impact on many other people.
- Executives have very busy agendas; learning and development must take this important constraint into consideration.
- When attending training programs, executives are not focused on learning alone but also on developing business relationships with other participants.

In this essay, executive learning will be addressed in consideration of the aforementioned peculiarities.

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**Keywords**

Executive learning · Executive development · Executive education · Business schools

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## Introduction

Executive learning and development can be considered a form of continuous VET where the focus is not on delving deeper into topics related to the functional role of executives but to develop or strengthen general management and strategic skills and being aware and understanding emerging topics able to shape entire industries or sectors.

While executive education and learning is something we now take for granted, this was not the case in the past. In order to understand the origin and evolution of executive education and learning, its history will be briefly explained.

During the nineteenth century, business owners did not consider the training and education of managers as their own obligation; this meant that managers normally were not trained and that their decisions were mainly based on their experience and interpretation of how organizations worked (George 1968).

A more structured approach was adopted, thanks to “scientific management”, a school of thought led by Frederick Taylor, which rose in the first decades of the twentieth century and initiated the use of time and motion studies. It was the manager’s role to break tasks down into simple chunks and then work out the best way for a worker to carry out these chunks.

Scientific management did not change the approach to management education much; in fact, lower-level managers received little managerial education related to learning the “one best way” and then teach this to workers.

Indeed, at the time, some universities and business schools offered courses aimed at managers, which featured topics such as work methods, preparation of letters and reports, basic salesmanship, and mathematics (Bowen 1953).

During the studies carried out as part of the scientific management approach, however, researchers discovered that managers could also improve productivity by motivating employees.

Since then more attention was directed toward managerial training; this was at first focused on organization, planning, leadership and control but then developed to include the functional specialisms of finance, engineering, manufacturing, marketing and human relations (Burnham 1941).

World War II became the setting for another significant change in management training, when some US companies produced superior quantities of materials needed to support the armies. Indeed, soon after this, increased demand for consumer goods led to managers receiving further attention, such that outstanding performance led to increased public support and merited the attention of scholars and researchers. Drucker (1954) demonstrates this with his statement that the manager is the “dynamic life-giving element in every business (...) without his leadership, the resources of production never get properly utilized.” He also noted that the new focus on educating managers, as management education began to gain momentum, came at the cost of neglecting the education of executives, further observing that this situation was dominant throughout the 1900s.

It was therefore at this time that business owners and managers and executives of the highest level were considered high-status individuals who had intrinsic knowledge about investments, decisions, and management, in the main form of command and edict (Burnham 1941). It was believed that this ease of command derived from abilities that could not be taught through training or learned through education (Cordiner 1956). Results from middle-level managers seemed easier to achieve in comparison to those of senior managers, which were seen as less tangible; thus, most senior executives saw themselves as leaders rather than learners (Senge 1996), and this gave little incentive for academics and educators to create courses oriented around executives (Wren 1979). Since the work of lower and middle level managers was to acknowledge and enforce business rules, they did not need the intervention of managers of the highest level to perform their tasks, in businesses that worked in closed environments, leadership from the top loses importance (Selznik 1957).

Before the 1980s, the education that executives tended to receive was attained as managers while ascending the various hierarchical levels of business (Sashkin and Sashkin 2003). During the 1970s major change happened: increasing technological innovation, intense national and global competition, energetic crisis, new societal movements, and new governmental laws and regulations. These factors led to internal stresses and external failures and threatened the well-being and survival of a considerable amount of businesses.

In the resulting situation and alongside the demands of stockholders, the lack of managers' abilities to address certain issues led to them losing their former esteem, such that confidence in management decreased from 70% in the 1960s to under 30% in the 1980s (Yankelovich and Furth 2005). It was lower- and middle-level managers that took the blame for decreases in revenue, productivity levels, and the inability to solve new competition-related issues, but the blame can well be allocated to senior managers and executives, who were not trained to foresee change in the making or to react in an immediate and effective manner to sudden events (Timpe 1987). In this new global environment, the managerial education that had been gained earlier was no longer suitable to this new context.

One result of this was that, in an environment of constant and uncertain change, executives and executives' learning and training could in fact be an answer to some of the difficulties encountered in earlier times. It follows that executives should be educated toward seeing the business environment as a whole, understanding the interaction between its various areas, having a foresight for change, and being able to cultivate abilities to sense new trends, relationships, threats, and opportunities and lead the organization in new directions (Goleman 1998). It means that areas such as advanced functional management, which contributed to reaching the highest levels of management but are not needed for making decisions at the executive level, would be valued less.

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## The Characteristics of Executives as Learners

While every executive, as a human being, has distinctive learning and development needs, there are certain characteristics that are common to many of them. First of all, executives are adult learners.

In contrast to pedagogy, the "child-leading" system which we are familiar with (e.g., lectures, memorizing, reciting, testing, etc.), there is an alternate instructional system described as andragogy (Greek: "man-leading") (Knowles 1980), which contains a number of assumptions about the way that adults learn; these assumptions will be listed together with comments and implications for executive learning and development:

- Adults need to know the reason for learning something; knowing this reveals two sorts of executives: First, those who fully understand that the current business environment requires a continuous development of their skills and, second, those who believe that their skills are already sufficient to deal with the various issues. In the first case, executives look for and welcome learning and development opportunities and are open to various stimuli. In the second case, executives have to be convinced that they still have gaps in their knowledge and skills. Different tools can be used to prompt the "wake-up call": Feedback from subordinates, peers, and bosses; direct confrontation with experts in specific fields; and discussion of difficult case studies where executives' decisions lead to disasters.
- Experience (including error) provides the basis for learning activities. Executives tend to prefer to learn approaches focused on solving and discussing real problems and welcome the opportunity to reflect on their experience. In addition, they value their own experience highly as source of learning. Given the relevance of this topic, more details will be provided in the next paragraph.
- Adults need to be responsible for their own decisions on education; adults need to be involved in the planning and evaluation of their instruction. This is particularly true for executives because the organizational power they have allows them to avoid making learning efforts that do not align with their interests and preferences.
- Adults are most interested in learning subjects that have immediate relevance to their work and/or personal lives; this topic applies to executives but is even more

relevant to professionals. While professionals often need to learn something in order to address or improve a work method, executives' needs are more strategic; therefore, the application of the knowledge is not always immediate but does have to be relevant.

- Adult learning is problem-orientated rather than content-orientated. Executives are more interested in solving and discussing issues related to theory, rather than the theory itself; theory alone does not tend to satisfy them.
- Adults respond better to internal rather than external motivators. As executives are used to a good deal of autonomy in the selection of the learning and development efforts, internal motivators are key.

In addition to the assumptions mentioned above, executives also have other distinctive characteristics, such as:

- They are busy. While it is hard to find someone who would declare themselves not busy, executives are particularly busy (e.g., Ceo.com's survey held in 2015 indicates that CEOs work, on average, 10–11 h/day). In addition, the work of executives cannot be called discrete work, as it does not consist of tasks that, once completed, mean their work is over for the day. Executives are subject to continuous flows of stimuli, issues, ideas, and tasks, and as a result their minds are always focused on what comes next (Mintzberg 1973; Mintzberg 2013); being (or feeling) busy has an impact on learning and development. In fact, executives are unable (or believe themselves unable) to dedicate much time to formal education and, when this involves learning activities, they are very sensitive to the way that time is used. For example, courses targeted at executives tend to have more extended schedules compared to courses targeted at middle managers; weekends are often used as well.
- They influence the performance of organizations and as such that of many other people. By considering the position that executives have in organizations, their decisions have an impact on the organization as a whole and directly affect its future. When it comes to executive education, training providers and executives have to keep in mind that they are not only fostering individual talent but also adding value to the organizations that executives work for (Conger and Xin 2000; Crotty and Soule 1997; Myrsiades 2001; Vicere 1996).
- They do not remain in the same role for an extensive period of time. Executives are dynamic, in they are individuals who evolve on a continuous basis and carry out several roles during their lifetime (Moulton and Fickel 1993). According to a survey conducted by ManpowerGroup in 2017, executive-level employees are concerned with upward mobility, and 50% of executive-level employees would move to another company if they lack advancement opportunity in their current company. According to ExecuNet (executive career and business network), executives' average tenure at a company has been 4.1 years in 2015 and, according to a survey conducted by the Association of Executive Search and Leadership Consultants for The Wall Street Journal in 2015, nearly 80% of US recruiters are more willing than they were a decade ago to consider executive prospects who stay less

than 3 years. As we will see, this has an impact on some variables related to learning and development, such as the relationship network.

- They are demanding. Being in a significant and time-sensitive organizational role means that executives are notoriously demanding. Executives tend to be significantly less willing than undergraduates or distance-taught graduate students, to suffer in silence when they regard teaching as less than excellent or the lecturer as insufficiently knowledgeable (Lockhart 2013). This influences who should support their learning and development in term of the status, experience, and service level that executives expect from education providers.

## Providing Executive Learning and Development

While some kinds of executive learning and development can be self-managed by reading books (various articles highlight that executives are avid readers) or critically analyzing past experience in order to improve for the future, it is nonetheless evident that executive education providers play a significant role here.

There are different types of providers, such as individual trainers, small training organizations specialized in executive education, consultancy firms providing also training services, and business schools, which are the main actors in the executive education market. The number of providers is very high; AACSB International (2010) claimed that there are 12,087 business schools; however, many of them are very small. If we look at the most relevant business schools, numbers are smaller (Table 1). Table 1 reports the estimated number of relevant business schools in different regions.

Providers of executive education, including business schools, are mainly privately held companies. The reasons lie in:

- A need of a much higher flexibility, since the offer has to be updated almost every year, something very difficult for public institutions that have very complex and long authorization processes (Aithal 2015).
- Funding, in fact, many investors consider private training organizations as interesting opportunities (Vink 2016).
- Private institutions have more flexibility in resource allocations. For example, salaries can be easily negotiated thus permitting to attract and retain best-in-class trainers (Vink 2016);

**Table 1** Estimated number of relevant business schools in different regions

Region	Approximate number of business schools
Africa	>150
Asia	450
Australia and New Zealand	100
Central and South America	>100
Europe	>250
North America	500

The size of the Executive Education in economic term is pretty difficult to quantify, however, Financial Times estimated it at \$70 Bn worldwide in 2015.

Besides content, there are several challenges facing educators in executive education. In an article describing issues that professors experienced teaching executives at Harvard Business School, Garvin points out that although the effectiveness of executive education is based to a large extent on what is taught, where, when and how it is taught, and who teaches it, are also significant (Garvin 2007), as we shall see here.

## Contents

Contents are the most dynamic element of executive learning and development, as they tend to vary in accordance with both the internal organizational dynamics and external factors; for example, the 2008 financial crisis triggered several changes that had various impacts on the content suitable for executive learning. In more recent terms, from 2010, big data, robotics, and blockchain, to name a few, posed new threats and opportunities to organizations which in turn had an impact on what executives should be aware of and be expected to know. Leadership, in the various forms it can take, is one of the most enduring elements of content targeted at executives. For example, in a survey conducted by Strategic Counsel and LinkedIn in 2017, prospect executive learners identified leaderships as the most desired content (Owens 2017), and when 500 executives were asked to rank their top three human-capital priorities, leadership development was included as both a current and a future priority. Almost two-thirds of the respondents identified leadership development as their number one concern (Gurdjian et al. 2014).

## Geographical Location

When it comes to deciding where to enroll in an executive education program, the geographical location should also be taken into consideration. It is not a matter of developed versus developing countries, but more to do with exposure to diverse business environments, which could be of particular relevance to some executives (Bradshaw 2014; Ortman 2017). It is no coincidence that while International MBAs are normally delivered in individual countries, International Executive MBAs are often held in several countries (even five) so as to expose participants to a diverse range of cultures and management practices (Symonds 2011).

## Venue

As already mentioned, executives can be rather demanding because of their role and their will to optimize the use of their time but also because they are used to levels of comfort and service that are above that of the average worker. This has an effect on executive education providers who have to provide venues with a quality level that



aligns with the high expectations of executives (Batallas 2010; Murray 2014). A dean of one of the most important business schools in the world, when asked what the factors that lead to success are, replied: “there are 3 main factors: venue, venue and venue.” Obviously this was not an entirely serious statement, but he was certainly sincere in the belief that without a beautiful venue, the ability to attract executives would have been compromised, at least to some extent. The importance of venue triggered a “venue race,” where business schools try to overtake competitors by leveraging infrastructural assets that in the past were not considered source of competitive advantage. In the past 15 years, more than 110 AACSB members out of 800 have built or have plans to build new facilities or renovated existing spaces (Ziebarth 2011). In Table 2 are some notables examples.

### Schedule of Learning Activities

While lower- to middle-level managers often choose to interrupt their career in order to increase their skill set (e.g., MBA programs, being full time, mean that participants will have to leave their current career), most executives would not start a program that requires them to leave or interrupt their career. It is for this reason that Executive MBAs are often scheduled in the format of a weekend course or short modules completed several times over the course of the year. The main reasons for these choices are:

- Their salary is already substantial, because of their role, and the cost of the opportunity to increase their skill set is considerable.
- They very often have families with children, and to lose a salary for 1 or 2 years would create difficulties for the family.
- To interrupt a lower level management or technical role in order to pursue an MBA can be considered a demonstration of commitment by recruiters; however, to leave an executive role can be seen in an entirely different way and mistaken for dissatisfaction with the current role or the inability to tolerate stress. In fact, while MBAs can be considered a revolutionary way forward for many individuals and

**Table 2** Major investments in business schools new campus or buildings

Business school	Approx. value (\$ million)
Chicago University Boot School of Business	140
Harvard Business School	100
Kellogg School of Management	220
Michigan’s Ross School of Business	145
SDA Bocconi School of Management	160
Stanford Graduate School of Business	345
Yale School of Management	243
Wharton School	140

mean an absolute change in their role after the MBA, Executive MBAs are more suitable for evolution. However, from a market perspective, evolution is the worst reason to leave a career. It is no coincidence that the salary increase after EMBA is much smaller than that which follows MBAs. Considering the data provided by the Financial Times' EMBA and Global MBA rankings for 2017, the average salary increase of the top 100 EMBA is 54%, with a maximum increase of 107%; the average increase for MBAs is 102% with a maximum increase of 180%.

- From an educational perspective, to avoid an interruption to a career in an executive role is beneficial, because it allows students to apply new concepts immediately in their workplace, and bring their daily experiences and difficulties to the classroom to be discussed with other students.

## Reflective Practice

As previously mentioned, experience is a fundamental part of adult and executive learning; some believe this should be focused on an executive's reflective abilities within the context of business organizations (Burgoyne and Reynolds 1997). Schön established the idea of reflective practice and the notion of the reflective practitioner, where the practice consists of executives who question mental models in critical terms in order to understand the world from a systemic perspective and develop personal expertise (Schön 1983); he also observed that the real problems of the world "do not present themselves to practitioners as well-formed structures" (Schön 1987) but are "intermediate zones of practice – uncertainty, uniqueness and value conflict – escape the canons of technical rationality" (Schön 1987). Indeed, this reflective practice is essential for the development of what he called "professional artistry," which included the ability to make sense of uncertain or conflicted situations of a professional nature and bases itself on the notions of knowledge-in-action, reflection-in-action, and reflection-on-action.

This knowledge-in-action is an artless and normal action that emerges from regular activities; it occurs when an individual learns how to do something and is then able to recognize, decide, act, and react in a smooth manner without having to think about it, a characteristic of "competent practitioners (who) usually know more than they can say (and) exhibit a kind of knowing-in-practice, most of which is tacit" (Schön 1983). However, people tend to be surprised because of unexpected experiences that occur in which their expectations are not satisfied and, in an attempt to allow their usual patterns to remain constant, sometimes respond to these surprises with selective attention to the circumstances that produce it, or respond to it via reflection. Schön defined this reflection in terms of two possibilities:

- Some individuals may reflect-on-action; they may think back on their actions in order to deduce how their knowledge-in-action may have made a contribution to an unforeseen outcome or reflect on this while an action is carried out. But in neither of these cases does the reflection have a direct connection to immediate action, instead defined as "thinking about thinking" (Raelin 2002).

- Some individuals may reflect-in-action as they carry out an action, without a break from their activities but rather rethinking their actions while still doing them, such that in effect “we respond to the unexpected or anomalous by restructuring some of our strategies of action, theories of phenomena or ways of framing the problem; and we invest in on-the-spot experiments to put our new understandings to the test” (Schön 1987).

Several researchers in the area of management education (Smith 2003; Gosling and Mintzberg 2003; Smith 2001; Schön 1987; Tompkins 2001) consider the reflective activity to be a very worthy course of action via which to prepare executives to face the intricate and changeable managerial environment.

## Learning Methods

There are various learning methods available; below is provided the categorization proposed by Thorsell and Bridge (2014) with comments on the peculiarity of Executive Learning and Development.

*Teaching theories.* Theories that form the basis of effective executive learning should be well-documented, regardless of the method chosen; best practices should be studied with careful attention and academic process, as business development should be founded on these theoretical practices. It tends to be difficult to make theories of interest and use, as the approach is one directional and has been viewed in academic and development practice circles as the least effective manner to prepare executives for success. Indeed, executives themselves have been known to rate this approach lowest in terms of attractiveness on a consistent basis (Thorsell and Gonin 2007; Gonin et al. 2011).

*Case studies.* Harvard Business School pioneered the case method in the 1920s to address the deficits of theory-centered teaching. It was a method that involved debating interesting successful, less successful, or unsuccessful business cases in order to extract learning in a challenging dialogue between the professor and the students. However, despite the fact that the case method appealed, and still does appeal, to students more than raw “theoretical teaching,” the challenge lies in the fact that in real life, no single case will occur again. It hones analytical skills and may well influence shifts in executives’ business mindsets but lacks immediate applicability if not properly contextualized by the instructor. Some advanced corporate universities have compensated for that deficit by using tailored cases that address relevant real-life business situations to achieve a higher level of relevance and applicability.

Using case studies with executives requires some modification compared to those used with lower management roles. Garvin (2007) states that executives need:

- More explicit connections to practical applications and company problems
- More time devoted to sharing participants’ problems and experiences
- Less time devoted to the theories that explain good decisions or solutions

- Less time devoted to problem diagnosis
- Less time devoted to discussion of action questions
- More time devoted to closures and explicit summaries
- More attention to the parallel between the case studies and the experiences of participants
- More attention to the implication of the cases rather than a focus on specific details
- More responsibility for the instructor to keep the discussion on track
- More provision by the instructor of calculations or quantitative analysis

*Simulations.* Simulations tend to favor “doers” in a competitive environment. Due to time constraints, competition between participants and lack of interaction with the instructor during the simulation, they are not very suitable to prompt deep reflection; for this reason, similarly to case studies, a debrief is fundamental. In addition, setting up simulations is time-consuming and demanding on resources; as a result, they are very limited in number, which increases the probability that the simulation does not coincide with executives’ needs. Again, the role of the instructor is fundamental here, as they have to take some time to contextualize the take-away.

*Action learning.* Confucius, the Chinese philosopher, said, “I hear and I forget. I see and I remember. I do and I understand”; this statement highlights action learning, a method that tends to be used for corporate business endeavors, which lend themselves to customization and are suitable to the real specific business environment. Action learning can often be difficult to detach from the business world and therefore can often be overlooked, or seen as inefficient from a learning view because of all the action involved; moreover, it tends to be the lack of reflection and theoretical foundation that detracts from this method of executive learning. Additional to this is the fact that individual cases might not be relevant or not coincide in view of the learning goals; thus, this method of learning is most effective as an executive learning method that cannot be effective unless it is relevant to the learner’s situation. Action learning needs corporate sponsorship too, as the involvement of the best qualified facilitators is crucial to the sharing of relevant theoretical foundation and their supervision of actions facilitates meaningful learning (Thorsell and Bridge 2014).

*Experiential learning.* Defined as “learning through reflection on doing” (Felicia 2011), this method tends to be founded on experiments, where learners interact with the intention to simulate a real-life situation and perform role plays and collaborative exercises, then acquire feedback from peers and facilitators, and then anchor the lessons learned via deliberate reflection. In this approach, the context of the learning is fundamental, to the extent that if the experience is considered separate from the learner’s real issues it will have a negative effect on learning. Compared to case studies and simulations, however, experiential learning is more intense from an emotional perspective, and for this reason, when delivered in the correct manner, participants retain it as a more vivid experience, and it brings about more immediate changes in work practices.

*Real-life real-time learning.* We noted above that experiential learning does not address the actual challenges that give the learner most grief; real-life real-time learning offers a method which centers learning around these issues, the issues most linked to the learner in the here and now. Instead of “role plays,” this method is oriented around “real plays” (Thorsell and Bridge 2014), that is, the learner’s own real-time work situation that is central to learning itself; this method entails good control of facilitation and demands a significant amount of the facilitator. In this systemic method, the total ecosystem of the executive is the base on which to learn; the process makes use of personal aspects, as well as professional ones. It tends to be the case that the challenge of real-life real-time learning is the reliance on skilled facilitators who themselves must master the unforeseeable context and share relevant theories when suitable; these facilitators, in contrast to standardized skills training where methods are established to guide the facilitators almost to the minute, do not have much structure at all other than the overall development process, as the content relies on situations which are specific to the individual. While this process can have excellent results, it does come at a considerable cost, in terms of both expense and intrusiveness into the business which the executive works for; it is understandable that this learning and development service is not used on a frequent basis.

*In-role learning.* Coaching is the most recognized instance of in-role learning, similar to real-time learning because of its learner-centric, real-life real-time-based strategies and focuses on relevant current issues. It should however be said that coaching tends to be focused on the individual executives and lacks bringing individuals in more senior roles, or even bosses, into the learning method. In terms of the views of stakeholders around the individual receiving the coaching, coaching becomes something of a black-box learning situation. In-role learning should be facilitated, as otherwise it might become difficult to motivate executives and create circumstances for learning in a hectic work environment; this can create frustration for executives at not having been able to meet in-role learning assignment, and this can lead to a decrease in the effectiveness of in-role learning methods and strategies (Thorsell and Bridge 2014).

## **Delivery Methods**

In recent years, the role of e-learning has become more and more significant, and various education providers have incorporate e-learning into their programs. Sometimes e-learning is the only delivery method used, as is the case with MOOCs (massive online open courses), while other times it is used alongside physical interaction, as is the case with blended courses. At first glance, distance learning fits with executive education, as executives are very busy and e-learning (at least asynchronous e-learning) allows for a flexible schedule. However, a closer look at real experiences shows that e-learning is not the easiest thing to integrate into executive education. In fact, according to the 2017 Training Industry Report, executives show the lowest usage of e-learning compared to other roles. An initial rationale for this is that flexibility and busy schedules very often result in continuous

postponements of the actual use of the e-learning modules; adding exams at the end of each e-learning module might increase attendance, but exams are not always feasible, either because some programs do not evaluate the performance of the participants (as for open enrollment executive education programs) or because inserting an exam is not feasible from a scheduling perspective. The St. Gallen Executive Education Report 2016 concluded: “technology-based learning formats only become effective after companies have secured top-level strategic ownership and implemented traditional learning formats”; moreover, e-learning can only ever be complementary and must not be a substitute for traditional face-to-face learning.

## Participants

Research on adult education states that adults enter into educational activities with an extensive repertoire of lived experiences, such that “for many kinds of learning, adults are themselves the richest resources for one another; hence the greater emphasis in adult education on such techniques – group discussion, simulation exercises, laboratory experiences, field experiences, problem-solving projects, and the like – that make use of the experiences of learners” (Knowles 1984). Real-life interactions between the instructor and the students are, however, an essential element of the development of reflective practice, because interactions foster the students’ abilities to review mental models and professional practices in an inquisitive and reflective manner (Lissack and Ross 1999; Meyers 1991; Schön 1983). Meyers’ studies of students’ relationships in class reveal that “confronting questions and conclusions of fellow students, often different from one’s own, adds to the disequilibrium that helps to shake students from their egocentric perceptions of the world” (Meyers 1991). Research from studies before and after the latter place importance on the development of reflective practice via social interaction and affirm that the identification and exploration of mental models, as well as the identification of alternative mental and active patterns and the development of self-knowledge, are more effective when carried out alongside others (Brookfield 1987; Raelin 2002; Rodgers 2002). Rationale for this is that “when we realise that what were perceived as unique tragedies and difficulties are, in fact, shared by many others, there is an immediate reduction of self-doubt” (Brookfield 1987); this enables individuals to take in perspectives that had not occurred to them before, such that solutions found in situations similar to their own could be possible solutions to their own problems. One executive stated that “it is not only from what we learn from the other material in class or what the professor teaches, but what we learn from each other. You are amongst a group of very talented people and you discuss things with them and this creates an environment that makes you wonder why you did not think about this before? Of you get out of the class and decide to think about how you can do that better. I think that definitely, it creates the opportunity to do more reflective thinking.” Reflections such as this led all participants to the belief that the opportunities to share the experiences acquired in tandem with the process were one of the most valuable materials acquired in the experiences that either of them has ever had.

## Instructors

Instructors might have to make changes to their teaching in order to succeed; when facing students who have worked for several different businesses, have held various roles, are knowledgeable about management methods, and therefore have great self-confidence, faculties must not restrict themselves to being knowledgeable about research in academic literature but about current methods and issues as well (Garvin 2007). Instructors must be able to discuss their knowledge in real time, reacting to the issues that students raise in class; these are students who will be content when issues studied in class can be approached in terms of their practical applications and current business issues. So lecturers must respond to the demands of the process' aims with a combination of practical experiences, theories, case studies, and anecdotal material, in order to satisfy the curiosities of curious and motivated students who are often have much more experience in a much more elevated position than their own. In fact, De Déa Roglio and Light's (2009) research on the development of the reflective executive via the studies of an Executive MBA concludes that the main duty of the faculty is to facilitate the student's discovery process; educators should "open themselves up to new possibilities as meaning is co-created and recreated in conversation with their students" (Meuser and Lapp 2004) and to be able to influence these possibilities, educators facilitate "a climate or culture of support" for learners through the creation of a safe holding environment, which the learners can then "trust to 'hold' them over time" (Kolb and Kolb 2005).

## Provider's Brand

While instructors do represent an important role, providers are important too. We have already discussed several of the reasons why executives can be demanding; here we introduce an additional factor: they have good salaries. According to the Financial Times Ranking 2017, the salary before attaining an Executive MBA is \$130,000; this means that executives (not all of them) have access to a range of high-end brands that average workers have access to on only a limited number of occasions. When it comes to executive learning and development, the status and brand of the provider (Naidoo et al. 2014) should not be considered a secondary factor in terms of getting them on board and maintaining commitment. For example, Schoenfeld and Grady(2005) found that "Prestige or global recognition of the college or university" was ranked sixth in the factors executives took into consideration to select a trainer provider, while providing the curriculum that best fitted with their need was ranked just seventh.

## Provider's Network

A final factor related to providers is the network they have, both in terms of corporate connections and in terms of alumni network (Schoenfeld and Grady 2005). We have

already mentioned that executives enroll in education programs both for learning and for access to connections which could be useful for the future of their career and that of their companies. If the provider has a good network both in qualitative and quantitative terms, executives are more willing to enroll. An interesting research (Cohen and Malloy 2010) provides an example of the power of the alumni network. The authors examined a vast data set of trading decisions of mutual fund portfolio managers from 1990 to 2006. They then compared the performance of managers' investments in "connected firms," that is, companies where at least one senior official had gone to the same college as the investor, with performance investing in "non-connected" firms, where no college ties existed between the senior ranks and the investor. Results reveal a strong pattern, in both stock holdings and returns: US mutual fund portfolio managers placed larger concentrated bets on companies to which they were connected through an education network. In addition, fund managers performed significantly better on those connected positions than they did on non-connected ones, to the tune of 7.8% a year. Finally, the size of the investments and of the returns increased with the strength of the connection. For instance, if the mutual fund manager and the CEO of the company were both MBA graduates from the same business school in the same year, the effect would be even stronger than if the manager graduated in different years.

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## Conclusion

While there is still much discussion around various organizational issues, there is little disagreement on the recognition of the crucial nature of executives' roles in organizations. Executives can inspire other people, are important change agents, and make the most important decisions for the future of organizations. Given the fast-changing environments that almost all organizations operate within, it is no longer thinkable to have an executive who does not update and develop their own knowledge, skills, and behaviors. While executive education has been neglected in the past, it is now often considered an important component of the life of every executive and the vehicle to create a competitive advantage for organizations (Cairns 1998; Longenecker and Ariss 2002). Figures support this view; in fact, starting from 2014 (Bradshaw 2014), revenues coming from executive education started to climb, after 7 years of poor performance. In an overall positive market, short courses recorded the highest increase. The demand for short courses can be explained by considering the rise of new technologies and related managerial practices, which are posing new threats and opportunities to companies, sectors, and even entire countries. Executives need and want to understand the main characteristics of those technologies and if and how to implement them. It is not the case that almost all the most important business schools are offering courses related to, for example, big data, artificial intelligence, robotics, and digital marketing.

However, as already addressed in this chapter, executives are not only attracted by content such as brand reputation, facilities, training schedules, formats and methods,



instructors, and networks are all ingredients that determine the choice as to where to attend executive education programs.

A particular challenge in executive learning and development is demonstrating the return on investment of learning and development efforts.

At the individual level metrics already exist and for many providers are reassuring; in fact, business school rankings measure the salary increase of Executive MBA graduates. However, salary increase can be only applied to programs lasting 1 or more years since they can really reshape the curricula of participants. But what about the impact at the company level? Here data seem less positive. It is not a case that some articles represent many executive education programs as mere failures (Hassel 2016; Beer et al. 2016). It is not a problem of quality of teaching and contents, in fact, very often participants are enthusiastic about the training programs; they feel inspired, and they really want to apply in practice what has been thought to them. The problem lies in the various organizational barriers that do not permit to translate contents into daily practices: it is a change management problem. From this perspective, executive education cannot be considered in isolation but as part of a broader change management effort. Another aspect that should be taken into consideration to increase the return on investment is content and process customization. In fact, some theories and approaches apply best to some companies while fail to provide any value in others. Executive learning and development should thus take into consideration not only the needs of the executives but also the context in which they operate (Gurdjian et al. 2014) in a way to make learning and development efforts work in that particular organization.

In the future years, probably executive learning and development will have to deal with many challenges driven by technology, market, and also geopolitical changes. For example:

- Will business schools still be the main providers?
- What will be the real role and impact of distance learning?
- Will short-duration programs still be mainstream?
- Will leadership remain a hot topic?
- Will training remain the most common form of executive learning and development, or other methods will gain momentum?

Nobody knows all the answers, but for sure we will assist to interesting changes in executive learning and development.

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### Abstract

In recent decades, people have faced various global economic, technological, and social changes. Consequently, there is a need for ongoing vocational and professional development in working life. Simultaneously, there has been a growing body of literature that recognizes the importance of informal learning next to formal training arrangements. This chapter provides an overview of prominent context and individual factors related to informal workplace learning. Since the overall structure of the chapter follows the tentative 3-P model of workplace learning, some central learning activities and outcomes of informal workplace learning are shortly presented. Nevertheless, informal workplace learning processes are often unplanned and unconscious, and the outcomes may be unpredictable. This chapter may serve as a base for employees, managers, and human resource development professionals for understanding informal workplace learning and workplaces as sites for learning. This chapter may also provide

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researchers with future research directions by discussing previous findings and research instruments and identifying some limitations of current research.

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**Keywords**

Informal learning · Workplace learning · Learning site · Learning environment · Human resource development

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## Introduction

Global technological, economic, and labor market-related changes and challenges are present in the current service-dominated economy and knowledge society (Noe et al. 2014). Due to these challenges, nations and governments aim at maintaining a skillful workforce who can adapt to the changing environment. In the same way, public and private organizations need a workforce that can respond to the changing work requirements to enhance competitive advantages. Furthermore, individual employees are expected to develop and maintain employability (Harteis and Billett 2008; Kyndt and Baert 2013; Manuti et al. 2015). For some workers, formal training or initial occupational preparation, although often including workplace experiences, is not enough; there is a need for ongoing development through work and working life (Harteis and Billett 2008). For instance, digitalization and automatization are comprehensively influencing the nature of work and expertise. The consequences of new technologies include not only a changing emphasis on the significance of required vocational skills but also the increasing automation of low-skill work tasks and the potential elimination of current work practices (Frey and Osborne 2017; Nokelainen et al. 2017). Informal learning is an important means by which employees update their knowledge and skills and adapt to changing situations, such as new technologies in organizations. However, next to realizing an organization's needs, from the employee's perspective, learning can also be directed, for example, to reaching personal career goals (Harteis and Billett 2008; Noe et al. 2013).

It is generally recognized in research that learning does not only occur through training and education. Informal learning in everyday work-related activities and environment provides an important source for achieving personal and organizational goals (Kyndt et al. 2014). Moreover, there seems to be evidence that learning most frequently happens outside formal learning contexts through informal learning activities, such as interacting with and observing others and through personal experiences and reflection (Enos et al. 2003; Eraut 2000; Skule 2004). For example, it seems that small businesses prefer informal learning, and they are less likely to provide their employees with formal training and development opportunities than large businesses (Coetzer et al. 2017). Providing formal learning has also become more challenging because of limited resources, work demands, and employees located in different places (Noe et al. 2014). Under these circumstances, it is no wonder that understanding informal workplace learning has gained increasing interest, especially since the 1990s (Eraut 2000, 2004; Kyndt and Baert 2013; Marsick and Watkins 1990).

Research related to workplace learning has been conducted in different fields, such as education, industrial and organizational psychology, and management (Noe et al. 2014), and there are multiple lines of research related to, for example, the nature of learning, identities and agency, development of expertise, and organizational learning (Tynjälä 2013). The aim of this chapter is to provide an overview of informal workplace learning, which further supports the idea of workplaces being sites for learning. The chapter begins with identifying developments and debates in the field of workplace learning and then moves on to presenting and discussing previous research in the field. The chapter takes a selective look at the previous research findings and aims at identifying prominent factors, activities, and outcomes related to informal workplace learning. The structure of the chapter follows Tynjälä's (2013) 3-P model of workplace learning, which is a modified version of Biggs' (1999) 3-P model of learning. Previous research has established that there are multiple context factors that may facilitate informal learning in the workplaces, but individual characteristics, such as demographic variables, interests, and capacities, may affect how individuals take or are granted access to these opportunities (e.g., Billett 2008; Kyndt et al. 2009; Kyndt and Baert 2013). Tynjälä (2013) emphasized that these contexts and individual factors as such do not determine learning; however, the individual's interpretation of these factors is important. Following the 3-P model of workplace learning, these factors also form the *presage* component of learning. Additionally, the model of workplace learning underlines different kinds of work activities related to learning *processes* and highlights *products*, i.e., the outcomes of the learning processes.

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## Theories of Workplace Learning

There is no single approach to or simple definition of workplace learning (Clarke 2005; Manuti et al. 2015). Hager (2011) identified three broad approaches to theorizing workplace learning. First, early psychological theories emphasize individual behavior, cognition, and knowledge acquisition but underestimate the role of the social, cultural, and organizational factors that shape workplace learning and performance. Second, sociocultural theories either incorporate both individual and social learning or focus exclusively on social learning. Learning is seen not as a set of products but as an ongoing process of participation shaped by contextual factors. Finally, recent postmodern theories of workplace learning emphasize the emergent nature of learning as the context does not decide or predict learning (Hager 2011). Fenwick (2010) advocated a sociomaterial approach that she considered to have enormous implications for understanding work life and learning processes. For instance, notions of participation are often limited to human interactions, focusing on social relations, cultural forces, and the ways in which humans “use” tools or move through “contexts” (Fenwick 2010). In sum, theories of workplace learning have evolved and shifted the focus from individual and primarily formal learning to both informal and formal learning on the individual, group, and organizational levels (Hager 2011).

Workplace learning has often been characterized by the dichotomy between formal and informal learning (see, e.g., Malcolm et al. 2003; Cairns and Malloch 2011). Formal learning takes place in the context of organized training and learning activities and may have features such as a designated teacher or trainer and qualifications or credits (Eraut 2000; Slotte et al. 2004). Informal learning results from opportunities in everyday life and is controlled by the learner, not a trainer or instructor (Kyndt and Baert 2013). Although sometimes incidental and related to daily work activities, informal learning can also be purposeful when the learner determines a need to learn and chooses what, when, and how to learn (Marsick and Watkins 2001). Thus, informal learning refers to activities initiated by learners or employees that can also have the purpose of developing professional knowledge and skills (Lohman 2005; van Rijn et al. 2013).

There has been a continuous debate over whether workplace learning can be called informal. Almost 30 years ago, Marsick and Watkins (1990) separated formal learning from informal and incidental learning. According to their division, informal learning can be deliberately encouraged by an organization, but incidental learning occurs as a by-product of other activities. Eraut (2000, 2004) also emphasized the intentionality of learning and distinguished between three different types of informal (or non-formal) learning: implicit, reactive, and deliberative. In his classification, implicit learning is related to tacit knowledge, and reactive learning to unplanned, nearly spontaneous activities in the middle of action, such as reflecting, asking, observing, or recognizing future learning opportunities. Informal learning can also include deliberative and planned activities, such as discussions, problem-solving, and rehearsing. Billett (2002) argued that calling workplace learning informal is problematic as organizations and social communities always have formalized structures. He, therefore, considered workplace learning to be highly structured as it is always dependent on the affordances, social practices, and goals of organizations. Furthermore, there seems to be a tendency to overlook the educational worth of everyday learning activities and experiences, which are often considered to only support what is taught in educational institutions (Billett 2002).

It has been questioned whether seeing the formal and informal learning as separate is needed as they can also be considered to be complementary (Slotte et al. 2004). Slotte et al. (2004) emphasized that informal learning and tacit knowledge alone may lead to bad habits or practices. Similarly, Dale and Bell (1999) suggested that the drawbacks of informal learning are related to its unconscious nature and some of its outcomes, such as bad habits and narrow or superficial skills. Studies on professional expertise thus have emphasized different types of knowledge. For instance, the model of integrative pedagogy suggests that learning environments and situations should include and integrate practical, theoretical, self-regulative, and sociocultural knowledge (Tynjälä 2013; Slotte et al. 2004). Marsick et al. (2017) stated that new approaches to workplace learning emphasizing its complexity and dynamic nature break down the previous boundaries among formal, informal, and incidental learning. It has been concluded that in most contexts or situations, learning is characterized by attributes and elements of both formal and informal learning (Choi and Jacobs 2011; Malcolm et al. 2003; Manuti et al. 2015). As Janssens et al. (2017) summarized workplace learning involves both



formal and informal learning activities, but these have varying degrees of intentionality, consciousness, planning, and systematic support from organizations. Moreover, it seems that empirical research on workplace learning often does not differentiate between informal and formal learning (Kyndt and Baert 2013).

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## Workplace as a Site for Learning

### Context Factors

Even though the context does not define or predict learning, Cseh et al. (1999), for example, emphasized the importance of context, which influences how the learner interprets the situation, what is learnt, and what kind of resources are available. Although previous research has identified various factors related to contextual matters of informal learning in the workplace, there is no single categorization of these factors (Coetzer et al. 2017). By using a survey instrument to identify factors promoting learning in the workplace, James and Holmes (2012) separated between factors related to task complexity and environment. Coetzer et al. (2017) carried out a literature review on small businesses and their characteristics as sites for informal learning. They underlined *job characteristics*, but further highlighted the social context and networks by separating *relational characteristics* from internal *organizational characteristics*.

Regarding job characteristics, the demands-control-support (DCS) model (e.g., Karasek 1979) proposes that based on subjective perceptions high levels of learning opportunities arise from combining demanding work activities, high levels of job control, and high levels of social support. In a similar way, the job demands-resources (JD-R) model (Bakker and Demerouti 2007) suggests that job resources, such as strong relationships and opportunities for advancement and support, affect well-being and stimulate personal growth, learning, and development. Autonomy and challenges have also been found to stimulate job crafting, which refers to employees' own initiative with altering tasks and job characteristics to better balance the demands and resources to their needs (Demerouti 2014). In their study, Harteis et al. (2015) adopted the operationalization of DCS model. Their study on perceived workplace learning support included three main job characteristics: work demands (including task significance, task variety, task complexity, information processing, and problem-solving), control provided (including autonomy regarding planning, decisions, and methods), and also social support of the work environment (feedback and interaction).

Nikolova et al. (2014) established that several studies had attempted to develop instruments measuring informal workplace learning, but they were often context-dependent and not intended to be used in various settings. Thus, they presented a multidimensional scale measuring the learning potential of the workplace (LPW), which was designed for diverse occupations and settings. They argued that workplace learning has task-based and interactional core components. Altogether, their model consisted of four factors: learning through reflection and experimentation and learning from supervisors and colleagues. To test the construct validity, they also analyzed autonomy and task variety in relation to work-based learning and found them both to



be positively and significantly associated with learning (Nikolova et al. 2014). Kyndt et al. (2009) studied learning conditions, which were created not only by the environment but also by the employees themselves. In their quantitative approach, the items related to work organization, internal and external learning networks, learning and work coaching, and information systems. From the sample of 1162 employees in 31 different organizations, they concluded that supporting opportunities for feedback (e.g., working in teams, peer feedback) and possibilities to acquire knowledge contributed most to workplace learning. Skule (2004) aimed to empirically derive a framework of learning conditions associated with learning-intensive jobs, which was intended to identify general learning conditions that were not dependent on a certain industry, type of company, or individual factors. In the first phase of the study, personal interviews were conducted in 11 private and public sector enterprises (4–8 interviews in each). In the second phase, the interviews were followed by telephone surveys from 1300 private sector and 200 public sector employees. The results revealed that universal job-related factors included a high degree of exposure to changes and demands, managerial responsibilities, extensive professional contacts, superior feedback, management support for learning, and rewarding of proficiency.

Similar factors have also been found important in single-organization case studies. Ashton (2004) analyzed wider organizational structure and culture impacting learning and based his study on in-depth interviews with 195 employees from different positions within an organization in the engineering field. The results emphasized access to knowledge and information; practicing skills; availability of the support and feedback; and rewarding learning. Ellinger's (2005) qualitative case study with 13 participants emphasized the role of leadership and management. Learning-committed leadership and management promoted coaching and mentoring and provided support, positive feedback, and recognition, whereas unsupportive behavior and micromanaging appeared to influence learning negatively. Also, work tools and resources facilitated learning, but also impeded learning by distracting or decreasing personal interaction. Concerning relationships, the role of power relationships or asymmetries affecting learning should also be acknowledged (Clarke 2005; Hökkä et al. 2017).

As a whole, learning climate and culture is needed to support learning at the organizational level. This climate and culture is built by leaders, managers, and others who influence the learning of others and create the environment that shapes, supports, and eventually rewards the desired results (Marsick and Watkins 2003). Besides a positive learning climate in general, recently, for example, fun has also been considered as a means to promote informal learning and, eventually, innovation, creativity, and performance (Tews et al. 2017).

## Individual Factors

Previous research has widely established that learning potential in the workplace depends on both *context* and *individual factors* (*personal factors* and *demographic variables*), but especially on the interrelationships between them (e.g., Billett 2008; Kyndt and Baert 2013). Lohman (2005) compared school teachers' and HRD

professionals' engagement in informal workplace learning activities. Regarding personal characteristics, she found seven personal characteristics that enhanced the motivation of both groups: initiative, self-efficacy, love of learning, interest in the profession, commitment to professional development, a nurturing personality, and an outgoing personality. Studies regarding personality traits have often used the Big Five personality factors, but, for instance, Noe et al. (2013) also highlighted the importance of exploring positive traits and states and self-concept traits, such as self-esteem and goal orientation, in learning contexts. However, van Rijn et al. (2013) pointed out that the research on employees' individual differences has focused too much on motivations, such as self-efficacy and learning motivation. They argued that to understand engagement in informal workplace learning, attention should be paid to both motivational and self-construal factors, the latter referring to how an individual can define oneself either as autonomous or as connected, for example, to a supervisor or a team. For example, in their study on employees in vocational schools, they noticed that career motivation had an overall positive effect, whereas strong individual self-construal strengthened its effect on keeping up-to-date and strong collective self-construal on knowledge sharing. Billett (e.g., 2008) emphasized the role of the work setting and its affordances, as well as the agency, i.e., intentional actions of individuals. In a recent qualitative meta-synthesis of their previous five studies, Hökkä et al. (2017) also found a reciprocal relationship between agency and emotions, and they expressed the need to further explore the connections between negative and positive emotions and learning at work. Emotions have also been explored in relation to error situations and learning in the workplace (Rausch et al. 2017; Zhao 2011).

Demographic variables, such as age, gender, ethnicity, educational level, and tenure, as well as organization type and size, have often been controlled in quantitative analyses (see, e.g., Harteis et al. 2015; Kyndt et al. 2009; van Rijn et al. 2013). Harteis et al. (2015) concluded that previous research and empirical evidence related to age and learning potential of the workplaces provided an ambiguous picture. Furthermore, in a sample of 459 employees in different occupations, companies, and workplaces, they did not find any relevant relationship between employees' ages and learning support at the workplaces. In addition, their cross-sectional sample showed no significant differences between men and women. In sum, they concluded that the opportunities that shaped learning related to occupational standing and, therefore, the level of education was a crucial factor. The research has indeed implied that learning opportunities increase with a higher level of education of employees, which may be a challenge for workers with low education levels (Kyndt et al. 2009; Skule 2004). For example, Ashton (2004) noticed that access to knowledge, support, and a system of rewards favored senior staff and managers, whereas junior staff had more limited possibilities to gain knowledge and skills.

In a systematic review of work-related learning and its antecedents, Kyndt and Baert (2013) noted that sociodemographic variables have been widely explored and measured in previous studies. They suggested that instead of including a set of variables, future studies should aim to provide more coherent models. As noted, individual factors comprise multiple variables, such as cognitive, motivational, emotional, and demographic factors. Ultimately, the interrelationships of these

factors affect learning. However, empirical research must always focus on how a particular selection from the universe of variables affects learning.

## Learning Activities

Workplace learning activities are often divided into planned activities, such as mentoring, coaching, and supervision, and unplanned learning activities that occur during job performance, such as problem-solving, observation, or participation. However, Clarke (2005) noted that such division is problematic, as all of these activities can be either planned or unplanned. One way to categorize informal workplace learning activities is to divide them into collaborative and individual learning activities (e.g., van Rijn et al. 2013). It seems that people in different occupations and career levels prefer different kinds of learning activities. Lohman (2005) found that teachers rely on interactive and social learning activities, whereas HRD professionals rely more on independent learning activities. Daley (1999) found that novice nurses prefer formal training, reading journals, and reviewing procedures, whereas experts consult peers and other professionals. In practice, participating in work activities, interacting with, observing and imitating others, and accessing support and guidance provide rich learning opportunities (Billett 2002; Eraut 2004). For instance, Coetzer (2007) suggested that observing colleagues is central to learning. Recently Froehlich et al. (2017) developed and validated a generally applicable scale to measure social approaches to work-related informal learning. In their study, social approaches referred to seeking feedback, help, and information, which are all activities that the learner or employee must proactively engage in.

Alternatively, Noe et al. (2013) proposed that informal learning includes cognition and behaviors that fall into three categories. The first category is *learning from oneself*, which includes reflecting on how to improve one's performance and experimenting with new ways of performing one's job responsibilities. The second category is *learning from others*, such as peers and supervisors, to obtain performance feedback, discuss new ideas, and learn new technologies. Finally, the third category is *learning from non-interpersonal sources*, whereby the individual acquires new knowledge and skills by searching for and reading published materials.

Studies on the nature of workplace learning have mainly described concrete learning activities instead of the learning processes underlying these activities (Tynjälä 2013). Eventually, dividing activities into clear categories is difficult. Learning takes place when, for example, external circumstances such as errors, feedback, questions, conflicts, difficult situations, and the behaviors of others trigger reflection (Rausch et al. 2017; Schley and van Woerkom 2014).

## Learning Outcomes

Research on informal learning outcomes has been scarce (Eraut 2004; Kyndt et al. 2016), and research has focused mostly on workplace environment variables

promoting or inhibiting learning (Clarke 2005; Kyndt et al. 2014). Cairns and Malloch (2011) defined workplace learning as a process of stimulating the development of competencies and creating behavioral change. The professional performance and competence consisting of various competencies integrating knowledge, skills, and attitudes are closely related to workplace learning (Mulder 2014). However, the concept of competence is not further discussed in this chapter, because conceptions of competence are varied (Mulder 2014) and the research on informal workplace learning seems to have focused on more specific learning outcomes (e.g., Janssens et al. 2017; Kyndt et al. 2014).

Eraut (2004) identified a wide range of workplace learning outcomes related to task performance, personal development, role performance, teamwork, judgement, decision making, problem-solving, awareness and understanding (of other people, contexts, values, etc.), and academic knowledge and skills. Billett et al. (2005) stated that the outcomes of participation and engagement in work practices relate not only to changing individuals but also to the remaking of cultural practices in the workplace. Workplace learning also affects organizational performance by enhancing competence, productivity, and employee enthusiasm (Park and Jacobs 2011).

Kyndt et al. (2014, 2016) further argued that informal learning outcomes are unpredictable and workplace-specific. For example, in the context of teachers' informal learning, a systematic review (Kyndt et al. 2016) identified multiple learning outcomes related to subject knowledge, pedagogical knowledge and skills, and professional attitudes and identity. Kyndt et al. (2014) also developed and validated a three-factor model for measuring informal workplace learning outcomes consisting of *generic learning outcomes*, *job-specific learning outcomes*, and *organizational-level learning outcomes*. The study suggested that Eraut's (2004) learning outcomes match generic learning outcomes for many professions. Janssens et al. (2017) further studied the relationship between learning conditions and informal learning outcomes. They found that access to information and opportunities for feedback, reflection, and coaching were associated with generic and organizational-level outcomes, whereas coaching was important for job-specific learning outcomes. It appeared that learning job-specific skills required workplace experiences, but these experiences could be enhanced with guidance.

Table 1 presents an overview of the components of workplace learning and summarizes some previously presented factors related to informal workplace learning.

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## Conclusion

This selective review provided an overview on informal workplace learning and discussed research results and directions on related factors. This chapter may serve as a base for employees, managers, and HRD professionals to understand this type of learning. Although learning is highly person-dependent, some contextual factors seem to facilitate informal workplace learning. In providing some practical guidelines for promoting and encouraging informal learning, there are particular points to be considered:

**Table 1** Overview of the components of workplace learning and prominent factors related to informal workplace learning

Context and individual factors	Learning activities	Learning outcomes
<p><i>Job characteristics</i>                      Work demands (e.g., task significance, task variety, task complexity, exposure to changes)                      Autonomy (planning, decision, methods)  <i>Relational factors</i>                      Social support (feedback, interaction, networks, coaching)                      Power relationships  <i>Organizational factors</i>                      Learning climate and culture                      Work tools and resources (e.g., information systems)                      Leadership and management                      Rewards and recognition  <i>Personal or psychological characteristics</i>                      Personal history                      Motivation                      Self-efficacy                      Personality                      Emotion                      Agency  <i>Demographic variables</i>                      Age                      Gender                      Ethnicity                      Tenure                      Education                      Organization type and size</p>	<p><i>Learning from oneself</i>                      Reflection                      Experimentation  <i>Learning from others</i>                      Learning from colleagues                      Learning from supervisor                      Observation                      Collaboration  <i>Learning from non-interpersonal sources</i>                      Searching and scanning information (e.g., Internet, professional magazines, journals)                      Learning from errors, conflicts, etc.</p>	<p><i>Generic learning outcomes</i>  <i>Job-specific learning outcomes</i>  <i>Organizational-level learning outcomes</i></p>

- Work tasks and the opportunities they provide for learning in daily work.
- Social support and the collaborative nature of workplace learning; various communities, interaction, and networking inside and outside of the workplace can benefit learning.
- Leaders’ and managers’ engagement in supporting learning; learning climate and culture is built by leaders and managers who can also promote informal learning by providing recognition or rewards and thereby create further incentives for employees to learn.

However, paradoxically, these kinds of guidelines also weaken the informal nature of workplace learning. Informal learning should be learner-driven, so that learners or employees themselves are able to determine the learning needs, spaces, and methods. But informal workplace learning which is deliberately encouraged by

an organization inevitably becomes more organized and formal. Consequently, making a distinction between formal and informal workplace learning seems to become less appropriate, despite the informal context. All learning situations usually include both formal and informal characteristics which influence the nature and effectiveness of the learning (Malcolm et al. 2003).

The 3-P model of workplace learning originally aimed to offer an analytical tool for understanding the diversity and different emphases in the field of workplace learning, thereby helping researchers find areas of interest and plan future studies (Tynjälä 2013). There is clearly an increased interest in workplace learning, and multiple reviews have discussed work-related learning in recent years (see, e.g., Kyndt and Baert 2013; Noe et al. 2014; Manuti et al. 2015; Tynjälä 2013). This chapter may help researchers with future research designs, for example, by directing attention to the interplay between different factors and components. However, the concepts of work and workplace are also undergoing changes, which should be noted in future research (Cairns and Malloch 2011). Although the dichotomy between formal and informal learning is questioned, it is well established from a variety of studies that research focusing especially on informal learning is challenging. For instance, the systematic review by Kyndt and Baert (2013) showed that measuring work-related learning has largely focused on the participation in formally organized learning activities. When studying informal learning, respondents are more likely to refer to formal rather than informal learning (Eraut 2000). Since informal learning is often unconscious, invisible, and not recognized as learning, it is often not reported, its meaning is underestimated, or the learning is difficult to observe (Eraut 2000, 2004; Froehlich et al. 2017; Marsick et al. 2017). Consequently, the research field should also reach out to other fields to extend the understanding of the complex phenomenon of workplace learning (Billett and Choy 2013).

The review showed that empirical studies in the field have used both qualitative and quantitative approaches. Qualitative research and the case study method have offered valuable insights, but theoretical frameworks, for example, have often lacked conceptualizations (Skule 2004). Quantitative research has employed a number of different measurement instruments, but the studies have usually applied cross-sectional survey designs (see, e.g., Haemer et al. 2017; Harteis et al. 2015). Both approaches have largely relied on self-reporting methods of data collection. Although widely applied, these methodological choices might lead to common method biases (see Podsakoff et al. 2003). Kyndt et al. (2016) suggest that future research might benefit from a mixed-method approach which observes the context-specific and person-specific nature of learning. They conclude that a research design with a theoretically grounded quantitative phase with a large sample followed by a qualitative (sub)sample of the participants might be beneficial in elaborating results. There is also a need for longitudinal designs and data which would better allow the investigation of relationships between different factors and learning outcomes (Haemer et al. 2017; Kyndt et al. 2014). In addition to a focus on the individual level, group and organizational variables could also be explored as contextual factors (Haemer et al. 2017). Similarly, the mediating effects of the wider context, including

society and culture, should also be further investigated (Billett and Choy 2013). This chapter highlights the importance of understanding and paying attention to the complex contexts and the nature of workplace learning.

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# Antecedents of Team Learning Distilled from Both Qualitative and Quantitative Research

# 38

Renate Wesselink

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**Abstract**

Teams in organizations are increasingly seen as an important level and leverage for innovation and change, because they can help to let individual ideas develop into new institutional practices and support the cascading of new developments into the organization. This, in turn, can lead to the necessary innovation and change. However, why do some teams perform really well and others not? A trustworthy predicting variable of team performance is team learning. A vast amount of research has been done on this topic. However, in team learning research various differences between results were observed. The main aim of this chapter is to make an inventory of antecedents influencing team learning, and to analyze the differences between results found in quantitative and qualitative studies. Results show that many antecedents could be identified, based on both quantitative and qualitative research. And as expected there are significant differences between both strands of research. Whereas quantitative research mainly focuses on testing hypotheses of antecedents influencing team learning, qualitative research tries to unravel mechanisms on how these antecedents work and how team learning processes are influenced. Majority of the research belongs to the quantitative strand, whereas there are major questions open that can only be answered by means of qualitative research.

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**Keywords**

Antecedents of team learning · Professional organizations · Quantitative and qualitative methods · Organizational learning

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**Introduction**

When talking about training and learning in organizations, one refers to Human Resource Development (HRD) in which HRD consists of formal trainings (e.g., courses and trainings) and workplace learning (e.g., learning from a more experienced colleague). Workplace learning is also known as informal learning. Whereas formal trainings have clear learning objectives, often take place at a separate venue, and close with a certificate or diploma, informal learning (activities) or workplace learning (activities) takes place while employees are doing their work (Tynjälä 2008). It is seen as a by-product of their work. Although seen as a by-product, HRD researchers (and practitioners) increasingly see the added value of stimulating informal learning. When companies allow their employees to rotate their tasks or to work in teams, both their productivity and commitment may increase (Marsick and Watkins 2003) or by means of teamwork the innovativeness of the company can increase (Hülsheger et al. 2009). Although research results present informal learning as a concept (even presented as a by-product) that can contribute significantly to change and/or innovation, its appearance is not self-evident and needs careful consideration and investment from the company side. Take, for example, the

organizational structure (i.e., teams) or the role of leadership (i.e., transformational): both have significant influence on informal learning, and organizations should take that into account when designing organizational processes.

The focus in this chapter will be on team learning and its antecedents. Before these concepts can be explored, some supporting concepts need clarification. First, some concepts and their definitions will be introduced, before the core of the chapter is presented. While reading, the following should be kept in mind. The theoretical foundation for looking at more informal or workplace learning (used as equivalents in this chapter) originates from the participation and knowledge creation metaphor (Sfard 1998). Knowledge is seen as something that can be created by interacting with others and that goes beyond the more traditional approach of knowledge as something that can be acquired.

### **Spin-Off of Teams**

The focus in this chapter will be on teams in professional organizations and especially on antecedents influencing team learning within and beyond these teams. There has been a significant increase in the use of teamwork in organizations over approximately the past four decades. It is stated that due to a growing emphasis on knowledge, more dynamic environments, and increasing knowledge inflation, there is an increasing effort being put into predicting team effectiveness (Raes et al. 2015). There are multiple reasons, from different scientific fields within social sciences, which underpin the additional value of working in teams. When it comes to organizational development or organizational learning, teams are considered as the building blocks of organizations (Senge 1994) and levers for organizational development and organizational change (Crossan et al. 1999). As described in the work of Crossan et al. (1999), teams are pivotal on both the learning processes exploitation (e.g., improvement of the current system) and exploration (e.g., exploring new ways of working). Simultaneously, from a more economic point of view, teamwork leads to increased productivity and innovation (Hülshager et al. 2009). Working in teams accelerates, for example, innovation and new product development and reduces employee turnover. From an employee point of view (or Human Resource Management (HRM)), the quality of work life improves (Bosch-Sijtsema et al. 2011), because employees belong to a small unit and feel responsible and committed to make that smaller unit work. Or they are more satisfied with their job because of the experience of more autonomy. These are just some examples to illustrate the diversity of the added value of working with teams. To summarize this, both the organization and the individual employee can potentially benefit from working in teams.

### **Definition of Team**

To make sure the same is understood by the concept of “team,” a definition of this is provided. In this chapter, teams are considered as complex systems, and at the same

time part of larger complex systems (i.e., the organization), and therefore the definition by Cohen and Bailey (1997) is adopted: “A team is a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems” (Cohen and Bailey 1997, p. 241). Because the focus in this chapter is on team learning and not teams as such, the discussion on the concept of team will not be further elaborated. One should realize that this conceptualization is a choice, open for debate, but attuned with the content of this chapter.

## Team Performance

Empirical research demonstrates that there is considerable variance in team performance (Hackman 1989). Whereas some teams perform really well, others have difficulties with performing anything, even when they are in the same organization (Edmondson 2002). This is an interesting observation and studied in many occasions and disciplines. A vast amount of empirical research has been done on team performance (see, e.g., Edmondson 1999) in the field of learning organizations. Many researchers have demonstrated that the relationship between team performance and its influencing factors is complex. Team learning is one of those factors that receives a lot of attention. Team learning is considered as one of the crucial antecedents for team performance and innovation (Drach-Zahavy and Somech 2001). Other influencing factors on team performance are leadership behavior and goal clarity (Savelsbergh et al. 2010), for example. Furthermore, these researchers revealed that there are no differences in assessment of what are important factors influencing team performance between team leaders (those leading within a team), supervisors (those leading outside a team), and team members themselves. So, team learning is seen as one of the influencing factors for team performance and innovation by all involved stakeholder groups (Savelsbergh et al. 2010).

## Team Learning: Process Versus Outcome

Team learning is seen as a solid predictor for team performance. But what is exactly meant by team learning? The answer is a complex one. Team learning is a relatively new subject and taken up in multiple disciplines (as teamwork is). Although attention from multiple disciplines speeds up the conceptual and empirical development of team learning, it also leads to confusion and false interpretations because of the confusion (Decuyper et al. 2010). To mention one aspect that contributes to confusion is the process versus outcome discussion. Learning can be conceptualized on the one hand as a process and on the other hand as an outcome. Same holds for team learning. Whereas Edmondson (1999) defines team learning from a process perspective with the following definition: “an ongoing *process* of reflection and action characterized by asking questions, seeking feedback, experimenting,

reflecting on results, and discussing errors or unexpected outcomes of actions” (p. 353), Wilson et al. (2007) define team learning as “a *change* in the group’s repertoire of potential *behaviour*” (p. 1043). Some scholars make a combination of both perspectives and conceptualize team learning as follows: “as a process, group learning involves the activities through which individuals acquire, share and combine knowledge through experience with one another. Evidence that group learning has occurred includes changes in knowledge, either implicit or explicit, that occur as a result of such collaboration” (Argote et al. 2001, p. 370 in Wilson et al. (2007)). Based on the findings of this chapter, it can be stated that in most cases team learning is approached as a process, and in most cases, it is described as team learning behaviors. Only a few articles choose to describe team learning as an outcome. For the separate studies reported on in this chapter, the approach will be mentioned.

## Team Learning Processes

Whereas the outcome of team learning can be more or less anything (e.g., change of behavior, new knowledge), the processes of team learning are identified and studied intensively. Decuyper et al. (2010) did a review of team learning activities (also referred to as behaviors) and came up with a set of team learning processes. These basic team learning processes are *information sharing* (team members sharing previously unshared information with other team members), *co-construction* (which refers to team members sharing previously unshared information with other team members), *constructive conflict* (team members negotiating and discussing different perspectives of team members), *storage, retrieval, team activity* (actually doing something together, i.e., experiment), *team reflexivity* (questioning the team process and possible outcomes), and *boundary crossing* (getting information from sources outside the team). Whereas sharing, co-construction, and constructive conflict are so-called basic processes, which happen when teams are interacting together, storage, retrieval, team activity, team reflexivity, and boundary crossing are called facilitative processes, which should stimulate the basic processes. Facilitative team learning processes do not necessarily take place during the team interactions. So to share information during a meeting, it is good to cross boundaries and learn from others outside the team, for example. Van Woerkom and Van Engen (2009) take these three basic processes together (knowledge sharing, co-construction, and constructive conflict) and call them *information processes*.

Similar to team performance, there is a huge variety on the extent to which teams show team learning. Edmondson (2002) investigated the extent to which teams were actually doing something different (learning as an outcome) based on team learning behaviors. Former research mainly revealed insights about team learning processes either being present or not and with this research she wanted to learn more about what teams actually do. Based on in-depth case studies of 12 teams, she unraveled three kinds of teams: first, teams that were going through an iterative process of reflection and action; second, teams that were only reflecting; and third, teams that

were doing nothing with regard to learning. All three types appeared in the same organization. So, team learning behaviors appeared in some teams (reflection and action), but not in others while those teams were situated in the same organizational context. So, differences within teams with regard to team learning behaviors do exist.

## Quantitative Versus Qualitative Research on Team Learning

Attempts to investigate team learning processes have encountered the challenge that it appears difficult to capture the emergence of team learning processes. Team learning processes are different processes and interrelated processes at the same time. These insights originate, for example, from research in which in the same teams both qualitative data (Zoethout et al. 2017) and quantitative data (Bouwman et al. 2017) were collected. Based on a self-reported questionnaire, team members reported to a high extent team learning processes. Based on video data, collected in a selection of these aforementioned teams, hardly any team learning process could be detected. This difference in observations was the motive to investigate whether there are differences and similarities in research on team learning and antecedents of team learning in either quantitative or qualitative research.

## Approach of This Chapter

As said, team learning is studied in many different disciplinary fields, and consequently, a large number of topics are related, or potentially related, to team learning. Firstly, the choice was made to limit the search to peer-reviewed articles in management research literature (using Scopus and Web of Science) that explicitly used the terms team learning and treated team learning (also) as a dependent variable and only to include empirical studies (studies that were based on quantitative or qualitative data collected in the field and not based on laboratory experiments). Secondly, a snowballing method was applied after the first list of articles came out of the search engines. The choice was explicitly made to only use articles that were based on studies in professional organizations, not being educational institutions, because the profession of teacher does have a totally different history and according to Vangrieken et al. (2013) teacher “teams” mostly do not seem to be proper “teams” when bearing the criteria of a team as defined by Cohen and Bailey (1997). Furthermore, completeness was traded for richness. Overall, it was the aim to characterize the nature of both quantitative and qualitative research strands from the last 20 years to give the reader an idea of what is known and what not on the topic of antecedents of team learning. In the remainder of this chapter, the results found in literature are presented. First the results from qualitative research are presented, followed by the results from more quantitative research. In both cases more or less similar topics will be grouped and discussed jointly.

## Antecedents of Team Learning Based on Qualitative Results

The number of qualitative papers that research antecedents of team learning is limited. As far as this study revealed, not so much research is done with the help of qualitative methods. The results found are given in the following.

### Conditional Team Learning Processes

A well-known starting point for this section is the review done by Hannes et al. (2013). They did a systematic review and included only qualitative research to integrate findings on the experiences of employees with team learning in the context of their work or vocational learning setting. Their main findings were that no matter what type of team learning (they distinguish active-reflective, feedback-feedforward, single-loop learning, or knowledge creation) is occurring on the work floor, there are three conditional team learning processes that always should be taken into account: *communication, boundary crossing, and knowledge sharing*. These as such are not antecedents, but team learning processes to facilitate the basic team learning processes (see Decuyper et al. 2010). Interesting to notice is that both teams of scholars put knowledge sharing in different categories. Whereas Decuyper et al. (2010) frame knowledge sharing as a basic team learning process, Hannes et al. (2013) frame it as a conditional learning process. A second observation by Hannes et al. (2013) is that *power differences* should be minimized or eliminated and hierarchical structures that reproduce power differences should be analyzed. Team leaders should take responsibility to influence the power relationships inside their teams and as a result positively influence the learning that takes place.

### Time

Sparrow and Heel (2006) were one of the first to include the time dimension into research on team learning. A single participant, who talked to multiple members of healthcare teams, identified four components that support team learning: (a) *knowledge sharing*, (b) *work culture and environment*, (c) *action*, and (d) *personal mastery*. Knowledge sharing is, in accordance with Decuyper et al. (2010), considered as a team learning process. The other three factors support team learning on their own level. Furthermore, Sparrow and Heel (2006) discovered, based on their single participant research, that the course of time did not influence the nature of team learning processes. Somewhat similar was concluded by Raes et al. (2017). The aim of their qualitative longitudinal study was to create a more in-depth picture of the emergence of team learning processes throughout the life span of temporary project teams. Although they framed their expectations clearly, no time-related patterns in terms of occurrence of type and topic of basic and facilitating team learning processes (Decuyper et al. 2010) were found over the meetings and across the teams. This implies that in the beginning of a (project) team



or at the end of the team, the same team learning processes occur and that the time span of a project team does not influence the team learning processes.

## Team Leader Behaviors

Boak (2016) did an in-depth study with 35 teams in the healthcare sector, in the form of action research and identified processes within the teams and factors in the teams' environment, which enable team learning. Based on his findings, the team leader plays a pivotal role. Team leaders should create commitment among their team members, facilitate time to discuss, strive for concrete objectives and steer on how to reach these objectives, monitor and review progress, combine determination and flexibility, and organize communication with others outside the team.

## Contextual Factors

Furthermore, in the same research Boak (2016) identified multiple contextual factors, and these can be summarized as follows: support of senior managers who are not part of the team, availability of information technology resources and of information about the workings of the wider system, and finally a financial and organizational stable environment.

## Rivalry

In general, research into team learning processes is done based on the assumption that all efforts in teams have to lead to some kind of smooth cooperation to be effective. Lotz (2010), however, is convinced that not only the harmony-based model contributes to learning but that competition, or in other words *rivalry*, can also contribute to learning in teams. Her reasoning is that harmony-based learning tends to reproduce the existent, while rivalry-based learning tends to trigger innovation due to an inherent conflict. With this in mind, she did interviews with members of two teams. Based on those interviews, in which she explicitly asked for rivalry, she unraveled four processes that underpinned her assumption that rivalry can support team learning. Firstly, when organizational members perform and make results and are *rewarded in a transparent way* within the teams, members want to improve to perform as good as possible and between teams they become each other's competitors. Secondly, because team members engage in and shift between various work roles, they learn how the different roles work and they want to become the *role master*. Thirdly, team members build up a *professional work identity* by gaining skills and competencies, and they want to show they have the best ideas on how to improve the existing way, and fourthly, team members strive for *social reputation* within and across teams. They want to be in favor for the next innovative project. Based on these factors not only cooperation and creation consensus but also rivalry

seems to be helping team learning to take place. Lotz (2010) ends the discussion with stating that rivalry and consensus have to be in balance.

It was expected that qualitative studies focus more on the mechanism: what antecedents contribute in what way to team learning. However, only some articles present these mechanisms (e.g., Boak 2016; Lotz 2010); others focus on identifying (contested; Lotz 2010) antecedents with describing the mechanisms. The next part is about what quantitative research brings us.

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## Antecedents of Team Learning Based on Quantitative Results

There is a vast amount of articles dealing with antecedents of team learning studied by means of quantitative methods. The following is a summary of antecedents that were found and to prevent ending up with one extensive laundry list of antecedents, the following categories were identified: (1) factors with regard to internal team processes, (2) factors originating from team leaders and their behavior, and (3) contextual factors or in other words external factors that influence team learning. Firstly, factors influencing internal team processes are presented.

### Antecedents Originating from Internal Team Processes

The first set of antecedents deal with the internal team processes, such as diversity. And although team leader behavior could be considered as an aspect of internal team processes, it is discussed in the following section; the number of studies on team leader behavior influencing team learning is extensive, and it is considered justifiable to create a separate section.

#### Team Structure and Psychological Safety

Bunderson and Boumgarden (2010) were interested in the relationship between *team structure* and team learning orientation. With team learning orientation, they meant the shared goals that are implicitly pursued by team members within the context of a team. Bunderson and Boumgarden (2010) have the conviction that team structure does not per definition diminish team learning orientation as expected by many scholars (i.e., more rules means automatically less room for experimentation). Bunderson and Boumgarden (2010) expected that clarity of roles and tasks could also support team learning orientation and they were right. At least in situations where it concerned self-directed teams dealing with repetitive tasks. Based on a study done in Fortune 100 high-technology firms in which each of the teams was responsible for a specific task within the firm's overall production process, they came to this conclusion. In these teams it appeared that team structure affects team learning orientation through information sharing and conflict frequency, but not through psychological safety. There was also a positive direct effect of team structure on team learning orientation. Based on their findings, they also concluded that, as discovered by Edmondson (1999), *psychological safety* did have a positive influence

on team learning via the mediating variables of information sharing and conflict frequency.

A vast amount of studies have been done on the role of *psychological safety*. Sometimes as a predictor of team learning or team performance and in many instances as mediating variable, and in the majority of these studies, psychological safety is an important factor influencing team learning in a positive way. To mention one example, Leicher and Mulder (2016) studied nursing teams in elderly homes, and they found that having a safe team climate (i.e., psychological safety), assessed on the individual level, has a positive influence on team learning behaviors. As a team member, you feel that you can bring in anything without any repercussions (Edmondson 1999).

Bresman and Zellmer-Bruhn (2013) added another kind of structure. They studied to what extent organizational structure and team structure influenced team learning. To measure team learning, they make a distinction between internal and external team learning. The former captures interactions among team members inside the team boundary, and the latter captures interactions beyond the team boundary with individuals and groups in the context within which the team is embedded. Bresman and Zellmer-Bruhn (2013) found the same result as Bunderson and Boumgarden (2010) that more *team structure* (measured by specialization, hierarchy, and formalization – see Bunderson and Boumgarden (2010)) is positively related to both internal and external team learning and that in both instances psychological safety has a mediating role between structure and team learning. This is in contrast with the findings of Bunderson and Boumgarden (2010) where psychological safety did not act as a mediating variable. *Organizational structure* has a negative relationship with both internal and external team learning, and a possible explanation is that when team members experience limited task autonomy, there is less willingness to show team learning processes. However, for teams with more team structure, the relationship between more organizational structure and external learning is negative. For teams with less team structure, the relationship between organizational structure and external team learning is positive. So, organizational structure can compensate for a weak team structure in the case of external team learning.

In their research Li and Huang (2013) were particularly interested in the influence of *specialization*, *credibility*, and *coordination* on exploitative and exploratory learning. They take the stance that team learning is an outcome. Whereas credibility influenced both types of team learning positively, so more trust in a team means more exploitation and exploration, specialization only influenced exploitation positively and coordination only influenced exploration positively. A plausible explanation for the relationship between coordination and exploitation (and not exploration) is that specialization may decrease the willingness of team members to gain diverse knowledge and perspectives from outside their professional domain, thus hindering exploratory learning. And the fact that coordination only increases exploratory and not exploitative learning might imply that coordination offers opportunities for experimentation and innovation needed for exploration activities.

## Diversity and Identification

In general, it is assumed that expertise diversity leads to more team learning and that many teams should benefit from their diverse composition. However, there are researchers who are less convinced of this statement. Van Der Vegt and Bunderson (2005) investigated in teams in the oil and gas industry the extent to which *collective team identification* played a moderator role between *expertise diversity* and team learning (and performance). They expected some kind of U-shaped relationship; in the case collective team identification is high (in which collective team identification means the emotional significance that members of a given group attach to their membership in that group), both low expertise diversity and high expertise diversity have a positive influence on team learning behaviors. This is confirmed by Rosendaal (2009) in the field of large multinational companies. In the case of low team collective identification, both extremes of expertise diversity hardly influence team learning behaviors. An inverse U-shaped nonlinear relation is at stake when team collective identification is low, meaning that when members do not feel attached to a team and expertise differs a lot or hardly anything, team learning processes are not stimulated. Diversity is not in all cases a stimulus. This holds also in the case of *value diversity*. Rosendaal (2009) discovered that *value diversity* is a factor that hampers knowledge sharing. However, the positive influence of collective identification decreases the hampering relationship between value diversity and knowledge sharing.

## Stability

On the one hand, one might expect that team turnover (members leaving the team) has a positive influence on a team in general and team learning behaviors in particular. New members bring in new ideas and might spur the learning. On the other hand, one might expect a negative influence on team learning behaviors. Possible routines could be disrupted, and new routines have to be established. Also based on the existing knowledge about psychological safety (e.g., Edmondson 1999), one might expect that with many changes in a team, psychological safety drops, and this has a negative influence on team learning behaviors. Akgün and Lynn (2002) investigated the consequences when teams undergo frequent changes. Based on their results, it can be concluded that in stable environments *team stability* has a positive contribution to team learning processes. The opposite of stability is team turnover. Gerben et al. (2009) did a study on the extent to which *team turnover* influences team learning behaviors. Gerben et al. (2009) expected a U-shaped relationship between team turnover and team learning behaviors; a positive effect is expected when there is a small number of changes and a negative effect when there are a large number of changes. Based on a large-scale research, hosted by a manufacturer working with self-managing work teams, in which 47 teams were questioned in several ways at 2 points in time (there was a year in between), they concluded that team turnover negatively relates with team learning behaviors. So, based on these studies, it can be concluded that stable teams are favorable over high team turnover, when it comes to team learning processes in stable environments.

## Task Complexity

The extent to which team learning takes place also depends on task complexity. Real complex tasks require more learning, one would expect. Lantz Friedrich et al. (2016) were curious to find out how *task complexity*, in the field of lean production systems, added to team learning. Based on their large-scale research (including 54 teams and 491 individuals), they discovered that it is useful to make a distinction between main tasks, supplementary tasks, and additional tasks. Main tasks are what a team is expected to do or sets itself as goals. Supplementary tasks are subtasks necessary to complete the main tasks (e.g., having meetings to set goals), and additional tasks are extra tasks that occur on an occasional basis. For main and supplementary tasks, it holds that they do not influence team learning. Additional tasks, on the contrary, did. These tasks were seen as more complex and many times as unclear, also because they were not carried out regularly and routinely. Therefore it can be stated that complex additional tasks resulted in more team learning than routine tasks did.

## Conflict and Controversy

Although constructive conflict is known as one of the team learning processes, it is not clear to what extent conflict does help or hinder team learning? Van Woerkom and Van Engen (2009) were convinced that *conflict* would have a positive influence on team learning. They reasoned that facile and uncritical agreement within teams could have a negative influence on problem solving, whereas conflicts force individuals to think more deeply and more creatively about the problem at stake to come to an agreement eventually. Not all conflicts are the same, and therefore Van Woerkom and Van Engen (2009) distinguished between task conflicts, conflicts related to the task that has to be done, and relationship conflicts, conflicts between members of the team. They expected that task conflicts would influence team learning behavior positively and relationship conflicts would have a negative influence. The first assumption did not hold for a large sample of employees in the healthcare sector. Task conflicts did not influence team learning in a positive way. This was also shown in the research by Van Der Vegt and Bunderson (2005); conflict does not increase team learning behaviors significantly. Relationship conflicts on the contrary did influence team learning behaviors negatively and especially the particular behaviors of information acquisition, information processing, and storage and retrieval. These three team learning behaviors were less in teams with relationship conflicts. So, based on this one could conclude that conflicts are not helping team learning processes.

Chen et al. (2011) did not want to use the concept of conflict. They introduced in their studies *constructive controversy* or in other words the open-minded discussion of various views for mutual benefit and argue that constructive controversy will stimulate learning behaviors among team members. Based on a large-scale study, they concluded that constructive controversy, as experienced by team leaders, does have a positive influence on team learning (as experienced by team members).

Conflict itself is not helpful, even detrimental; constructive controversy, however, does support team learning behaviors. Possibly it is in the framing of the concepts. Whereas conflicts may have a negative connotation and people do not want to talk about conflicts, constructive controversy has something positive in it.

### Team Internal Affairs

Akgün et al. (2014) studied antecedents of team learning in IT project teams. They investigated *team internal affairs*, as teamwork, communication, trust, and commitment, and one external aspect being management support and to what extent these variables influenced team learning behaviors. They revealed that all factors mentioned influence team learning in a positive way to some extent, teamwork to a marginal extent and management support to a large extent. Yoon et al. (2010) unraveled that *team creativity* has a positive influence on the team learning process of knowledge creation.

### Leadership Style

As a second category of antecedents influencing team learning, leadership style is discussed. As said, this category could also be seen as internal team aspect, but knowing the considerable amount of research done, leadership behavior is discussed as a separate category. First, leadership styles are taken into account. There exist many different kinds of leadership styles. An often used dichotomy is between transformational and transactional leadership. Which type of leadership helps team learning behaviors the most? Kumako and Asumeng (2013) built on the work of Edmondson (1999) and discovered that a *transformational leadership style* has a mediating role between psychological safety and team learning behaviors. Team leaders with a transformational leadership style are leaders who focus on improving the performance of their team members by letting them develop to their fullest potential by granting them responsibility and involving them in decision-making, for example. Ortega et al. (2014) investigated a different kind of leadership style. They wanted to learn to what extent *change-oriented leadership* (e.g., encouraging innovative thinking, scanning the environment) influenced team learning behaviors. From their studies in 107 nursing teams (with 689 respondents), they concluded that change-oriented leadership has a positive influence on team learning behaviors. Savelsbergh et al. (2015) investigated to what extent *person-oriented leadership*, *task-oriented leadership*, and *team stability* influence team learning behaviors. In their analyses, based on 40 project teams in the construction industry, they concluded that all three factors are direct antecedents of team learning behaviors. Although, they expected that team stability would mediate between person- and task-oriented leadership, both person-oriented and task-oriented leadership styles appeared to be variables directly influencing team learning behavior. There is no decisive answer on the leadership styles; different styles appear to have positive influences.

## Team Leader Behaviors

Besides leadership styles, the more specific activities that leaders do can influence team learning. Makoto (2016), for example, investigated reflective leadership and team learning. He was aware that both leadership and reflexivity have positive influence on either team learning or team performance, and he was curious to learn more about the relationship between dimensions of *reflective leadership* and team learning. In this research team learning was seen as an outcome. Based on first a qualitative study multiple forms of reflection were identified, and second a large-scale survey was done to investigate the relationships. Based on this, it can be concluded that open reflection (as team member you feel free to speak openly) and goal-based reflection (team leaders ask for reflection about the vision, the process, the goals of the project) has a positive influence on team learning. On the contrary, problem-based reflection (reflection on things that went wrong) does not have an influence on team learning. The explanation is that problem-based reflection leads to superficial learning (error correction), and the other two lead to deeper forms of learning that really contribute to team learning outcomes.

Ashauer and Macan (2013) were not curious about reflection or looking back; they were interested in active steering and wondered what kind of team leader's instruction would support team learning. They unraveled the influence of *leaders' mastery goal instruction* and *performance goal instruction* on team learning. Mastery goal instruction means steering as a leader to master the goals of the project, and performance goal instruction means steering on the personal competencies of individual team members. Based on former research, they expected that mastery goal instruction would be less threatening than performance goal orientation. They concluded that team learning behaviors are higher in teams where there is mastery goal instruction in comparison to teams that have performance goal or no goal instruction. So steering on projects' goals enlarges the chances of team learning behaviors more than when steering on personal competencies. Psychological safety mediates the relationships between both ways of instruction; mastery and performance goal instructions facilitate team learning behavior by increasing psychological safety but to a lesser extent for performance goal instruction.

Døving and Martín-Rubio (2013) investigated additional variables and were curious to what extent *structure*, *consideration*, and *cross-training* as leadership behaviors were supportive for team learning behavior. Structure means the degree to which the leader structures and defines the leadership role and the role of subordinates concerning job-related activities. Consideration means the degree to which the leader considers employees' needs, displays concern for their well-being, creates a pleasant atmosphere for interactions, and establishes mutual interests. And cross-training means facilitation to do more than one task within the team. In their quest for answers, they used Edmondson's (2003) work on leadership. Døving and Martín-Rubio (2013) expected that the more a team leader initiates structure and uses consideration and cross-training, the more team learning behaviors will be shown by the team. Based on their research in the Spanish banking sector, including 68 teams, they concluded that all three hypotheses are confirmed in this situation. More initiation of structure, more consideration, and more cross-training (or being



able to do multiple tasks) lead to more team learning behaviors. Again it is shown that more structure in this case by the team leader leads to more team learning behavior.

In a research by Haar et al. (2017), the aspect of structuring was studied to a deeper level. These authors scrutinized the role of *structuring behavior of the team leader*, and to what extent that behavior influences the solution of constructive conflicts, being one of the team learning processes. According to Haar et al. (2015), constructive conflict makes a difference for emergency teams, because members in these teams handle differences of opinions critically but constructively by addressing them directly, act on comments given on ideas, and verify opinions and ideas by asking each other critical questions. Based on research by Haar et al. (2017), again in emergency teams, it appeared that team leaders' structuring behaviors specifically asking clarifying questions, summarizing into a command, and summarizing into a decision are powerful behaviors to make constructive conflict, as one of the team learning behaviors, work in emergency teams.

## Organizational Context

Finally, the organizational context or the external factors influence team learning. And with external is meant all the things happening outside of the team. In comparison to the vast amount of research available on team internal and leadership factors influencing team learning is the amount of research done in the field of organizational context and team learning limited. We already learned that organizational structures do not support team learning as such (Bresman and Zellmer-Bruhn 2013), but what other factors could be identified for influencing team learning? In this section some examples are presented. Based on skimming the available literature, it can be concluded that this field is clearly in its infancy. The concepts measured are not that specified as yet. Take, for example, learning culture and turbulent environment. These are both quite comprehensive concepts and consisting of more sub-variables. Nevertheless, they are worthwhile mentioning, as shown by the research of Zellmer-Bruhn and Gibson (2006). They did a large-scale research on multinational companies (MNCs) to find out whether or not *global integration* influences team learning. They measured team learning as an outcome, and they asked team leaders to respond to questions underpinning team learning. Based on a thorough examination of annual reports, they constructed a measure to say something about global integration. Based on their analysis, they concluded that team learning is negatively related with global integration. The more an MNC shows global integration, the less team learning takes place. And in the case where there is high local responsiveness, team learning increases. Furthermore, they showed that more autonomy and more norms and procedures for knowledge management increase team learning. Based on their findings, one can conclude that contextual factors do matter.

Another research by Akgün et al. (2007) investigates to what extent a *turbulent environment* influences team learning. They work with other variables representing team learning processes and add the concepts of unlearning and improvisation to the existing body of knowledge. Unlearning, although conceptually still under construction, is viewed as memory elimination in general and as changing beliefs, norms,



values, procedures, and routines in particular. Improvisation is present in those situations where routine-based solutions fail because of a turbulent environment. Based on their large-scale research and only those results that influence team learning, they conclude that a turbulent environment has a positive influence on unlearning; however, no clear relationship with improvisation could be detected. Being a team in a turbulent environment does not guarantee improvisation.

Yoon et al. (2010) studied team learning processes (i.e., knowledge creation) using the lens of learning organization. They studied the extent to which learning organization characteristics (e.g., group learning, leadership for learning) have a positive influence on team learning processes. Based on their large-scale research in Korea, they concluded that the *organizational learning characteristics* (measured by means of the DLOQ from Marsick and Watkins (2003)) have a positive influence on knowledge creation in teams. They did not distinguish which learning organization characteristics were responsible for fostering team learning behaviors.

## Impeding Factors

The debate on factors influencing team learning is dominated by supporting factors (Zellmer-Bruhn and Gibson 2006). Most scholars have investigated what factors *support* team learning. Only in a few cases inhibiting factors for team learning were discovered, such as organizational structure, value diversity, team turnover, relationship conflict, and global integration. These factors are reported in the foregoing sections. In addition to this summary, some scholars identified additional impeding factors. *Workload*, for example, is a factor that negatively influences team learning behavior. Savelsbergh et al. (2012) identified that *team quantitative role overload* (meaning a discrepancy between teams' tasks demands and time or other resources necessary to fulfill the tasks) is negatively related to team learning behaviors. All other forms of stress (i.e., team role conflict) do not impact team learning behaviors negatively.

Decuyper et al. (2010) give an overview of impeding factors in their review. To provide an even richer picture, including both supporting and impeding factors, factors that were not discussed as yet are summarized: *groupthink* (the rationalized conformity of thoughts that seeks to diminish conflict within the group or the group analogue of defensive avoidance), *diffusion of responsibility* (responsibility for the learning outcomes is divided among the team members, but no one takes responsibility for the whole), *dominant leader* (conversations in the team are dominated by the team leader and his or her opinion), *Abilene paradox* (team members do not succeed to express their true feelings and consequently pursue a course of action that all or at least most team members disagree with), *free riding* (one or more team members intentionally hide, do not participate actively in the activities, and yet take credit for the achievements of the other team members); *social loafing* (team members (unintentionally) invest less energy when performing in teams, compared to when they have to face the task on their own); and *conflict escalation* (the inverse of groupthink, too much diversity, and the escalation of conflict within a team).

## Discussion and Conclusion

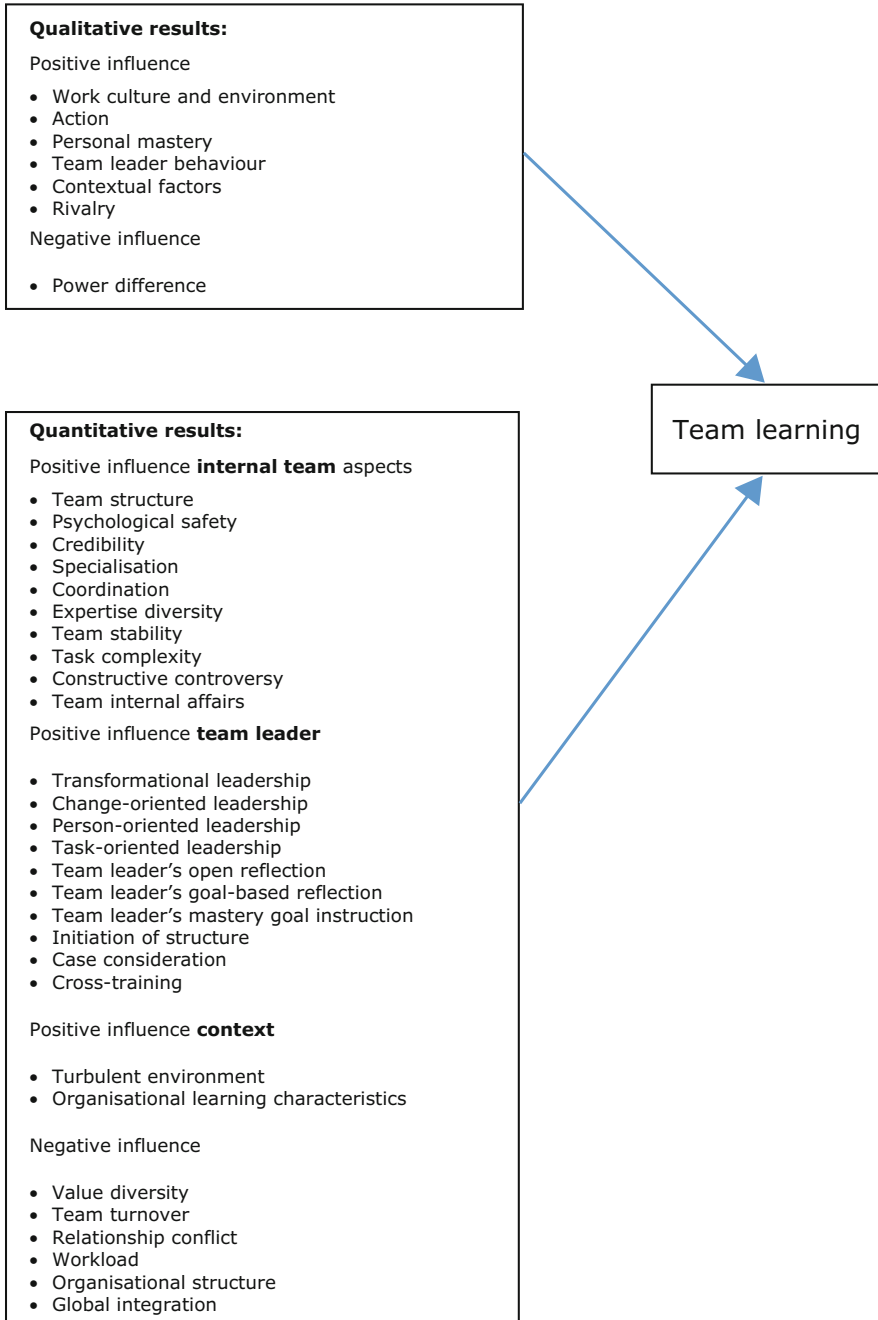
In the foregoing an inventory was made of antecedents of team learning. Although this is not the first time an overview of this field is provided, it is one of the first times this overview restricts itself to scholarly articles on team learning in professional organizations, not being schools or universities. As argued before, being a teacher team is different from being a team of professionals in another setting (Vangrieken et al. 2013). Furthermore, it was stated that it was not the aim to include all articles available. The selection was made based on clear criteria and snowballing. Enriching the list of antecedents was the main selection criteria. Figure 1 summarizes results found. This is, of course, a simplification of all information in the foregoing sections, and one should realize that some factors have both a positive and a negative influence. The most dominant influence is reported in this figure.

Furthermore, it should be realized that most studies included in this chapter originate from Western or European companies. In countries or continents with a culture that is less individualistic or more hierarchic, one might expect different results. Psychological safety is culture-bound, for example (Cauwelier et al. 2016).

There are factors of which one would expect an influence on team learning, but they had no influence at all, neither in a positive nor in a negative way. The following factors were expected to have influence, but research pointed out that they did not have any: time, task conflicts, team leader's problem-based reflection, improvisation, and stress. The longer the team is collaborating and projects develop over time, the lesser influence was detected on team learning processes. In the course of time, the type of team learning processes applied did not change (Raes et al. 2017). And where one would expect a positive influence of improvisation (room to experiment), no influence was detected in turbulent environments (Akgün et al. 2007). And obviously one would expect a negative influence of stress, but that was not the case. Stress should not be confused with workload, which did have a negative influence. As mentioned, Fig. 1 summarizes the results.

Many studies present results about antecedents of team learning. However, in almost none of these studies is the developmental character of teams taken into account. Raes et al. (2015) were among the first to study this. They used the model of Wheelan (2009). This model describes evolving group developments as observed in teams, as a result of which teams become better organized units that are capable of effectively working together. The following phases are distinguished:

1. Dependency and inclusion; team members are being really polite, but feel high levels of anxiety and uncertainty.
2. Counter dependency and fight; team members search for shared identity and definition of roles, and this process can be typified by conflict and power struggles.
3. Trust and structure; team members get to know each other and apply a more mature negotiation style, and roles and tasks become clear.
4. Work and termination; team members feel comfortable in the team and are willing to share information, and there is a good sense of where the knowledge and expertise lies within the group.



**Fig. 1** Summary of all antecedents for team learning found

In many studies, it is an assumption that when talking about teams, the third or fourth phase of team development is at stake. But it is hardly mentioned explicitly. Raes et al. (2015) discovered, based on a large-scale research, that teams in the first two phases show less team learning behaviors than teams in the phases three and four. One might assume that it is necessary to indicate in future research the phase of team development to interpret the outcomes in a meaningful way.

The same holds for the nature of the tasks teams have to carry out. Some articles included in this chapter apply the distinction between exploration (radical innovation) and exploitation (improving things). Although team learning can contribute to explorative and exploitative learning, most articles deal with the exploitative type of learning. However, the type of learning is not properly mentioned in all articles, which makes it difficult to assess the relevance of the research results which are reported in these articles. Besides, in this world in which intense problems do exist, which need to be tackled, and for which radically innovative solutions are necessary, more research should be done on the potential of exploration learning, and on how to make a real difference as a team.

## **Practical Implications**

Knowing all this, what is the yield of this chapter for practitioners? For directors, managers, supervisors, HRD professionals, and other professionals who are engaged in learning and development of staff, these lists encompass footholds to develop policies with regard to their employees. They have to consider, for example, whether or not to let employees work for a longer period of time in the same team or to develop or hire managers who are able to apply transformational leadership. However, it should be noted that working in teams itself is a (strategic) choice of organizations, which has more consequences than just implementing the lessons learned from this chapter. Organizations should make the choice for teamwork consciously and make sure that the whole organizations is well prepared to accommodate and accelerate teamwork. Think about rewarding employees on the team level (instead of or besides the individual level) or hiring new staff with teamworking qualities. If not all aspects in an organization are in place for teamwork and team learning, it might not work out the way as expected. Furthermore, organizations have to realize that in comparison with individual task distribution, a team takes more time and effort, especially on the short run, to get good and efficient results. Individuals will be more productive on the short run when tasks are clear-cut. However, when organizations' environment become more complex and dynamic, it will be more difficult for individuals to fulfill their predefined tasks, and in those situations, teams will be more effective. So, knowing all these attractive and promising results of teams and team learning, organizations should always reflect critically whether working in teams fits their own situation and pays off the investment (especially of time, but also changes in their routine setup). It is not a recipe for success in all cases, and organizations should carefully reflect on the choices to make.

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## Conclude

What triggered the writing of this chapter was the observed difference between results based on quantitative and qualitative research. Based on the articles collected for this chapter, the difference is not as significant as expected. Both qualitative and quantitative research approaches make inventories of antecedents. In qualitative research, mechanisms underlying all antecedents of team learning behavior have been studied to a lesser degree than expected. About some antecedents there are no conclusive answers, and more in-depth qualitative research should be undertaken to fill this gap to reach stronger conclusions. Quantitative research, on the contrary, has a large basis to work from and many instruments that are ready to use, although research at the level of context or organization is still in its infancy. But as in any research field, both research approaches perfectly complement each other.

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# Human Resources Management and Human Resources Development **39**

Jürgen Radel

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## Abstract

Practitioners and researchers would likely agree, if asked, that people are essential for organizations. But putting this agreement aside, the term “human resources management” (HRM) seems to be a melting pot of fragmented concepts and professions. For more than 20 years, organizations have tried to answer the question of whether HRM and its areas of concern can be positioned as a strategic aspect of business, or whether the focus of HRM is focused on day-to-day-operations. The profession seems to struggle with its own identity, even given noticeable differences between countries. Besides positive examples of professionalization and recognition, it seems as if human resources (HR) today is still

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more an art than a science. Private training providers can support its professionalization but should also keep in mind that the types of programs that can be offered might be influenced by a specific view of HRM that can differ from other perspectives on the same issue. However, it is important to continue the discussion since organizations are facing the fourth industrial revolution and workforce requirements might change dramatically. It might be necessary to change the inward orientation of HR, focusing on the question “are we recognized as a valuable partner by senior management?” toward the external focus “what is our contribution to the organization’s success?” This chapter provides a brief overview of HRM and human resources development (HRD), which is a core aspect of HRM that incorporates vocational education and training (VET). In addition, the chapter provides recommendations for the future design of HR departments. In this context, HRD is described as a possible conveyor for private training markets and as a driver of organizational learning. Finally, an outlook onto challenges for HRM and HRD is provided.

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**Keywords**

Human resources management · Development and training · HR strategy · Evaluation

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## Human Resources Management

This section provides a brief overview of human resources management (HRM) to illustrate the history of HRM and its development. Following this, HRM is described as a support function, including how it can support an organization during various stages of development. Despite all efforts to offer such support, HRM still has a credibility issue in many organizations; this will also be discussed in this section. Finally, the professionalization of HRM is described as one possible way to counter credibility issues.

Considering the history of HRM, it is a young discipline, even if, as some authors argue, the evolution of the discipline can be traced back several millennia (Tubey et al. 2015; Rotich 2015). Savaneviciene and Stankeviciute (2013, p. 234) do not look back that far into the past; rather, they state that the concept of HRM originated between 1910 and 1920. Despite differing perspectives on HRM, the overall concept of HRM does not seem to have changed that much since 1942, when it was described by the UK Institute of Personnel Management (IPM 1988, p. 7), one of the leading professional bodies in the field. In the early twentieth century, the wellbeing of workers as individuals had been the main concern of the IPM (earlier the Central Association of Welfare Workers, between 1917 and 1919, the Welfare Workers’ Institute between 1919 and 1924, the Institute of Industrial Welfare Workers between 1924 and 1931, followed by the Institute of Labour Management between 1931 and 1946, before the IPM).

Despite little overall change, it seems as if the employees’ wellbeing is nowadays increasingly the focus of unions, while HRM deals with all other topics. It is trying to become a strategic partner but is often tied to more administrative tasks.

In addition to the various meanings and focuses of various researchers (Armstrong 2006; Johanson 2009; Collings and Wood 2009; Paaauwe and Boon 2009; Klerck 2009, as cited in Rotich 2015, p. 58), as well as the definition of the IPM, HRM activities can be placed in two general areas:

1. People as a factor in production and costs, and how to manage the people within the organization to maximize their value and meet organizational goals. Various topics, among them training and development, are mentioned, but *business value* is the main concern.
2. HRM that is influenced by the philosophy of *how to treat people* whose position in the organization is weaker than that of the employer.

The perspective and the scope of HRM varies, depending on the organization, the geographic location, and the model that is applied. Providers of private HRM training might have different offerings, based on the model that is used to train participants. Contents might also be influenced by the geographic location of the training provider.

Storey (1987) differentiates between “hard” and “soft” approaches to HRM. This differentiation may be characterized as a paternalistic approach versus the understanding that people are capable of caring for themselves. HRM, like organizations (Radel 2017), seems to be influenced by the zeitgeist, or collective beliefs of how to treat human beings and the distribution of power. Overall, there has been a shift from a short-term focus and directive power relationship (i.e., the worker is a commodity (Guest 1999, p. 6)) toward a long-term cooperative perspective with a shift in power toward the skilled employee. However, as stated by Legge, “[. . .] [I]n reality, even on the surface, most HRM is ‘hard’” (as cited in Guest 1999, p. 6). This is a fact that the department itself seems to struggle with at times, which can lead to a lack of credibility and acceptance by those departments that are “hard” themselves (e.g., production, finance, sales, marketing).

## HRM as a Supportive Department

Looking at the organizational life cycle and the stages of organizational development (Draft 2015, p. 352), it is the task of HRM to support the organization throughout all the stages:

1. Entrepreneurial stage
2. Collectivity stage
3. Formalization stage
4. Elaboration stage

Depending on the stage the organization is in, different tasks become predominant for HRM. In the first phase (**entrepreneurial** stage), employee creativity and the definition of the organization’s vision is important. At that stage, the organization

is usually quite small and basic HR functions like payroll, contracts, drafting an employee handbook, and recruiting are carried out. At some point during this stage, a crisis might emerge when the organization grows and a greater need for leadership arises. At that point, it can be important for HRM to discuss the role of leadership and support the transition from technical experts to management-oriented functions. During the collectivity stage, HRM can offer support in all matters related to providing clear directions for management and employees, by establishing core standards, by splitting teams, by assigning functions, and by developing a more sophisticated organizational structure. At some point during this stage, the need for delegation and control arises and formalization becomes increasingly important. HR usually supports the organization with the implementation of systems such as time-keeping, performance reviews, eRecruiting, and structured apprenticeship programs. Processes become increasingly standardized, and the HR department grows in number. This formalization can lead to another crisis that HR must address: “too much red tape” (Draft 2015, p. 352). The HR department might discuss whether to reduce the levels of hierarchy again or look for ways to become more flexible and avoid being paralyzed by bureaucracy. As soon as this has been solved, the organization can be described as “elaborated” and the (high) standard and efficiency are maintained. This stage comes with the risk that innovation and revitalization may be, more or less urgently, required at some point. During this phase, according to Draft (2015), the direction will be set for (a) streamlining and small-company thinking, making the organization innovative, flexible, and adaptable to change; (b) continuing to mature and maintaining the standard; or (c) declining, if it proves incapable of mastering the crisis. At this stage, HRM could offer support with the definition of the corporate strategy. Unfortunately, HRM often remains in the collectivity or formalization phase, while the rest of the organization develops.

One aspect of supporting the organization is human resources development (HRD), which will be discussed in depth below. HRD, as an organized learning experience (Nadler and Nadler 2011, p. 1), can be regarded as a key factor in facilitating the transformation of an organization into a learning organization (Tseng and McLean 2008) and might be a possible tool for decreasing some of the credibility issues that are briefly discussed next. However, the transformation into a learning organization (LO) also poses new challenges for HRM, and especially HRD, as the concept of a LO becomes increasingly relevant for a number of organizations (Tjepkema et al. 2002b, p. 1).

## Credibility Issues

Ritzer and Trice (1969) (as cited in Legge 2005, p. 49) describe the perspective of American managers on HR. They see HRM as reactive, risk-avoiding, non-influential, defending the status quo, and operating in a vacuum.

The lack of credibility and acceptance, as it is sometimes perceived (Ulrich 1998; Charan 2014; Capelli 2015; Naradran 2016), might be rooted in several aspects, when an HRM department is compared with other departments in an organization.

Using the term *other* subsumes departments besides HRM, as they are described in the value chain framework by Porter (1989), without limiting the term *other* to the departments he mentioned (e.g., purchasing, production, finance, sales, marketing).

This perception has hardly changed since 1969: “[HR] is often ineffective, incompetent, and costly; in a phrase, it is value sapping” (Ulrich 1998). It seems to come down to the fact that HRM tries to change the behavior of people within the organization, or the organization itself, acting as a change agent; this sometimes leads to or increases defensive behavior (Menzies 1960; Krantz and Gilmore 1990; Bain 1998). Finally, HRM does not – as the name might suggest – manage personnel. It often only provides the structure and frameworks for improving workforce management by others and its influence ends at the doors of its own department. Whenever it creates a concept that is not adapted by the user (management and employees), it is difficult to permeate the whole organization.

It is difficult to define HRM, its tasks, and its role so that the profession becomes accepted as such. One way of supporting this goal is to standardize requirements and certifications. These are frequently offered by private training providers, some of whom are acknowledged by national associations that can define such standards.

One of the first requirements for certification or proof of knowledge in the field of HRM is found in the records of the Chartered Institute of Personnel and Development (CIPD). Here, it is shown that a comprehensive constitution was approved in 1919 and “[. . .] it was agreed that members ‘must hold a diploma or certificate of training courses approved by the Association’” (IPM 1988, p. 5), even if an escape clause had been added to this agreement, at that time. Decades later, one of the first frameworks for HRM, if not the first, was created in 1981 and published as the Harvard model; the model was inspired, in part, by a potential market “[. . .] to develop a course at Harvard Business School” (Noon 1992, p. 175).

Since then, professionalization has become increasingly important, so that today, practitioners have an unspoken agreement as to what can be considered HRM; the term, however, still is flexible. HRD is one relevant aspect that can be considered to be an important part of HRM; it is discussed below.

## Professionalization in the Field

Despite the efforts to introduce HRM-specific frameworks and courses nearly 40 years ago, HRM is still sometimes not recognized as a profession. According to Hanlon, HR seems to be more a “commercialized profession” (as cited in Gilmore and Williams 2007, p. 409), contrary to legalized professions that are distinguished by licensure. Even the commercialization and certifications are fragmented and scattered over various associations and training providers; in addition, the entry requirements are manifold. Some associations, e.g., the Bundesverband der Personalmanager (BPM, German National Association of Personnel Management), do not even provide a framework, body of knowledge, or certification. The only criterion to become a member is that a person must be employed by a company, a corporation, an institution, a diplomatic representation, or an association as a personnel manager (BPM 2018).

Others, such as the Society for Human Resource Management (SHRM), the Association for Talent Development (ATD), and CIPD offer certifications based on a body of competence and knowledge. Overall, training of HR professionals is a popular offering: CIPD runs more than 70 short courses per year. The ATD offered more than 495 programs for HR professionals alone, between March and November 2018.

Despite the criticism of the profession so far, the Cranfield Network (CRANET) study indicates that HRM has gained a reputation in some countries. In 89% of Swedish companies, a member of the HR Department is also a member of the executive board and 81% of the companies have a written HRM strategy. France is in second place: in 88% of companies, a member of HR is a member of the executive board and 66% of the companies have a written HRM strategy. Spain is next, with 85% executive board members and 80% strategy. In Austria, only 50% of companies see the necessity of appointing an HRM executive to the board; in Germany, it is only 49% (Wehner et al. 2017, p. 15).

### **The HR Professional's Profile and the Potential for Private Training Providers**

The perceived lack of credibility and the notion of a commercialized profession raises the question of who works in HRM; however, data about the professional background of HR professionals is scarce. A bachelor's degree is the common entry requirement, but formal qualification can be substituted by experience. In addition, certifications are mentioned as an employer requirement.

In the USA, HRM is recognized as a managerial profession and is listed in the Occupational Classification System Manual (OCSM) of the US Bureau of Labor Statistics (2017) (MOG B Executive, Administrative, and Managerial Occupations: numbers B008 – “Personnel and Labor Relations Managers,” B027 “Personnel, Training, and Labor Relations Specialist,” D328 “Personnel Clerks”) or the International Standard Classification of Occupations (ISCO 08 Code 1212 “Human Resource Managers”).

The Office for National Statistics in the UK (SOC 2010, p. 33) states that “[t]here are no pre-set entry standards, although entry [for Human Resources Managers and Directors; SOC 1135] is most common with a degree or equivalent qualification.” Something similar is stated for Human Resources and Industrial Relations Officers (SOC 3562, *ibid.*, p. 133): “There are no formal academic requirements although most entrants possess a degree or equivalent qualification and/or relevant experience. Many employers expect staff to gain membership of the Chartered Institute of Personnel Development through study for professional qualifications.”

In Australia and New Zealand, “[m]ost occupations in this unit group [2231 HUMAN RESOURCE PROFESSIONALS] have a level of skill commensurate with a bachelor's degree or higher qualification. At least 5 years of relevant experience may substitute for the formal qualification.” (ANZSCO 2013).

An overview about the requirements to work in HRM, from the US perspective, are shown in Table 1 below.

However, the percentages shown above should be interpreted with caution. The recommendations of what to study or whom to hire are based on a very small

**Table 1** Required Education Level to fill the given position. Data based on The Occupational Information Network (O\*NET)

Job title (Standard Occupational Classification Code)	Education level <sup>a</sup> required % of respondents		
	PBC <sup>b</sup>	BA	MA
Human resources managers (11-3121)	9	18	68
Human resources specialists (13-1071)	0 <sup>c</sup>	46,27 <sup>c</sup>	3,1 <sup>c</sup>
Labor relations specialists (13-1075)	20	25	30
Training and development managers (11-3131)	15	19	52
Training and development specialists (13-1151)	11	17	58
Compensation and benefits managers (11-3111)	5	14	81
Compensation, benefits, and job analysis specialists (13-1141)	n.a.	n.a.	n.a.

<sup>a</sup>For educational level responses descriptions see: O\*NET (2008)

<sup>b</sup>Post-Baccalaureate certificate (PBC): Awarded for completion of an organized program of study; designed for people who have completed a Baccalaureate degree but do not meet the requirements of academic degrees carrying the title of Master

<sup>c</sup>O\*NET 22.1 Database (n.d.)

absolute number of respondents (e.g., 41 incumbent respondents for Human Resources Specialist). Besides incumbents, occupational experts were asked about the requirements. Absolute numbers of respondents were limited here as well (22 respondents for Human Resources Manager).

The inconsistent or broad entry requirements can be seen as negative, due to a lack of focus or orientation. But they can also be positive for the diversity of the profession and as a potential market for private training providers. At the same time, it is necessary to structure the development of skills, in both the HR department and in the organization as a whole.

## Human Resources Development

This section provides a brief overview of human resources development (HRD) in an organization, which constitutes a large market for training providers. Vocational education and training (VET) is described as one aspect of HRD, while HRD is considered a conveyor and broker for educational activities for the employees. The effect of a structured and well-functioning HRD, involving stakeholders, on organizational learning and toward a learning organization, will be described. After the introduction, the impact of training efforts as one aspect of HRD and its evaluation will be discussed. One of the main concerns of organizations, besides the return on investment, will be discussed afterwards: the retention of qualified staff. During the last part of this section, problems of automation will be described because they might have a significant effect on internal and external training and developmental needs.

Among the many topics and definitions that are identified in relation to HRM (e.g., Armstrong 2006; Johanson 2009; Collings and Wood 2009; Paauwe and Boon 2009; Klerck 2009, as cited in Rotich 2015, p. 58; IPM 1988, p. 4; Storey 1987;

Legge 1995, as cited in Guest 1999, p. 6; Legge 2005, p. 43), the development of the existing personnel in the organization is a relevant, ongoing, yet difficult topic for both organizations and HRD professionals (Sambrook and Stewart 2002).

It is *relevant* because it can meet employee needs by training them in a way that maintains their employability. At the same time, HRD is highly relevant for the organization, since well-trained employees are beneficial (Bagshaw 1996) and HRD might be attractive for potential candidates, especially those of Generation Y (Gessler and Radel 2015). But it is not only Generation Y that is interested in continuous development. Coates and Edwards (2011, p. 83) note that a substantial number of graduates from the USA, Canada, Europe, and the UK re-enter formal education after finishing their bachelor's degree. In the UK, it is 57% of graduates, during the first three or 4 years, while in the USA, 40% of "(...) graduates had specifically enrolled in another university-level qualification within 10 years, according to Bradburn et al. (2006)" (2010, p. 83).

HRD is an *ongoing* topic, because it takes time to learn a new skill or adapt to a new task. Organizations spend significant amounts of money for their annual HRD budget. In 2016 the total training expenditures were 70.65 billion USD (Training 2016, p. 29), with a lot of variation between the average budget for large companies (14.3 million USD), midsize companies (1.4 million USD), and small companies (376,251 USD) (Training 2016, p. 32). Even if the impact of time (Ericsson and Kintsch 1995) and deliberate practice is not as important, as one might assume (McNamara et al. 2014), HRD is time- and cost-intensive. HRD can be a day-long workshop or a degree that is achieved after several years of studying. It can take years to develop an individual, as well as to develop an entire organization toward a learning organization. However, without the ambition to change and develop, neither organizations nor individuals will master the stages or organizational development or maintain their employability. Whenever one side has no ambition, it might make sense to discuss possibilities of separation. Given this fact, all sides are ambitious to develop. Investments must be made, of either money or time (usually both). It is only when those investments are made over time that there is a chance to build capabilities, which might lead to innovation or even invention within the organization. As a last step, assuming that the investments lead to capability building and innovation, the organization might gain value or a return on the investment, as well as the employee. Whenever there is an issue at a preceding step, success is at stake. "[...] [HRD], which is defined as organized learning experiences, provided by employers within a specified period of time to improve performance and/or promote personal growth" (Nadler and Nadler 2011, p. 1) can be or can become a key factor in developing a learning organization (Tseng and McLean 2008), when employees are regarded as internal stakeholders in the HRD process.

## **Involvement of Internal Stakeholders in the HRD Process**

Besides HRM, where HRD activity can be nested (Nadler and Nadler 2011, p. 1), other stakeholders in the organization can play an important role in facilitating the



development process. Employees play an important role in learning, not only for themselves, but the “[...] ability to learn is [also] embodied in its employees” (Tjepkema et al. 2002b, p. 9). In particular, graduates or inexperienced employees as well as those in more senior positions can identify specific development needs while working on a team. Nadler and Nadler, who are considered to be very influential and somewhat polemic in the field of HRD, develop the above-mentioned activities from the perspective of adult education (Watkins 1991, p. 248):

1. Training
2. Educational activities
3. Development

Training aims to improve the current performance of employees. It can be supported by direct managers, who provide ongoing feedback about the individual performance and the fit to the current position. Direct managers and employees together can also serve as a primary source to identify gaps in performance and person-position fit, which can result in specific HRD actions that are coordinated with HRM.

Educational activities that have a long-term focus are also subject to the identification between employee and more senior manager. Both might discover the potential to develop the employee into a more senior role in the future. Based on these development possibilities, from an employee’s perspective, HRD activities can be carried out to prepare the employee for a future position. From an organizational perspective, the identification of future development needs is closely linked to the strategy of the organization, which can create a need for skills that are not yet available in the organization. The HR and HRD strategies are influenced by the corporate strategy, and senior managers can identify potential candidates for specific development.

Broadly speaking, educational activities, and therefore HRD, include vocational education and training (VET) (Mulder 2012; Garavan et al. 2000, p. 72; Holton and Trott 1996; Kuchinke 2002); at the very least, VET and HRD are similar concepts (Tomé and Goyal 2015, p. 588). As Mulder (2012) describes, boundaries between initial VET, continuing vocational education and training, which is part of lifelong learning, and HRD in an organization are becoming blurred or even fading completely.

Alagaraja et al. (2014) suggest that the link between HRD and technical vocational and educational training should be increased, even stating that there is an increasing overlap between workforce development, social development, and economic development strategies, broadening the perspective from viewing an organization toward national HRD (Alagaraja et al., p. 270).

While the permeability between VET and higher education, outside of organizations, might still be a problematic issue (Spöttl 2013), HRM in an organization might benefit from the inclusive view suggested by Mulder (2012). Unfortunately, VET systems seem to be more structured than HRD and their development in the past (e.g., Gessler and Howe 2013) is far more deeply rooted in society than HRD. Due to



this, skill and workforce development (see Warhurst et al. 2017) are becoming increasingly important.

Development, according to Nadler and Nadler, of a non-job-related activity (2011, p. 1) might be an important task for the individual that develops over the period of his or her professional life. Employees might have an interest in ensuring person-role fit as well as ensuring employability. From an organizational perspective, mentoring can be an HRD activity that is carried out between recent graduates or young professionals and senior managers. However, vocational mentoring is only one aspect and probably more related to training, as described above. The other aspect is psychosocial mentoring (personal development). Mullen (1998) investigates the combination of both aspects; her findings suggest that more senior employees should initiate the developmental relationship and are more successful in developing others when they recognize their own value for the organization. The relationship between junior and senior employees is also influenced by the time spent with each other and when the more experienced employee allows the more junior one to influence himself as well (p. 327 f.)

The last aspect, mutual development, might lead to a learning organization in the broadest sense. Providing different definitions for the term, Hee Kim and Callahan (2013) also differentiate between the learning organization and organizational learning (p. 185) and consider “[. . .] organizational learning [. . .] a prerequisite to the learning organization (Sun and Scott 2003) because it fosters the collective learning process at the individual, team, and organizational levels to evolve into a learning organization (Marsick and Watkins 2003).” Both authors state that leadership plays an important role in developing a learning organization. At the same time, leadership development becomes equally significant (Hee Kim and Callahan 2013, p. 196).

Finally, the capacity of the organization’s employees impacts the ability of HRD to build a learning organization. Questions regarding these capacities are raised by Tjepkema et al. (2002b, p. 11):

1. Are the employees capable to create or acquire new knowledge that is relevant for the organization?
2. Does successful dissemination of useful knowledge to others take place?
3. Can this new knowledge be used to improve work practices, products, or services, leading to a benefit for the organization?
4. As a fourth addition to the employees capacity, Schier (2016, p. 339) raises the question whether the employees are capable and willing to take personal responsibility for the learning process.

## **HRD as a Conveyor of Organizational Development**

While the previous chapter described various possibilities for stakeholder involvement and the impact of stakeholders on HRD activities, the next section focuses on HRD as a conveyor of organizational development, trying to design HRD activities at various levels of the organization. As such a conveyor, HRD serves as a broker for internal and

external training, as well as preparing and maintaining the basis for private training markets with various demands for programs. Compared to private training providers in the EU, organizations as employers themselves provided 33.9% of nonformal education and training in 2016 (Eurostat 2018a), while nonformal education and training institutions accounted for 17.7% in the same year (Eurostat 2018a) – the same percentage as in 2011. Compared to companies, this number seems to be small; however, when other training providers are added, the overall number of private training providers is 40% and constantly rising, since 2007 (Table 2).

Another indicator for the potential of HRD activities, continuous vocational education and training (CVET), and private training markets is the participation rate of adults who receive formal or nonformal education and training. An overview of participation in career-related adult education in the USA is shown in Table 3.

Other than in the USA as a whole, a large divide between countries in the EU existed in 2017: while adults (aged 25–64) in Switzerland (31.2%), Sweden (30.4%), Finland (27.4%), and Denmark (26.8%) received a comparably high amount of education and training within the 4 weeks preceding the survey, the numbers in Slovakia (3.4%), Bulgaria (2.3%), Croatia (2.3%), and Romania (1.1%) were significantly lower (Eurostat 2018b). Because the European Union’s target for 2020 is that at least 15% of adults (aged 25–64) should participate in lifelong learning activities (Kotzeva 2017, p. 73), the potential for training providers is huge – positively speaking. On the other hand, a lot of work lies ahead for HRD-related activities; however, in some countries, organizations still fail to offer intensive HRD activities for their employees.

**Table 2** Training providers for nonformal education and training in the EU, except employers (based on Eurostat 2018a)

Training providers for nonformal education and training in the EU, except employers	2007 (%)	2011 (%)	2016 (%)
Commercial institutions where education and training is not the main activity (e.g., equipment suppliers)	8.8	10.9	9.4
Employer’s organizations, chambers of commerce	5.0	3.2	5.6
Trade unions	1.4	1.0	1.3
Individuals (e.g., students giving private lessons)	4.3	5.6	6
Nonformal education and training institutions	16.6	17.7	17.7
<b>Total</b>	<b>36,1</b>	<b>38,4</b>	<b>40</b>

**Table 3** Participation of employed persons, 17 years and older, in career-related adult education during the previous 12 months, by selected characteristics of participants 2005. Adapted from the National Center for Education Statistics (NCES 2005, Table 507.30)

Adults participating	%
In career- or job-related courses	38.8
In apprenticeship programs	1.4
In personal-interest courses	21.8
In informal learning activities for personal interest	73.5

Based on the numbers above, the perspective for private training providers is positive; at the same time, however, the large numbers of providers and training opportunities (and needs) are also making it more difficult to decide what kind of training might be the most suitable one in a given situation. Due to this, the selection of individual courses and the design of larger programs becomes a challenge where HRD can become a mediator, a broker, and in the end, a designer of learning architectures.

Lepak and Snell (1999, p. 37) propose an HR architecture with four quadrants, to structure and plan all HRD related activities: HR and HRD must decide whether to (1) *develop (make) human resources internally*. The advantage here is that firm-specific skills can be developed, providing high value to the organization because of a high task–skill fit. Another benefit is nontransferability of specific skills, which will make a human capital loss less likely (Lepak and Snell 1999, p. 36). *Acquiring* (2) human capital and the knowledge needed is the second option, which is possible if the knowledge is available on the job market and is not too specific. Because it is valuable for the organization, Hamel and Prahalad (1994) say organizations might also consider internalizing this knowledge (as cited in Lepak and Snell 1999, p. 38). *Contracting* (3) is a way to benefit from knowledge that is available outside of the organization – while options 1 and 2 focus on internalizing employees and their knowledge. Like option 2, the knowledge can be purchased quite easily on the labor market “. . .and, therefore, can be treated essentially as a commodity” (Lepak and Snell 1999, p. 39). Creating an *alliance* (4) seems to be the most beneficial option, when the human capital that is needed “. . .is unique in some way but not directly instrumental for creating customer value” (Lepak and Snell 1999, p. 39).

Besides the aspects of the architecture above, several other questions might be taken into consideration when HRD serves as a conveyor for learning:

1. Should the learning be intentional or incidental; should the learning be formalized, or is informal learning desired (Bruce et al. 1998; Marsick and Watkins 2001; Eraut 2004)?
2. How deep will the learning impact the individual or the organization? A program for personal development (e.g., questioning values, ethics, or shared values) might be more carefully designed and followed than a technical skill training where the outcomes can be assessed immediately and the impact on the person is not as deep, as in the first example.
3. How long should the duration be to maximize the learning outcome and balance the investment of the learning and the potential outcome (see section on “[Evaluation](#)” below).
4. Is it necessary for HRD activities to be directly related to the current position and help the employee to adapt? Is the learning focused on the qualification for a possible future role/task? Or is it not job-related, supporting the “growth” of the employee?
5. Does the activity focus on the level of individuals, teams, intergroup relations, or the organization as a whole (Hayes 2018, p. 432)?
6. Within this level, does the activity focus on the area of human processes, a techno-structural area, human resources, or strategy (Hayes 2018, p. 433)?

7. Regardless of whether it is a tailor-made program or a general one, should it be rigidly structured, or leave room for flexibility?
8. Can development take place (formally or informally, structured or unstructured) on the job (Loon and Casimir 2008; Berings et al. 2005), off the job (Schellschmidt 2016, p. 351ff.), near the job (Schier 2016, p. 337ff.), along the job, or even out of the job (Conradi 1983, p. 22ff., in: Schier 2016, p. 340)? This leads to the question of whether it should be offered internally or externally.

Several of the aspects above can be connected and influence each other, which might make the design of a learning architecture a challenging task. The framework proposed by Hayes (2018, p. 433), which comes from organizational design and the area of change management, might be a useful way to structure the portfolio of HRD activities. But as mentioned above, HRM and HRD as a part of HRM can support the organization and its individuals by keeping the aspects above in mind.

While the investment in the learning capacities of employees has become increasingly important and can lead to a more vital organization that can adapt to the changing demands of the environment, the question might be raised toward HRD, whether the money is well spent or not – be it internally or externally for private training providers.

Organizations have recognized that investment in learning is vital; money, accordingly, is being provided. As mentioned above, in a survey of training magazines among 126,403 companies, employers spent about 70.6 billion USD in training their employees (Training 2016, p. 29), with an average budget of 376,251 USD (small companies between 100 and 999 employees) and 14.3 million USD (large companies with more than 10,000 employees) (Training 2016, p. 32), breaking down to an annual average of 814 USD and 42.8 h per learner in 2016 (p. 31), while the Association for Talent Development (ATD 2017) reports slightly different numbers (\$1252 and 34.1 h per employee).

To assess whether there is a return on investment of the expenses, HRD efforts might be evaluated. At least the research on the spending for Research and Development (R&D) and patents suggests that there is a positive correlation (Artz et al. 2010). For HRD, it is difficult to define a point of reference to say what has to be spent at least and “whether” more means “better,” even if Artz et al. (2010, p. 725) describe “. . .the finding of increasing returns to scale to R&D spending.”

The topic might be described as difficult for other reasons as well:

1. It is difficult to evaluate and measure the impact on business of HRD, especially if there is a lack of available data.
2. Even if time and money are being invested, they might be invested for the competition, when skilled employees leave, which makes retention a more pressing issue.
3. The irony of automation, which will be explained later in more detail, leads to the problem of employees losing their skills as tasks becoming automated and skilled employees are not needed that often or even at all. At the same time, when a specific skill is needed, for example, in case of system failure, the needed skills are usually very high. For HRD, it is a challenge to maintain employees’ skills for such an event without the possibility to practice a lot, due to a high level of automation.

## Evaluation

Given the significant amounts of the annual budget that are devoted to HRD, the wish to analyze the business impact seems reasonable. There are several approaches to and models for evaluation (see Radel 2010, pp. 110ff. for a comprehensive overview), ranging from barely structured approaches (Lawrence-Lightfoot and Hoffmann Davis 2002; Scriven 1983) up to extremely structured approaches (e.g., Beywl 2002; Kirkpatrick and Kirkpatrick 2006; Phillips and Schirmer 2005). Besides this, there are two general lines of thought:

1. Process-orientation (e.g., Stufflebeam 2003)
2. Outcome-orientation (Phillips and Schirmer 2005; Kellner 2005; Tuchscherer and Hilsberg 2007)

In HRD, the outcome is usually of the utmost interest for organizations. However, the results are seldom measured in a structured way. Most of the time, “happy sheets,” the first level of the Kirkpatrick model, are used. Results, the highest level in the model (also known as return on investment or ROI), are seldom evaluated. Especially in Germany, the number of organizations that evaluate their programs at this level is very low (10%), compared to the UK (38%), USA (26%), or Belgium (25%) (Wehner et al. 2017, p. 17). Such a low number, compared to the first level of evaluation, can be criticized, but the evaluation of the ROI itself could be criticized as well.

Niemiec et al. (1992, p. 52) state “[...] it seems dubious that any one week training event, no matter how carefully designed and implemented, can produce the skills necessary for sales personnel to actually double their effectiveness”. In addition, there is a strong survival bias in the selection of case studies that are presented (e.g., Phillips 1994; Phillips 1997), when the ROI is described. There may be some self-interest involved in presenting a positive ROI (Radel 2010, p. 120), so it might make sense to evaluate it with the goal of reflecting the program in a very structured way. The discussion about and the development in Talent Analytics (Levenson 2011) might be a positive development toward more profound evaluation of programs and could be a way to assess the impact of certain programs. This would be beneficial for training providers because they would be able to adapt their programs for HRD, buying and assessing the impact of their training investments.

## Retention and Return-on-Investment (ROI)

Retention might be positively influenced by the offer of higher compensation after training (Anis et al. 2011). However, it is unlikely that most companies adjust compensation following training initiatives, contrary to longer HRD approaches that end with an apprentice occupation (Helper et al. 2016), a formal degree (Coates and Edwards 2011), or an MBA program (Baruch and Leeming 2001), where participants might see substantial salary raises (Coates and Edwards 2011, p. 86f).

One group of employees in whom companies must invest a great deal are apprentices, who often enter the company as minors with a high school diploma or equivalent and are trained for up to 4 years (Helper et al. 2016, p. 1), depending on the country and occupation. An apprenticeship (VET) program can be seen as a very structured HRD program, as mentioned above, with a clear goal and benefit for the organization, the individual, and the profession. Like a trainee, the apprentice must spend time working in different departments of an organization to gain the knowledge necessary for the target position/role that will be filled after the program. In addition to the practical day-to-day experience, the apprentice is trained off-site, usually in a vocational school, to gain technical knowledge; this is similar to training that is offered during a trainee program or a developmental program.

The benefit for the individual is clear, even given the argument that an earlier, lower apprentice income versus a later, higher student's income provides the best financial benefit. The benefit for the profession is also reasonable, considering that a well-educated workforce is available due to HRD efforts. It is the benefit for the organization, however, that would probably influence the decision of whether to invest in HRD activities or not.

The ROI, as briefly presented above, has been discussed in several publications (Muehleemann and Wolter 2014; Asghar et al. 2016; Helper et al. 2016), each of which has come to a different conclusion. Muehleemann and Wolter (2014) conclude that “[e]mpirical evidence shows that in a well-functioning apprenticeship training system, a large share of training firms can recoup their training investments by the end of the training period” (p. 1), while Asghar et al. (2016) are more skeptical (p. 81f).

The positive findings of Muehleemann and Wolter are supported by a study in the US construction industry, where it was estimated that “[...] employers earn a return of between \$1.30 and \$3.00 for every \$1.00 invested in craft training due to improved safety, increased worker productivity, and reduction of rework, absenteeism, and turnover.” (Helper et al. 2016, p. 15). Another number that emerged from the analysis was an internal rate of return of approximately 8% at Siemens (p. 83). Their overall perception was that an apprenticeship program is positive, so it might be worthwhile to invest in the training and development of internal staff, with a clear occupation in mind. Unfortunately, this clear focus can seldom be found in regular HRD activities. It is assumed that the program must be well-functioning and that apprentices will stay with the company; however, this is not often the case, especially in small- and medium-sized companies. At least in Germany, an average of 73.15% of first-year students between 1990 and 2012 are former apprentices (BMBF, Bundesministerium für Bildung und Forschung/Federal Ministry of Education and Research n.d.).

## **Ironies of Automation**

Besides the risks mentioned above, *not* investing in HRD is not a good option. People and organizations *must* develop. While the supply of a qualified workforce

has been more or less sufficient for decades, this has increasingly become a constraint in recent years even though researchers, politicians, and international organizations are engaged in a discussion as to whether there is a skill shortage. Most agree that it will become an issue in the years to come and already exists in some sectors (health care), occupations (manufacturing, technical occupations), or regions (construction workers in the USA), while other sectors (leisure and hospitality, natural resource extraction, agriculture) show no sign of a skill gap (Stephens 2017). Especially in China, the skill gap is considered to be dramatic (Morgan 2016) and burdens Chinese employers (Hays 2018).

The challenge for HRD, however, is a concept that has been described as the *ironies of automation* (Bainbridge 1983). As information technology permeates more and more areas of work and the employee is supported – or made redundant – his skills become even more important when they are needed. Bainbridge uses the example of an operator and “[...] suggests that the increased interest in human factors among engineers reflects the irony that the more advanced a control system is, so the more crucial may be the contribution of the human operator” (p. 775). One problem is that we have to be skilled and trained to be able to solve issues that might arise in the event an automated system fails. But skill and training are lost in most areas when they are not practiced. One solution, which is practiced regularly in the airline industry, is to train operators (in this case, pilots) on a simulator.

Contrary to the notion that a skilled workforce is a necessity, thereby increasing the importance of HRD, it is also possible that fewer employees are needed due to automation. In this case, HRD and HRM must analyze the implications for the overall HR strategy and define actions for training and staffing accordingly.

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## Challenges for HRM and HRD

Following the discussion of HRM and HRD in the previous sections, focusing on some aspects of both areas, HRM and HRD are brought together here and the manifold challenges for both areas are described. Additionally, a brief look is given of additional topics within HRM and HRD, which were not all covered in this chapter, to illustrate the complexity of the work of HRM and HRD. It will be argued that HR must take a new, streamlined, and future oriented direction to remain relevant in a changing environment.

Given the descriptions above, there are several challenges for both HRM and HRD. HR must still convince a majority of other professions in the organization of its value: “Whilst the specialist rhetoric propagated by occupational spokespersons argues for the importance of the personnel function to business performance, typically via the business partner relationship between personnel and strategic and line management, the realization of that ‘offer’ is frequently circumscribed by structural and reputational constraints that have long-standing histories (Legge 1978; Caldwell 2003; Guest and King 2004).” (Gilmore and Williams 2007, p. 399). Legge even “[...] points to an issue that has dogged personnel specialists



throughout their history. We might call it an obsession with their credibility” (2005, p. 50).

One way for HRM to gain credibility can be the projection of what skills will be needed in the future and then establishment of HRD structures to deliver qualified personnel when needed. To enable this, it is important for HRM to understand the business and the direction the business might take in the future. HR should therefore be in regular contact with senior management, which decides on the strategy of the organization. Based on these decisions, the HR and HRD strategy must be developed and adapted, including the associated activities in VET. A need assessment (Moore and Dutton 1978; Goldstein and Ford 2002; Ment 2011) might be a suitable tool to support such analysis; however, as the strategy of an organization becomes increasingly difficult to define in the long term (Teece et al. 1997, p. 15), it will become more important for HRM to create a projection and close the skill gap in a shorter period of time. It can be argued that only the subjective perception of the industry dynamics changes (Hauschild et al. 2011, p. 418 f.). But regardless of whether the increased dynamic is objective or subjective, the tools that were described can be a very valuable support for the HRM and HRD planning process. Another very valuable perspective that is discussed in the context of Big Data is talent or workforce analytics to support decision making in HRM and HRD (Della Torre et al. 2018; Schiemann et al. 2017; Minbaeva 2017). To enable this, the skills of HR and HRD professionals might also have to develop toward a more analytically skilled profile.

After the planning process, HRM must decide between *make* (HRD) or *buy* (recruit) to close the organization’s skill gap as well as its own (as in the above example). These decisions trigger different actions and have differing effects on organizational performance. Here, HRD might serve as a conveyor and broker for learning in the organization. The lack of skilled staff might be solved by automation and process optimization, so that fewer people are needed to handle the tasks. Organizations simply become more efficient at what they do. But even if this is the case, work profiles will change and employees must adapt to these changes, with support by the organization. The current structures and approaches to HRD, which are sometimes fragmented, might not be suitable to provide this support, when digitalization and redundancy of administrative tasks increase the ironies of automation, as described above. This leads to the challenge of HRD to train people such that the knowledge can be accessed when needed; however, it is not yet clear that this is the case. In addition, less qualified employees could be left behind if they are neither capable of adapting nor supported.

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## Conclusion

The HR profession as a whole is still struggling with its professional identity and role in the organization. HRM depends on the worldview of those who create the frameworks and training in and for the field. “The present millennium is witnessing human resources (HR) at its biggest crossroad where world-renowned HR



professionals are clearly indicating the warning bell [...]” (Narendran 2016, p. 98). If HR cannot professionalize even more, build credibility, and show its value within the organizational context, there is a risk the HRM tasks will be removed from HR and distributed in the organization or outsourced.

The professionalization is mostly driven by two large associations (SHRM and CIPD) and several fragmented groups. Besides associations, the debate is dominated by “gurus” such as Dave Ulrich (1998) and Ram Charan (2014). Both provide answers as to how HRM must change and what this change should look like. But even they disagree to some extent (Charan 2014; Ulrich 2014). Whatever the best way might be, one conclusion that can be drawn is that HRM should be promoted from the top level of the organization. If senior management does not full-heartedly support HRM as an important contribution to organizational success, even if it cannot be measured at all times, HRM will struggle. HRD will struggle as well, which will affect the quality of the workforce in the long run and increase fluctuation of the best talent.

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## Recommendations and a Further Outlook

Breaking these recommendations down to the areas of HRM, as they are defined by the IPM (1988, p. 7), nearly all tasks that are currently conducted by HR can either be internally transferred, very often to the union – which might be a concern for many companies – or outsourced. HRM can be dramatically downsized, streamlined, and focused – a proposal to which many HR managers might heavily object, either because they fear becoming redundant or because they fear the inability to carry out new tasks, as described above. On the other hand, the proposals given here should be carefully considered. Shared service centers, or the business partner framework, for example, have not been as successful as some companies had hoped.

Recruitment and selection can be supported or even completely carried out by algorithms. The same might be true for employee service. Usually, employee requests are limited to a very small number of issues. To provide employee service, chat bots can be used to cover most, if not all, standard requests.

Training and education will be defined between the direct manager and the individual employee, supported by HRD as an internal learning facilitator, not necessarily a training provider who delivers services to the organization. Learning becomes a shared responsibility (Tjepkema et al. 2002a, p. 15). Necessary skills are either acquired or a separation culture must be implemented when one side is neither capable nor willing to support the other side. Especially in smaller companies, an in-house training department may not be economically feasible; it might make more sense to purchase training. In a rapidly changing market with shifting skills and training demands, this is becoming increasingly reasonable, while the HRD professional focuses on the support of a learning organization. The proper employment, working conditions, and terms of employment of personnel are usually regulated and must be adapted to national law, where a lawyer or the compliance department can offer support. Unions are also a great partner to ensure proper employment and

discuss the implementation of amenities. They can also offer support with aspects like joint consultation between employers and employees and between their representatives, and settlement of disputes. Terms can be unified, with the risk of losing potential talent. The same is true for methods and standards of remuneration. Remuneration or compensation and benefits – the payroll – can be transferred to the finance department. One major concern with this is that remuneration is a confidential matter. Taking into consideration what other figures the finance department deals with on a daily basis, this should not be too much of a concern. The effective use of facilities can be transferred to facility management or be supported by personnel analytics to calculate the amount of office space that is needed and for a variety of other optimizations with regard to team performance, social interactions, and team behavior. Wherever an apprenticeship/VET program is in place, it can be coordinated from the HR department but carried out by the technical departments themselves. To be able to do this, a responsible person in each relevant department must be designated. The necessity of specific apprenticeship programs might be reassessed in the future. However, moving away from apprenticeship might become an issue for the future development of the workforce and a violation of the “ethos” of apprenticeship (Asghar et al. 2016, p. 81). In addition to this ethos, changing a system that is successful in many countries should be carefully considered, keeping in mind that VET can be a vital, integral part of HRD.

After transferring or outsourcing most tasks, HR will have the opportunity to focus on the support of the organization and its individuals during the stages of organizational development by coaching the management and leadership teams as promoters of HRM-related tasks. Following this proposal, unions will take on a more powerful role and the direct manager and his or her employee become the most important talent developer and HR manager in the organization.

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# Governing Adult Education Policy Development in Europe

# 40

## A Critical Appraisal of the Renewed Agenda for Adult Learning

Marcella Milana and Gosia Klatt

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### Abstract

Based on a claim that adult education policy developments in Europe are more strongly entangled with European rather than global governance in this policy domain, this chapter presents a critical appraisal of the Renewed European Agenda on Adult Learning (REAAL). This analysis draws on a heuristic model that concentrates attention on the strength of governance mechanisms and policy instruments as key units of analysis to examine governance in public policy

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domains such as education, building primarily on the work of Del Rio and Howlett (2013) on complex policy mixes, and that of Lascoues and Le Galès (2007) on policy instrumentation. By featuring REAAL's main characteristics, and in light of its historical stages of development, this chapter elucidates how, as a policy mix, REAAL performs three substantive authoritative functions (i.e., legal, epistemic, and procedural), which ease European governance in the adult education policy domain. Moreover, through a closer examination of REAAL's mode of working, this chapter identifies the governance mechanisms (i.e., standard setting, capacity building, and financial redistribution) and policy instruments (i.e., coordinated working groups/networks, mutual- and peer-learning arrangements, data generation, benchmarks, and funding schemes) that concur to its enactment. In doing so, it highlights two distinctive qualities that differentiate European from global governance in the adult education domain: its regulatory politics and its wealth redistributive capacity. Finally, the chapter points at some of the implications for the adult education and training sector and its market segments.

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**Keywords**

Adult education · Adult learning · Renewed European Agenda for Adult Learning · European governance · Education governance · Policy instruments

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**Introduction**

Adult education and training have unquestionably been made the object of global governance thanks to the work of international organizations (Milana 2017), paralleling similar work in the education policy domain more broadly conceived.

Recently, the United Nations' member states (MSs) adopted the *2030 Agenda for Sustainable Development* in September 2015 to end all forms of poverty. Grouped into 17 sustainable development goals (SDGs) for global transformation, the Agenda shall ensure that poor-, rich-, and middle-income countries promote wealth and prosperity that are sustainable for all countries worldwide. Education features high in this Agenda as one of its goals (SDG4) and through its links to most of the remaining SDGs (UNESCO et al. 2015). But in the framework for action for implementing SDG4, reference to adult education or training is spare and at times problematic, as it tends to focus on learning's outcomes (i.e., adults' skills) rather than on inputs and processes to achieve them (Milana et al. 2017). So, in October 2017, the midterm review of the VI UNESCO's International Conference on Adult Education (CONFINTEA) not only monitored progress with global agreements made in this policy domain (e.g., 2009 *Belém Framework for Action*, 2015 *UNESCO Recommendation on Adult Learning and Education*) but also debated at length what should be MSs priorities, when considering the specific contribution that adult education and training can make to global transformation.



Against this background, in Europe adult education and training policy developments are more strongly entangled with European rather than global governance. Obviously, both conceptions share an understanding that governing is not only a domain of states and governments but also depends on plural “formal and informal types of public interactions” (Pierre 2000, p. 3), “where no single actor can claim absolute dominance” (Burns et al. 2016, p. 18), hence the stress on the “interactions among structures” through “steering” or coordination (Pierre and Peters 2000). But European governance is multilevel in nature and tends toward Europeanization, an all-encompassing process of “domestic adaptation to European regional integration” (Graziano and Vink 2006, p. 7), through regulatory politics and a joint decision mode (Kohler-Koch and Rittberger 2006). As a result, since 2011 a *Renewed European Agenda for Adult Learning* (REAAL) is deliberately supporting policy coordination in the adult education domain within the European Union (EU) and its MSs. Accordingly, adult education emerges as a separate, yet complementary, policy domain to (adult) vocational education and training (VET).

This chapter presents a critical appraisal of REAAL through an examination of its development and working mode. In so doing, it teases out how adult education policy development in Europe is being governed by EU institutions, but with the contribution of a plurality of stakeholders from within and outside its MSs, and points at some of its implications.

The heuristic model guiding this critical appraisal draws on a vast literature that conceptualizes and showcases the analytical strength of governance mechanisms and policy instruments as key units of analysis to examine governance in public policy domains such as education, yet primarily on the work of Del Rio and Howlett (2013) on complex policy mixes and that of Lascoumes and Le Galès (2007) on policy instrumentation. Building on this work, REAAL is conceptualized as a policy mix or complex intergovernmental, multi-sectoral policy, which involves multiple policy goals. As such it is implemented through different governance mechanisms and instruments. The distinction between these conceptions lays in the fact that governance mechanisms are policy process aimed at reaching specific policy objective(s), which naturalizes these objectives and their effects, whereas policy instruments are the means used to reach policy outcome(s), which produce more or less stable frameworks that structure collective action. This heuristic model helps examining the different elements that concur to policy instrumentation and their relations, in the contest of European governance, and is used to analyze a set of data that consists of 60 policy documents and reports and other written information publicly available through the official websites of the EU and its institutions. Each data source was assigned an identification number, which appears in squared parenthesis when cited in this chapter. Further information has been obtained through consultation of the European Commission’s registry of committees and groups (<http://ec.europa.eu/transparency/regexpert/>).

The chapter is structured in three sections. The first section features REAAL as a policy mix that performs three authoritative functions: legal, epistemic, and procedural. It claims that these functions have put into motion a complex process to govern the adult education policy domain in Europe. The following section examines the antecedents of REAAL to appreciate its historical development and

distinguishes between a pre-foundation stage (1996–2005), a foundation stage (2006–2010), and a consolidation stage (2011–to date). Then, the third section examines the policy instruments and governance mechanisms through which REAAL governs adult education policy development in Europe. This brings to light two distinctive qualities that differentiate European from global governance in the adult education domain: its regulatory politics and its wealth redistributive capacity. Moving toward the conclusion, a further section outlines some implications for the adult education and training sector and its market segments.

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## Featuring the Renewed European Agenda for Adult Learning

In 2011 the Council of the EU approved a *resolution on REAAL* [17]. Council Resolutions have no legal effects on EU MSs, as they are non-binding documents, but express political positions on a specific topic and set out future work within a particular policy domain that is not (or not entirely) of EU exclusive competency. Accordingly, they may have different scopes that span from inviting MSs or other EU institutions to take action in a particular area to coordinating MSs' actions by setting objectives and proposing assessments and monitoring procedures. Although not binding, this section argues that REAAL constitutes a policy mix that performs three substantive authoritative functions (i.e., legal, epistemic, and procedural), which ease European governance in the adult education policy domain.

Previous to REAAL, the Directorate-General for Education and Culture (DG-EAC) of the European Commission (EC) had put forward an agenda for adult learning in one of its 2006 communications [10], and a corresponding action plan was proposed in 2007 to the Council of the EU, the European Parliament (EP), the European Economic and Social Committee, and the Committee of the Regions (CR) [11]. This led in January 2008 to its adoption by the EP through to a resolution on adult learning [12]. More on the historical development of REAAL will be discussed in the next section. Here it shall suffice that REAAL built on these previous normative steps, yet tailed the global financial crisis that had made its effects felt in Europe too, when MSs from the Eurozone became unable to repay or refinance their government debt. It was to contrast this and related social consequences that in 2010 the EC reconsidered the union's growth strategy in *Europe 2020* [16].

Within this scenario REAAL recognizes that

to face both the short and long-term consequences of the economic crisis, there is a need for adults regularly to enhance their personal and professional skills and competences. . . [but] adult learning is currently the weakest link in developing national lifelong-learning systems. . . [and] Implementing the Action Plan [for adult learning] has also highlighted the difficulty of adequately monitoring the adult-learning sector, due to a lack of sufficient statistical data and evaluation of policy measures. ([17], p. C372/2)

Accordingly, it sets new priorities in this policy domain that are “to be seen in the context of a longer term vision for adult learning which – in the period up to 2020 –

will endeavour to raise the sector's profile" ([17], p. C372/3). This vision stresses enhancing the possibilities for adults to engage in learning activities; developing new approaches based on learning outcomes and lifelong learning guidance systems; increasing awareness among employers of adult learning's benefits for productivity; encouraging higher education institutions to embrace nontraditional students; promoting learning opportunities in support of seniors' active, autonomous, and healthy aging; enhancing the involvement of civil society, social partners, and local authorities on the basis of shared responsibility; and promoting adult learning as a means to increase solidarity between age generations and cultures.

Short-term priorities for 2012–2014 invited MSs to better liaise ministries and other stakeholders; use lifelong learning tools agreed at EU level; use Grundtvig, Leonardo da Vinci, and the Structural Fund to co-finance activities; use the open method of coordination (OMC) to promote mutual learning; and designate a national coordinator to facilitate cooperation with other MSs and the EC in implementing the agenda.

Moreover, the EC was invited to ensure complementarity and coherence between policy initiatives; establish close liaison with the national coordinators designated by the MSs; enable the sharing of information through peer-learning activities and reviews, conferences, workshop, etc.; commission studies and reinforce the capacity of existing research structures; pursue and intensify collaboration with other international organizations and particularly the Organisation for Economic Co-operation and Development (OECD) to exploit the results of the Programme for the International Assessment of Adult Competencies (PIAAC), but also the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Council of Europe; harness available EU funds to support the REAAL; and report on its implementation as part of the joint progress report of the strategic framework for European cooperation in education and training (ET2020).

Overall, REAAL performed three authoritative functions: legal, epistemic, and procedural.

Legally, although resolutions are non-binding documents like communications, according to EU Law the latter set out the EC's own thinking on a particular matter, whereas the former are legal instruments that encourage all those addressed to act in particular ways and hence enable EU institutions to establish non-binding rules for MSs. So REAAL elevated political authority on adult education from the EC (accountable to appointed impartial and independent commissioners) to the Council of the EU (accountable to national governments) (Klatt 2014). A precedent had been established in 2008, when the previous action plan on adult learning had gained legitimacy through the EP's Resolution on adult learning [12].

Epistemically, REAAL's short-term priorities and longer-term vision legitimate an "instrumental epistemology" in the adult education policy domain that, as Bagnall and Hodge (2018) argue, has come to be favored in contrast to alternative, competing ones (i.e., disciplinary, constructivist, emancipatory) in the contemporary cultural context.

Such a cultural context focuses on, or places a high value on, action: on doing, on performing and on achieving (Ball 2000). . . it focuses on outcomes – on what is done or achieved in and

through that action and on its effectiveness in doing so (Bauman 1992). In its focus on achieving desired performance outcomes of extrinsic value, it places a high value on the efficiency with which resources are used in doing so, to the exclusion of other outcomes being attained (Rizvi and Lingard 2010). It therein promotes attention to the comparative competitive advantage of different types of engagements, processes, programmes, policies or organisational arrangements in achieving the desired outcomes (Marginson 1997). . . The focus, then, is on technical, mechanistic and programmatic relationships between the desired economic outcomes and the costs of contributing human actions, engagements, policies and interventions (Bauman 1998). (Ibid., pp. 24–25)

Procedurally, REAAL sets the objectives of MSs' action (e.g., liaise ministries and other stakeholders, co-finance adult learning activities, promote mutual learning) and of EC's action (e.g., ensure complementarity and coherence between policy initiatives, establish close liaison with MSs, enable knowledge sharing, reinforce research capacity of existing structures, pursue and/or intensify collaboration with other international organizations). But it also prescribes the policy instruments through which these shall be achieved. Finally, it interlocks the short-term priorities in adult education and related policy instruments, to ET2020, a different policy mix.

In short, REAAL, through its legal, epistemic, and procedural functions, has put in motion a complex process of instrumentation in the adult education policy domain, which frames "adult learning" as the process leading to the acquisition of skills by adult citizens and, which, in turn, increases the pool of skills available in a country and, by extension, within the European region as a whole and undivided territory, in its racing for global competition.

Before understanding how REAAL naturalizes policy solutions that may produce changes in the adult education policy domain in MSs, however, it is worth appreciating its antecedents.

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## **The Antecedents to the Renewed European Agenda for Adult Learning**

It is possible to differentiate between two periods in the prehistory of REAAL to appreciate its formation as a policy mix on its own rights. The first, spanning from the mid-1990s to the mid-2000s, is a pre-foundation stage in which the EU sets the ground for adult education to emerge as a policy domain distinct from education and training. The second period, covering just a few years from the mid-2000s to 2011, is the foundation stage in which adult education became a clearly defined policy domain.

### **The Pre-foundation Stage (1996–2005)**

A landmark for the pre-foundation stage is in the establishment of 1996 as the *European year of lifelong learning* [1]. Thanks to the activities organized across Europe to celebrate it, the conclusions of the Presidency of the European Council

held in March 2000 [2] called upon the MSs, the Council of the EU, and the EC, within their areas of competence, to move toward a European Framework defining the new basic skills to be provided through lifelong learning. Thus, in June 2000 the Presidency conclusions of the European Council [3] declared lifelong learning an essential policy area and invited the MSs, the Council of the EU, and the EC to work toward “coherent strategies and practical measures” (art. 32) to foster lifelong learning for all. No reference to the “adult learning’s sector,” as framed in REAAL, was present, with the only exclusion of making higher education more accessible to nontraditional students.

However, following up on both Councils’ mandate, in October 2000, the EC published its Staff Working Paper *A Memorandum on Lifelong Learning* [4] and launched a European-wide debate on a comprehensive strategy for implementing lifelong learning in Europe.

It is in the *Memorandum* that adult learning received its first mentioning and attention at European level, so did the need for developing indicators and benchmarks in this area. Particularly, the EC states that “[i]ntegrating learning more firmly into adult life is a very important part of putting lifelong learning into practice” [4, p. 7] and recalls that improving adult literacy rates and equitable access to basic and continuing education for adults were among the goals agreed by worldwide country representatives at the 2000 World Education Forum held in Dakar. Further, the EC mentions that MSs’ education and training systems (including “further/higher or adult/continuing”) are responsible for guaranteeing “that each and every individual acquires, updates, and sustains an agreed skills threshold” [4, p. 11]. Accordingly, among the open questions put forward to debate, a few addressed issues of concern for the “adult learning’s sector.” Finally, the EC notes that data on participation of adults in education and learning were being collected at European level through the Labour Force Survey (LFS), and data on the direct assessment of adults’ literacy and numeracy skills were also available through the International Adult Literacy Survey held between 1994 and 1998 and published by Statistics Canada and the OECD. But it argues for the need to complement systems-based with learner-centered data and suggests that “[t]o cover most of the issues... for which gaps exist... the best solution seems to be a dedicated adult learning survey” [4, p. 34]. This led to the ad hoc module on Lifelong Learning of the 2003 Labour Force Survey that initiated the European process of classification and typologization of adult learning activities, obstacles/barriers, and outcomes. Also, annexed to the Memorandum were 12 “good practices” in lifelong learning (two per each of its six key messages), compiled in collaboration with other European agencies (i.e., CEDEFOP, EURYDICE, the European Training Foundation, ETF) and a study commissioned by the EC. Three of these made direct reference to adult education and learning.

At a 1-year distance, two EP’s members, Hans Karlsson (Party of European Socialists group, PES) and Roy Perry (European People’s Party group, PPE or EPP), put forward to the EC a parliamentary question on “lifelong learning for adults” and on benchmarking in employment and education,” respectively.

On February 16, Hans Karlsson [5] enquired on what measures would the EC take to enable employees with several years of work experience to appreciate

lifelong learning at an advanced level (e.g., beyond ongoing, in-service training, for instance, through university studies).

On March 9, Roy Perry [6] asked the EC what steps had been taken to address each of the objectives agreed at the 2000 European Council and asked, where appropriate, what benchmarks had been established.

On behalf of the EC, Mrs. Diamantopoulou (the then European Commissioner for Employment, Social Affairs and Equal Opportunities) replied on April 5 to Hans Karlsson:

Lifelong learning is now seen as a horizontal objective of the Employment Strategy... The strategies should include the development of tertiary systems and further education and training for adults to improve their employability, adaptability and skills as well as their participation in the knowledge-based society... Moreover... the Commission expects to come up with some proposals at European level in its Action Plan in the autumn of this year based on the conclusions of the consultation process for the memorandum on lifelong learning. [5, pp. C 235 E/204–205]

She further clarifies, in her answer to Roy Perry on June 6, that

The Employment Guidelines for 2001... have incorporated these objectives [i.e., the objectives agreed in Lisbon] in a detailed way, setting also specific European or national targets as appropriate.

The European Social Fund is the Community's main financial for supporting the European Employment Strategy and hence, also, these four objectives. [5, p. C 340 E/78]

A number of additional complementary initiatives undertaken a European level were also mentioned by Mrs. Diamantopoulou, among which the request to the European Council and the EC to prepare a detailed work program on the follow-up of the objectives of education and training systems to be presented in the spring 2002 European Council, where “[i]ndicators and benchmarks will be key elements,” as well as the then ongoing consultation of the *Memorandum*, the results of which were to “be used by the Commission for drafting an action plan in the second half of 2001 including the development of indicators and benchmarking” [5, pp. C 340 E/78–79].

In the meantime, the *Memorandum* had been forwarded to the EP and referred by the Parliament to the Committee on Culture, Youth, Education, the Media and Sport as the one responsible and to the Committee on Employment and Social Affairs for an opinion. At a 1-year distance, the Parliament, in its 2001 Resolution on the *Memorandum*, adopted the motion to support it [7].

In fact, the Committee on Employment and Social Affairs in its opinion (adopted in July 2001) had highlighted the raising levels of investment in human resources as the most important message of the *Memorandum* and noted that “[e]xisting educational systems are dominated by basic State education for young people. An emphasis on lifelong learning would shift the centre of gravity toward adult education and further education” [7, p. 19]. Moreover, it pointed at three distinctive strategies embedded in the Lisbon Agenda: the elite strategy (i.e., develop new skills in knowledge intensive sectors), the compensation strategy (i.e., combat social

exclusion with priority to basic education for marginal groups), and the comprehensive strategy (i.e., set full employment as a priority goal). Albeit the committee recognized that MSs may combine or opt for either of such strategies, it thought important that they could be assessed and compared.

By recalling the coordination of MSs' employment policies through the European Employment Strategy and the more recent coordination process under the Education and Training 2010 (ET2010) work program, the committee affirmed that all this "should give the European Union a special role in overall educational planning and a specific responsibility for coordination on the basis of the open coordination procedure" [7, p. 20]. Hence a number of general principles were presented to the Committee on Culture, Youth, Education, the Media, and Sport, for incorporation in its motion for Parliament's resolution. All five principles listed under the motion's title *Adult Education Systems* are those proposed by the Committee on Employment and Social Affairs.

It is following the backing of the EP that in November 2001 the EC issued its Communication *Making a European Area of Lifelong Learning a Reality* [8], which then led to the *Resolution on lifelong learning* by the Council of the EU in June 2002 [9]. In this Resolution the Council reaffirms the need for convergence between the 2001 Communication and the ET2010 work program "in order to achieve a comprehensive and coherent strategy for education and training" [9, p. C163/2]. MSs are thus invited "to develop and implement comprehensive and coherent strategies. . . involving. . . in particular the social partners, civil society, local and regional authorities" [9, p. C163/2] and to mobilize resources in support of such strategy in conjunction with the European Employment Strategy.

In extreme synthesis, in the pre-foundation stage, the adult education dimension of lifelong learning is teased out in dialogue between EU institutions, which bolsters the ties between European education and training and employment policies. This created the ground for adult and further education to be seen as an intergovernmental and multi-sectoral policy domain with multiple goals. Therefrom, the concern of EU institutions for existing statistical data gaps at the microlevel (learner-centered), and stronger knowledge exchanges and collaboration across MSs, and with other international organizations with an interest in adult and further education.

## **The Foundation Stage (2006–2010)**

It is at foundation stage, however, that a policy mix governing adult education within the EU starts to take its current shape, upon initiative of the EC.

In its 2006 Communication *Adult Learning: it is never too late to learn* [10], the EU provides the policy underpinning for implementing a dedicated action, under the Lifelong Learning Programme 2007–2013, to adult education (i.e., Grundtvig), and proposes five key messages (i.e., to remove barriers to participation, to increase the quality and efficiency of the sector, to speed up the process of validation and recognition, to ensure sufficient investment, and to monitor the sector) to advance adult learning in Europe.

Upon informal consultation with “national sounding boards” (i.e., policy-makers, social partners, and NGOs from 27 MSs, the 3 EEA countries, and Turkey) and with the support of individual experts, the social partners, and international bodies (e.g., UNESCO), the EC proposes various actions to address the five key messages in its 2007 *Action Plan on Adult learning: It is never a good time to learn* [11], addressed to the European Council, the EP, the European Economic and Social Committee (EESC), and the CR. In January 2008 the EP endorses the action plan [12] in one of its resolutions, yet noting the need for comparable statistical data to develop, review, and evaluate policies in this domain and support the European Adult Education Survey. Moreover, it calls on the MSs to make a more active use of the Structural Funds, the European Social Fund (ESF) particularly, in support of adult learning, and the EC to ensure that all MSs take necessary legal and financial steps to offer and provide access to lifelong learning for all. All of this impinges on coordination, cooperation, efficiency, and transparency between legislative measures and the institutional frameworks, networks, and partnerships of bodies or associations involved in adult learning, using local, regional, national, and European (public or private) financial resources.

In March also the EESC endorses the action plan “wholeheartedly” but subject to the comments set out in its opinion [13], which warns against any inefficient overlap with other EU objectives, projects, and programs, and calls for better attention to vulnerable groups (e.g., disabled people, migrants). Accordingly, also the Council of the EU, in its conclusions on adult learning of 22 May 2008 [14], endorses the action plan, sets common priorities in the “adult-learning sector,” and invites all MSs to implement the measures for 2008–2010 outlined in its Annex.

Measures for the EC to implement the action plan span from analysis of national reforms in education and training, national qualification, and credit transfer systems, and the impact of national reforms in terms of funding dedicated to different age groups, to support professional development in the adult learning sector, and the quality of adult learning providers, to share good practices among, to support visibility of adult learning in nation lifelong learning strategies and awareness raising among potential learners. Attention is also paid to establishing European comparable core data needed to facilitate monitoring.

Measures for MSs to implement the action plan include exchange good practices and mutual learning, develop multi-stakeholders’ projects in adult learning, remove barriers and facilitate access to learning opportunities, reach out especially to early school leavers and low-skilled adults, motivate employers and employees toward adult learning, make effective and efficient use of EU funds in support of adult learning opportunities, cooperate more closely with CEDEFOP and the UNESCO Institute for Lifelong Learning, and “make full use of the research capacities of other international institutions” [14, p. C 140/13].

The EC is tasked by the Council of the EU to support MSs in further promoting access to adult learning opportunities, stressing results-oriented learning outcomes. More importantly, however, is to ensure complementarity and coherence between measures relating to adults across three policy subdomains: adult education (i.e., action plan), higher education (i.e., Bologna process), and vocational education and



training (i.e., Copenhagen processes). To this aim, the EC is also tasked to pursue and/or intensify interinstitutional cooperation with other international organizations, and with nongovernmental organizations, and establish links with international education initiatives and agendas (e.g., Education for All, the Millennium Development Goals).

In the autumn 2008, the CR stresses that “the actions proposed in the Action Plan should also be carried out at local and regional level where appropriate. . .[and] that local and regional providers and stakeholders are involved as partners at all stages, in particular, at policy development, governance structures and delivery systems” [15, p. C 257/70].

In short, over a 3-year period (2006–2008), REAAL took full shape as a policy mix, with own mechanisms, instruments, and tools (see next section). On these precedents, the outbreak of the global financial crisis also impinged on the tuning of REAAL. Specifically, two elements of *Europe 2020* [16], though indirectly, bear higher significance for the adult education policy domain: a European benchmark on tertiary education for young adults (i.e., at least 40% of the younger generation should have a tertiary degree) and a flagship initiative linking skills to better job prospects (i.e., an agenda for new skills and jobs).

Since 2011 onward, REAAL has moved into a third stage of development that has seen the consolidation of adult education as a clearly defined policy domain, which bears strong links with other domains within the EU (e.g., covering education and training, employment, and macroeconomic policies), but with its own policy instrumentation that is examined in the next section.

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## **The Modus Operandi of the Renewed European Agenda on Adult Learning**

A close examination of the modus operandi of REAAL points at standard setting, capacity building, and financial redistribution, as its core governance mechanisms (see Table 1), operating under the principles of the OMC.

But several policy instruments contribute to the working of these mechanisms. Those surfacing in the analysis include coordinated working groups/networks, mutual- and peer-learning arrangements, data generation, benchmarks, and funding schemes (see Table 2).

In the proceedings each instrument is explored in details, also to pinpoint at how it contributes to the working of the abovementioned mechanisms.

### **Coordinated Working Groups/Networks**

Since foundation stage to date (2018), five working groups/networks have been established in the adult education policy domain, under the coordination of the EC: four temporary Commission Expert Groups (CEGs) and one permanent Other Similar Entity (OSE) (<http://ec.europa.eu/transparency/regexpert/>). CEGs are

**Table 1** Governance mechanisms at play to implement the renewed European Agenda on Adult Learning

Governance mechanism	Description
<b>Standard-setting</b>	It involves normative actions (including benchmarking and standardization) that concur toward the establishment of a single, European model in the area of adult education and learning, to which all MSs should conform
<b>Capacity-building</b>	It promotes “good” or “best” practices that help orienting the practical implementation of policy solution in the area of adult education learning to what framed as common European problems, by EU institutions, national governments, and other stakeholders
<b>Financial redistribution</b>	It implies that EU’s wealth is shared out between MSs as a deliberate effect of joint decisions that include conditionality, and are used in support of reforms and activities in the area of adult education and learning

**Table 2** Policy instruments used to implement the renewed European Agenda on Adult Learning

Policy instrument	Description
Coordinated working groups/networks	Groups established and coordinated by the EC, whose members, appointed by MSs’ governments or the EC, represents different elite positions (i.e., governmental agencies, other stakeholders, experts), and are assembled, over a period of time, to work on important policy issues in the area of adult learning
Mutual- and peer-learning arrangements	Occasions for representatives of MSs, and EC’s staff that support this activity, to identify and learn about initiatives and practices in place in different MSs (and beyond) in the area of adult learning
Data generation	The gathering of quantitative and/or qualitative data, the method used to generate data from different sources, and the procedure through which data reaches a database or otherwise organized collection of data
Benchmarks	Accepted standards at European level, at times negotiated and agreed among Heads of states and governments, by which MSs’ performances in the area of adult education and learning can be measured, compared, and thus their level of quality judged
Funding schemes	Plans or arrangements designed by EU institutions to encourage governments, organizations, or people to attain a particular objective or to put an idea into effect by providing money to finance an activity, a program, or a project entirely or in part

consultative bodies set up by the EC or its departments when external specialist advice is needed “for sound policy-making.” OSEs have a similar function but, though administered and financed by the EC, are set up by the EU’s legislator. Both CEGs and OSEs advice the EC but their inputs are not binding. Appointed members may include individuals in their personal capacity (A); individuals representing a common interest/policy orientation (B); organizations (C); local, regional, or national MSs’ authorities (D); or other public entities (E). Unless there are overriding priorities or emergency conditions, all appointed members are selected through public calls for applications, with the exception of public authorities (i.e., D and

E). Selected features of the working groups/networks under consideration here are presented in Table 3.

All working groups/networks were tasked to assist the EC with the implementation of existing EU legislation, programs, and policies and to coordinate with MSs, through views' exchange. Only WGPAL, active at foundation stage, was tasked also to assist in the preparation of legislative proposals and policy initiatives.

At consolidation stage, however, changes in EU education governance impinged on the adult education domain. An internal restructuring of the EC moved its responsibility from DG-EAC to the Directorate-General for Employment, Social Affairs and Inclusion (DG-EMPL) since 2013, so the coordination of working groups/networks in this domain shifted accordingly.

Moreover, due to the 2009 agreement ET2020 and its tuning to *Europe 2020*, the work of these groups/networks slowly altered too, as to better fit the principles of the OMC. Made explicit in the mission statement of WGAL, such adaptation process is also evidenced in its stress on mutual learning among MSs, assistance to MSs in coping with country-specific "recommendations" by the EU institutions, and "concrete and useable outputs" as a result of the group's activity.

Operating under a looser interpretation of the OMC's principles, both TWGQA and TWGFAL had a thematic focus (quality vs. finance) and higher interest in research gaps. TWGQA explored synergies to strengthen the policy links between EU policy development on quality in vocational education and training, higher education, and adult learning through three subgroups on indicators, accreditation/governance, and staff competences [19]. In the meantime, TWGFAL explored existing good practices to produce policy recommendations to assist MSs in improving the efficiency and coherence of adult learning financing. Two subgroups focused, respectively, on funding adult learning for re-skilling and up-skilling to support innovation and growth and funding adult learning for social inclusion and active citizenship. Both working groups appointed also individuals in their personal capacity.

By contrast, WGAL, in line with its tighter governance function, did not appoint any individual in his/her personal capacity and instead increased representation of other public entities and particularly of candidate countries (now including Albania, Montenegro, Serbia, and Turkey). Further, among EU agencies, it replaced Eurydice, a network of intuitions that facilitate sharing of information on national education systems, with the European Training Foundation (ETF), an agency that supports education, training, and labor market reforms in transition and developing countries.

Yet, silenced members of all working groups/networks are consultancy firms that, having signed framework contracts with the EC, provide their services as facilitators and rapporteurs for the groups/networks' activities.

## **Mutual- and Peer-Learning Arrangements**

Mutual- and peer-learning arrangements can take many forms and may involve representatives of different elite groups. Participation may be restricted to the

**Table 3** Coordinated working groups/networks in the adult education policy domain

Acronym	Full title	Active	Mission	Members (alternative members), by type <sup>d</sup>				
				Tot.	A	C	D	E
WGPAL <sup>a</sup>	Working Group on the implementation of the Action Plan on Adult Learning	2008–2010	Provide the EC with: <ul style="list-style-type: none"> <li>- Policy advice and assistance in implementing, and following up, the actions set out in the Action plan (2008–2010);</li> <li>- Examples of good practices for dissemination and discussion of proposed actions at EU level, to impact and strengthen adult learning participation at national and regional levels</li> </ul>	49 (2)		7	37 (2)	5
TWGQA <sup>a</sup>	Thematic Working Group on Quality Assurance in Adult Learning	2011–2013	<ul style="list-style-type: none"> <li>- Examine the research gaps on quality in the adult learning sector from MSs' and experts' point of view</li> <li>- Explore different approaches in MSs on quality in the adult learning sector to improve both systems and provision</li> </ul>	32	4	4	20	4
TWGFAL <sup>a</sup>	Thematic Working Group on Financing Adult Learning	2011–2013	<ul style="list-style-type: none"> <li>- Examine the research gaps on financing adult learning from MSs' and experts' point of view</li> <li>Explore the effects of different financing approaches in MSs to increase participation rates in adult learning</li> <li>- Consider the contribution of adult learning to social</li> </ul>	28	5	4	14	5

*(continued)*

**Table 3** (continued)

Acronym	Full title	Active	Mission	Members (alternative members), by type <sup>d</sup>				
				Tot.	A	C	D	E
WGAL <sup>b</sup>	ET2020 Working Group on Adult Learning	Since 2014	cohesion and economic development from the cost/benefit point of view - Benefit MSs in their work of furthering policy development on adult learning through mutual learning and the identification of good practices - Provide assistance to clusters of MSs in responding to issues identified in country-specific recommendations, by having such MSs benefit from the practical experience and good practices of other Member States - Will concentrate on delivering concrete and useable outputs that respond to the strategic aims of both ET2020 and Europe 2020	55		7	35	13
NCAAL <sup>b</sup>	National coordinators for the implementation of the European Agenda on Adult Learning <sup>c</sup>	Since 2012	Facilitate cooperation with other MSs and the EC in implementing the European Agenda for Adult Learning, within the context of ET2020	39			31	8

<sup>a</sup>Led by the European Commission's Directorate General for Education and Culture

<sup>b</sup>Led by European Commission's Directorate General for Employment, Social Affairs and Inclusion

<sup>c</sup>Has a "permanent" status

<sup>d</sup>No individuals representing a common interest/policy orientation (Type B, cf. p.13) were present

members of a group (e.g., one of those mentioned above) or open to nonmembers too.

At foundation stage a number of encounters, framed as “peer-learning activities,” involved members of a given group to share country-relevant knowledge on practices and experiences in a specific area or to pursue a given policy objective, like those that focused on each of the priority areas of the Adult Learning Agenda, organized by WGPAL in Dublin (January 2008), Slovakia (March 2009), London (April 2009), Prague (June 2009), and Oslo (March 2010) [25].

In addition, several regional meetings were organized by WGPAL in Germany (October 2009), Norway (October 2009), Spain (October 2009), and Slovenia (November 2009) clustering, respectively, Western European countries, Nordic and Baltic countries, Southern European countries, and Central and Eastern European countries. Such events were opened to a variety of stakeholders in adult learning “to engage in discussions, knowledge-transfer and other exchanges about topics and developments of importance to participating countries in the context of the Action Plan” [25, p. 21].

At both foundation and consolidation stages, WGPAL and WGAL also made use of workshops with country experts to discuss in-depth topics such as improving quality in adult learning, financing adult learning, adult learning in higher education, basic skills (Brussels, June 2010), effective policies for increasing the participation of adults in basic skills provision (Stuttgart, October 2014), or national and regional policies aimed at increasing the use of information and communication technologies and open educational resources in adult learning (Oslo, March 2015) [25, 33, 35].

Moreover, at consolidation stage, thematic seminars hosted by national governments provided an opportunity for collective syntheses of what learned from in-depth country or regional discussions and case studies on agreed topics, as in the case of the policy coherence seminar organized by WGAL (Brussels, 2015) [34].

Finally, mutual and peer learning also occurred at conferences sponsored by the EC either in isolation (e.g., Adult Skills Conference: Empowering People, 6–7 December 2016 [58]) or in collaboration with other international organizations (e.g., Equipping adults for the twenty-first Century: Joining Forces for Action on Skills and Competences, 9–10 December 2013, with the UNESCO Institute for Lifelong Learning [21]). Through plenary sessions and workshops, these conferences provided several opportunities for policy implementers, professionals, and, to a lower extent, academics to share information about national and regional policies and practices in the adult education domain and for EC’s staff to inform about EU’s policy development and monitor their implementation at national and regional levels.

## Data Generation

A policy instrument that equally supports European governance in the adult education domain is data generation, which comprises the collection of qualitative and/or quantitative data, more or less systematic procedures from collecting it from various sources and for organizing and/or storing it.

An approach to data generation used at consolidation stage is “literature reviews,” which implies a systematic search of the literature available in a selected area, with the scope of describing, summarizing, and possibly evaluating the facts and data it makes available and their analyses. Similar undertakings can be stand-alone activities or part of wider studies and reports. When stand-alone activities tasked by the EC to individuals or organizations, their results set the ground for further policy debate and hence frame further work in such area. An example of this is the literature review, *Improving basic skills in adulthood: Participation and Motivation*, prepared for WGAL in 2015 [31]. It offers an overview of key academic research investigating the participation of adults in activities aimed at raising their basic skills. The review comments on theoretical issues (e.g., life course, identity, and different forms of motivation) as well as empirical research evidence and highlights that “Low-income and poorly educated adults tend to be the least likely to engage in education and training, in part because of poor experiences in compulsory school, but also because employers are often reluctant to provide training for low-skilled staff” [31, p. 13]. At the same time, it recognizes that “the body of research literature in the field of adult literacy and basic skills education refers strongly to examples from the UK, the United States and Canada. Research (available in English) based on the situation in other countries is much more scarce” [31, p. 16].

But less systematic, more concise literature reviews are also done a posteriori, to build the knowledge bases that underpin data generated through other methods, for instance, in a wider study or report. In this case, the literature is cherry-picked for the benefit of the overall study or report. An exemplification is found in *An in-depth analysis of adult learning policies and their effectiveness in Europe* [30], a report published in 2015 (see later on).

But the most common approach to data generation adopted by the EC is “case study,” usually covering a country or region. Although the term is open to various definitions and interpretations, here it refers to an account that provides detailed information and report on facts, about something (e.g., a government policy, a policy implementation strategy, an initiative in the adult education policy domain), and possibly how it developed over time. Such definition comprises written accounts that derive from somewhat in-depth investigations and hence combine quantitative and qualitative data but may not necessarily involve a systematic mode of enquiry. Further, cases studies can follow quite different production procedures, and, as a result of this, data hereby collected can be organized in different ways. Their production can be tasked by the EC to selected members of working groups/networks, for instance, in preparation of mutual- and peer-learning arrangements [34], or commissioned to others (individuals or organizations), through calls for tenders or proposals. Both types of case studies, however, often tend to be reduced to written account of “best” or “good” practices identified (hence judged as such) a priori. For instance, the abovementioned report, *An in-depth analysis of adult learning policies* [30], includes ten case studies of countries that had been performing well over time (or had recently improved) in making their adult learning policies effective.

Written accounts of “best” or “good practices” are another way of generating data to govern the adult education domain. Albeit a best practice refers to “a working method or set of working methods that is officially accepted as being the best to use in a particular business or industry...” (according to the *Cambridge* dictionary), in the global education discourse, it often addresses those initiatives that limit some kind of deficit (e.g., lack of basic skills) or improve the conditions of someone (e.g., adult learner) or something (e.g., education and learning systems). In other words, best practices model desirable goal (s) that people or organizations can work toward. Similarly, a good practice is often used interchangeably, but to point more broadly at positive actions or application of general principles from which other people or organizations may learn. Accordingly, collections or libraries of good practices in the adult education domain may be produced before, during, or after mutual- and peer-learning arrangements (see above) or to generate data and capitalize from EU-funded activities and projects. Such was the case with the *ERASMUS+: Good practices in the implementation of the European Agenda for Adult Learning 2012–2016* [48], a compilation developed by NCAAL’s members while implementing the European Agenda for Adult Learning, whereby good practices refer to “a number of successful activities that had a substantial impact in their countries and that is of interest to share with anybody interested in the field of adult learning” [48, p. 1]. These “good practices” cover meetings, conferences and bilateral exchanges, awareness raising activities, preparatory work leading to reforms of adult learning policies, and concrete measures to improve adults’ basic skills in just a small cluster of Western European countries (3), Nordic and Baltic countries (2), Southern European countries (2), and Central and Eastern European countries (2), yet with the United Kingdom and Slovenia overtly represented (with three good practices per country, in contrast to one per each of the other countries). Each good practice is described through a short overview of the activity carried out, its target, the reasons for success, and its impact, within approx. 400–500 words of length.

Also, “state-of-the-art reports” can at times generate data, like the *State of the Art Report on the Implementation of the European Agenda for Adult Learning*, published in 2014 by the European Association for the Education of Adults (EAEA) on behalf of the RENEWAL consortium [57], with a preliminary analysis of the main challenges, developments, and issues regarding the implementation of the Agenda in Southern and Central Eastern Europe. Likewise other instruments for data generation mentioned thus far, the depth, breath, and soundness of data gathered through state-of-the-art reports, vary, and so does the degree to which they apply a systematic method for data gathering. However, with a few exceptions, they organize and store fact and information in fiches, catalogues, and libraries that are often available to a larger public through the EC’s websites, including the European Platform on Adult Learning in Europe (EPALE).

Last but not least, data generation also includes the design and management of, and the financial support to, quantitative studies like the Labour Force Survey and the European Adult Education Survey on adults’ participation in education and training, managed by EUROSTAT (carried out in 2007, 2011, and 2016), and PIAAC, managed by the OECD (carried out in three rounds 2008–2013, 2012–2016, and 2016–2019).



## Benchmarks

Benchmarks are accepted standards for evaluating (by comparison) countries' performance in a policy domain, which results from benchmarking, or the process of finding "good practices" (based on both quantitative and qualitative data) on which basis standards can be identified and agreed upon at EU levels. But benchmarking can be deliberate and systematic (i.e., explicit) or a by-product of data generation (i.e., implicit) (Jackson 2001). In either case, it can focus on inputs, processes, or outcomes (or any combination of these) either vertically (e.g., improving the performance within an organization from bottom line to top management) or horizontally (e.g., improving different manifestations of the same inputs, processes or outcomes, or their combinations, across organizations (Jackson 2001)). Along this line of thinking, it is possible to distinguish between explicit and implicit benchmarks (as the result of benchmarking).

Since foundation stage, even if various explicit benchmarks, agreed under ET2020 (2009) and reaffirmed in *Europe 2020* (2010), may relate to the adult education policy domain, only one is purposely targeting the adult population: by 2020, an average of at least 15% of adults should participate in lifelong learning. Hence it is such percentage to explicitly set the average European standard in this policy domain and used to assess MSs' performance, as they advance with the implementation of REAAL. But, among implicit benchmarks supported by the EU is also an average increase at European level of the percentage of adults with (literacy and numeracy) skills proficiency Level 3 or higher. Construed by Statistics Canada and the OECD (2005, p. 31) as "the level considered by experts as a suitable minimum level for coping with the increasing demands of the emerging knowledge society and information economy," Level 3 has endured in PIAAC and made an implicit horizontal benchmark for evaluating OECD's member and nonmember states' performances (Hamilton et al. 2015), as well as EU MSs, in terms of their policy outputs.

Improved networking, collaboration, and mutual and peer learning among MSs, the EU, and other international organizations can be seen as the products of benchmarking activity (cf. Jackson 2001). But by flipping the picture upside down, they are as well the fertilizers for benchmarks to be negotiated and agreed among heads of states and governments, so that MSs' performances in the adult education policy domain can be measured, compared, and judged.

## Funding Schemes

One more policy instrument assists all the others reviewed thus far, by providing the financial resources needed for the implementation of REAAL: funding schemes. These are plans or arrangements designed by the EU institutions to encourage governments, organizations, and people to attain particular objectives as they provide the money to finance an activity, a program, or a project entirely or in part. Three such schemes support REAAL in various ways: the ESF, the Europe Programme for Employment and Social Innovation (EaSI), and Erasmus+.

Specifically, set up in 1957 the ESF is the main funding scheme to support achievement of the *Europe 2020*'s priorities, including in the fields of education and lifelong learning. Each MS agrees with the EC "Operational Programmes" covering an entire MS and/or one of its regions, which set the priorities for ESF's spending over a 7-year period (currently covering 2014–2020). ESF funding is always co-financed by public or private funding, which varies between 50% and 85% of the total project costs, depending on the relative wealth of MS or region. MS's participation to PIAAC, for instance, was supported through the ESF.

EaSI is a funding scheme that supports employment and social protection for combating social exclusion and poverty and improving working conditions. Over the period 2014–2020, it has earmarked a total of 1.000.000 euros of EU budget in support of *Europe 2020*'s priorities that, managed by the EC, co-finance projects led by public entities in MSs and candidate countries, Iceland and Norway, are responsible for national or regional up-skilling policies and actions. In 2017, for instance, a call for proposals was dedicated to *Awareness-raising activities on Upskilling Pathways: New Opportunities for Adults* [56].

Finally, Erasmus+ is an additional funding scheme that also supports the *Europe 2020*'s priorities, but only in the fields of education, training, youth, and sport. It is open to both organizations and people, depending on the country in which they are based (including also selected non-EU countries). A co-financing by public or private organizations is foreseen, but its amount varies depending on the line of financing. Its management can be centralized (when funds are managed by the EC's Education, Audiovisual and Cultural Executive Agency, EACEA) or decentralized (when funds are managed by national agencies located in each country eligible under Erasmus plus). Activities by NCAAL's members to implement REAAL in their countries have been partially financed through the Erasmus+, under the Key 3 Action: Support for policy reforms.

Summing up, the connections between the policy instruments reviewed thus far (Table 2) and the governance mechanisms (Table 1) through which REAAL governs adult education policy development in Europe are presented in Table 4.

One of the mechanisms through which REAAL is enacted is standard setting, a process that involves normative actions toward the establishment of a single, European model in the area of adult education and learning. Implicit and explicit European benchmarks (or accepted standards), however, result from complex negotiations and consensus building among heads of states and governments. Negotiations and consensus building are facilitated by data generation activities and mutual- and peer-learning arrangements, as well as by working groups/networks dedicated to adult education and learning coordinated by the EC, and the availability of EU financial resources that are redistributed (via funding schemes) to public entities, organizations, and people within and outside MSs.

But, standard setting through negotiation and consensus building requires a parallel mechanism to promote "good" or "best" practices that can help orient the practical implementation of policy solution in the area of adult education and learning: capacity building. This is a process that involves EU institutions, national governments, and other stakeholders in mutual and peer learning thanks to (though

**Table 4** Connections between policy instruments and governance mechanisms in the implementation of the renewed European Agenda on Adult Learning

Policy instruments		Governance mechanisms		
		Standard-setting	Capacity-building	Financial redistribution
	Coordinated working groups/networks	X	X	
	Mutual- and peer-learning arrangements	X	X	
	Data generation	X		
	Benchmarks	X		
	Funding schemes	X	X	X

not exclusively) the management of, and participation in, coordinated working groups/networks. However, portions of the EU budget support capacity building by making funding available through plans and arrangements to attain particular policy reforms and their local implementation.

The fact that EU's wealth can be shared out between MSs (via funding schemes), as a deliberate effect of joint decisions that include conditionality, constitutes a strategic opportunity for REAAL's to perform its legal, epistemic, and procedural functions, and for a plurality of stakeholders from within and outside EU MSs to support European reforms and activities in the area of adult education and learning. By the same token, there are also serious constrains in Europe for supporting reforms and activities in adult education and learning that move always from, or even contrast conformity to, expected MSs' performances which cannot be measured, compared, and judged toward agreed (explicit as well as implicit) standards.

## Some Implications for the Adult Education and Training Sector

At this point it is worth interrogating the implications of the REAAL and its deliberate support to policy coordination within the EU and its MSs, for the structuration and/or regulation of the adult learning and training sector, as this has repercussions for several of its market segments.

In fact, from a market perspective, the adult education and training sector is seen as a system in which different types of providers can supply education and training, for which adults, or their employers, are willing to pay. Clearly, this concept derives from microeconomic theories where a "market" refers to the exchange of good or services that happens through the direct or mediated contact between buyers and sellers. Paralleling this understanding of the adult education and training market addresses the interplay between supply and demand for education and training activities. Yet different logics may substantiate policy (and EU policy) interventions on such market. One, building on behavioral economics, assumes that modeling human behavior can trigger adults' demand for education and training, bringing about a "natural" market adjustment. A different logic, however, maintains that institutional formations as much

as social structures are important determinants for the structuration of adult education and training markets. Such logic appreciates an adult education and training sector in which different market segments coexists (cf. Hefler & Markowitsch 2013). Accordingly, there is no adult education and training market (singular) but rather a plurality of adult education and training markets that may be affected by EU education policy, including in the adult education domain.

Now, the REAAL's basic assumption (as mentioned at p. 4) is that adult learning represents the "weakest" link for lifelong learning systems to flourish in MSs. But this may be seen as an almost natural consequence of the fact that those education and training activities that stimulate adults to learn, contrary to other type of educational provisions (e.g., primary education), can take a plurality of forms. For instance, Hefler and Markowitsch (2013) distinguish at least eight market segments in the adult education and training sector: (1) General Education (Schools for Adults/Evening Schools); (2) Vocational Education for Adults; (3) Active Labour Market Policies; (4) Corporate Training; (5) Management Training, Human Resource Development, and Organization Development; (6) Professional Education (offered by professional bodies); (7) (Liberal) Adult Education; and (8) Higher Education for adult students, including postgraduate programs. In each market segment, the supply-demand interplay is dependent on a number of factors on which policy can intervene (e.g., existing regulations, available resources, a provider's relative positioning in relation to its competitors).

Yet, when REAAL refers to "adult learning" is de facto addressing the adult education and training sector as a whole. But, as such, within MSs, public power authority on adult learning is more often than not fragmented between ministries and across governmental levels (from central to local). Hence governance of the adult education and training sector involves collaboration across public and private sectors and civil society. Consequent to this, MSs statistical evidence on the number of providers and participation rates is difficult to gather, so is detailed information on the type, characteristics, and quality of the provision and on its financing. Cross-country comparisons turn even more challenging, when one takes into consideration the different categorizations found in the academic and policy-oriented literature of educational provisions and the various classifications used in survey questionnaires (Boeren et al. 2017). So, for instance, the Adult Education Survey, a recurrent household survey of adults aged 25–64, run by the statistical office of the European Union (EUROSTAT) every 5 years (2007, 2011, 2016), covers participation in formal and nonformal education and training (<http://ec.europa.eu/eurostat/web/microdata/adult-education-survey>). Formal education and training "consists mostly of initial education" (as classified in ISCED 2011), which includes vocational education, special needs education, and some parts of adult education that are part of the formal education system. Nonformal education and training cover courses, workshops or seminars, guided on-the-the-job (planned periods of education, instruction, or training directly at the workplace, organized by the employer with the aid of an instructor), and lessons. However, such categorizations capture information on the demand rather than on the supply side, at the same time as they classify types of provision that is supplied, or privileged, by certain market segments, not others.

Finally, a key question is whether European governance, with its distinctive qualities (i.e., regulatory politics and wealth redistributive capacity), is promoting

an elite strategy, a compensation strategy, or a comprehensive strategy (cf. p. 8) in the adult education domain. Answering this question requires in-depth analysis of the development of the adult education and training sector and its market segments within and across MSs. However, it is reasonable to assume that different market segments may be differently responsive to either strategy. At best, within a MS, different market segments may privilege and specialize to differential strategic objectives, and thus the development of new skills in knowledge intensive sectors may progress hand in hand with full employment and social inclusion of the adult population. At worst, however, differential responses may produce further fragmentation in the adult education and training sector, which in turn may lead to higher competition within and between market segments, for instance, for accessing financial resources and/or attracting adults-as-customers.

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## Conclusion

Departing from the claim that adult education and training policy developments in Europe are more strongly entangled with European rather than global governance in this policy domain, this chapter presented a critical appraisal of REAAL. By featuring its main characteristics, and in light of its historical stages of development, it elucidated how, as a policy mix, REAAL performs three substantive authoritative functions (i.e., legal, epistemic, and procedural), which ease European governance in the adult education policy domain. Moreover, through a closer examination of REAAL's mode of working, this chapter identified the governance mechanisms (i.e., standard setting, capacity building, and financial redistribution) and policy instruments (i.e., coordinated working groups/networks, mutual- and peer-learning arrangements, data generation, benchmarks, and funding schemes) that concur to its enactment. In doing so it also highlighted two distinctive qualities that differentiate European from global governance in the adult education domain: its regulatory politics and its wealth redistributive capacity.

Further, this chapter argued that adult education emerged as a separate, yet complementary, policy domain to (adult) vocational education and training (VET) under EU policy coordination. On the one hand, this is appreciative of the distinctive characteristics that learning provision embeds, depending on its primary orientation toward different spheres of adults' further development (personal, social, and professional). This is in turn reflected in the differentiated market segments that compose the adult learning and training sector. On the other hand, within each market segments, the supply-demand interplay is dependent on a number of factors that fluctuate, also due to policy intervention. Hence, the fluctuating effects that differentiation as well as coordination in European policy promotes in adult learning and training markets (plural), at European, national, and local levels, are an aspect that merits further research attention.

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# The Changing Role of the Corporate Trainer: The Shift from “Training” to “Talent Development”

# 41

William J. Rothwell, Jae Young Lee, and Patricia Macko

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## Abstract

This chapter explains a shift from training to talent development. Modern world trends such as changing workforce demographics, globalization, cutting-edge technology, lean environment, and knowledge-based society have influenced the role of learning in organizations and promoted to change a view of corporate

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training to talent development. As a comprehensive and continuous process, talent development is strategically aligned with organizational goals and develops people in an organization to meet current and future organizational needs. Because the role of talent development professional is different from the role of trainers, talent development leaders are requested to have different competencies. This chapter presents specific competencies required for talent development leaders.

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**Keywords**

Corporate training · Talent development · Talent development professional, and competency

Say the word “training,” and it evokes a mental image of practical instruction offered in workplace settings to help workers become more productive in performing their jobs. But training has not remained static. Like much else in the modern world, it has been changing to meet increasing demands. The corporate private training market consists of individuals working for nongovernmental employers as so-called corporate trainers, now commonly called *talent development professionals* or *learning and performance professionals*. Corporate training is sponsored by employers for three key reasons: (1) to help workers qualify to meet minimum employer expectations at the time they are hired, (2) to help workers maintain updated knowledge and skills as technology and other changes render their pre-employment training obsolete, and (3) to help workers qualify for more challenging work duties at higher levels of responsibility on the organization chart. Corporate training helps individuals transition from educational institutions or external labor markets to unique corporate cultures that may place special demands on practitioners in any occupation.

This chapter examines changing views of training and why those views have changed. The first part of the chapter explores trends that have shaped the changing business landscape. The second part of the chapter examines the shift from training to talent development, defining terms and explaining the reasons for the change. The third part of the chapter focuses on the competencies of trainers and talent development practitioners.

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## Trends Shaping the Business Landscape

Nobody can dispute that the modern world is typified by rapid change. While futurists may debate which trends will have the most impact on the future, few can dispute that several trends will have great impact:

- Changing workforce demographics
- Globalization
- Technology
- Lean environment
- Knowledge-based work



But what do these terms mean? How might they affect the future? How can they affect the role played by learning in organizational settings?

## Changing Workforce Demographics

The world’s population is getting older, and that means workers are getting older. That is what we mean by *changing workforce demographics*.

Workforce demographics are changing for two reasons. First, women worldwide are having fewer children (Lawler 2014). Why they are having fewer children is unknown. But they are. Second, people are living longer due to improved medical treatment. When fewer people live longer, the world’s population grows older. That includes its workforce.

Consider the statistics (Lee and Mather 2008):

- By year 2020, about one-fourth of the US workforce will consist of workers ages 55 and older.
- It is possible that there will be a shortage of workers in the USA because there will be too many older people and too few younger people available.
- An aging global workforce will require employers to explore ways to recruit, select, onboard, train, develop, and retain older workers despite differing perceptions about older workers across global cultures.

There are, of course, many other implications of a globally-aging population and workforce. Those include concerns about workplace health and safety, the welfare of elderly people, the economic implications of large numbers of elderly people, and the efforts needed to deal with the disabilities created by age.

## Globalization

*Globalization* refers to the worldwide integration of economic considerations. It involves the gradual convergence of people, cultures, and work (Beck 2015). It is driven by the ease of cross-cultural transportation, the broad availability of technology, and the spread of methods by which to make low-wage workers more productive.

Globalization creates job opportunities in low-wage nations but reduces (or changes) job opportunities in high-wage nations (Spence 2011). It can lead manufacturers to move from high-wage countries to low-wage countries. It can prompt examination of governmental policies that attract and retain employers – such as the role of taxation, environmental and safety regulations, and unionizing efforts.

## Technology

*Technology*, derived from a Greek word that means know-how (Wikipedia 2018), refers to applications of science. Many associate technology with change itself and a

primary driver of change. Technology can make some people more productive and can change how people do their jobs and how people work together on their jobs to achieve results.

Consider:

- Business leaders often point to technological change as the biggest challenge facing their organizations.
- Technology change is often associated with the major drivers in business disruptions, the source of unemployment or structural shifts of employment in the economy, and a leading cause of global warming and environmental pollution.
- Changes in technology can shift entire industries from a traditional business model to something entirely new (e.g., consider how taxi services worldwide were changed by the technology that led to Uber or how hotel services worldwide were changed by the technology that led to Airbnb).
- More technological change has occurred since the beginning of the twentieth century than in all of human history before it.

Technological change requires workers to train for new skills and change the skills they possess to remain employed. Technological change is also associated with the information explosion because it is through technology that new knowledge is communicated. New knowledge, created by that information explosion, risks making worker knowledge and skills obsolete. The half-life of knowledge varies by discipline, but it is now possible that half of everything college students learn while in a 4-year degree program may be obsolete by the time they graduate. That is particularly worrisome for technical fields such as engineering, information technology, and sciences such as biology, chemistry, or physics.

Workers who can innovate – that is, apply creativity to discover new commercial applications of knowledge – are the most valuable of all. The reason: it is through people that businesses discover new products or services, find new ways to make or sell those products or services, and explore new markets where those products and services can be sold.

## **Lean Environment**

Lean was first invented by Toyota in the 1990s. Its goal was simply to reduce or eliminate waste, particularly in the manufacturing process (Hines et al. 2004). Lean encourages systematic study of every aspect of the production process to increase integration and thereby reduce waste.

Interest in lean has prompted more attention to the human side of the enterprise and to increase the focus on ways to encourage learning that go beyond mere formal settings such as online or onsite training. Indeed, if people can learn from the work they do and from the people they work with, much waste can be reduced, and time can be used with more impact.

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## Knowledge-Based Work

*Human capital* refers to the collective value of the knowledge, skills, and attitudes of people in an organization, community, industry, or nation. Human capital is thus associated with the value of *knowledge-based work*, which is work that relies on specialized knowledge (Drucker 1999). What people have learned to do has economic value (Becker 1962). What people have learned from experience has economic value. Moreover, how people have learned to innovate has economic value.

Many organizations today do not have good ways to value knowledge-based work or place an economic value on what people know how to do. As a consequence, no method exists to value human knowledge on balance sheets or income statements or to price worker engagement (or lack of it). Nor are organization leaders encouraged to find and groom their successor or capture tacit knowledge gained from experience.

## Summary

The movement from training to a talent development viewpoint is affected by each trend listed above. As the world’s workforce ages, employers will need to find ways to unleash the talents of older people rather than rely on the traditional view that new hires are nearly always young people drawn from schools. Talent development is about recognizing the critical importance of human creativity in creating innovation and helping employers achieve competitive advantage. Globalization will mean that workers, and employers, must be more cognizant of cultural intelligence and more capable of addressing national as well as corporate cultural differences. Technology changes the knowledge and skills that workers need to perform their jobs effectively, and technology change also places special value on the ability of workers to demonstrate special gifts (talents) in using that technology to achieve results. Workers must achieve more outputs with fewer inputs to help themselves, and their employers, gain and preserve competitive advantage. The ability to discover and apply special knowledge will increasingly be a source of competitive advantage, and that fact alone intensifies the importance of talent.

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## Transforming Training into Talent Development

Shifting business trends have transformed the nature of work and have led to a concurrent shift in the conceptualization of our role from corporate trainers to talent development leaders. Reflecting this conceptual reframing, in 2014, the American Society for Training and Development (ASTD), the world’s largest association for professionals in the workplace learning field, changed its name to the Association for Talent Development (ATD) to better indicate its purpose. However, people may still have questions about talent development that center on its nature, the difference

between it and training, and its structure within organizations. In this section, we cover these fundamental questions.

## What Is Talent Development?

Before we discuss talent development, we should first clarify how we define talent. This is a critical step because any confusion about the meaning of talent will hinder a full understanding of the talent development concept.

Practitioners have different opinions about how to define talent. According to Gallardo-Gallardo et al. (2013), talent refers to personal characteristics such as innate ability (objective approach) or people themselves (subjective approach). In our field, talent means people (Bingham 2014). Within this subjective approach are some professionals who define talent as people who have exceptional abilities and skills. From this perspective, talent refers to a group of employees who are top performers. Because of their exemplary performance, these people are referred as *high potentials*, *A-players*, or *superstars* in their organizations. Experts who support this exclusive approach argue that talent development should be focused on these high performers because they are future leaders and have the most impact on productivity which can be gained by improving the efforts of this group.

Others define talent in a more inclusive way, seeing talent as consisting of everyone in a given organization. According to this approach, each employee has his or her own strengths and potential to add value to the organization. Therefore, the entire workforce constitutes talent. Especially in today's knowledge information society, every employee is a valuable resource for his or her organization because the employee's knowledge contributes to the creation of economic value. Both the future competitiveness and growth of an organization hinge on its employees.

In the past, many organizations adopted the exclusive approach because it was considered a cost-efficient way to increase organizational performance. However, the exclusive approach has been criticized by many experts because it leads to ethical issues (e.g., inequality) and disengagement among employees (e.g., Harris and Foster 2010).

In this chapter, we take the inclusive approach, using *talent* to mean everyone in an organization. This is because we firmly believe in every employee's potential and strengths. Furthermore, organizational success stems from every individual's contribution, not only from the contributions of a few high performers. With this in mind, we define *talent development* as a comprehensive and continuous process that develops talents in an organization using a talent management system. Talent management is an integrative system that includes the selection, development, and retention of employees to meet an organization's end goals. Talent development is a significant component of overall talent management and cannot exist apart from a talent management system because they share organizational goals.

Other experts have defined talent development in the following ways:

- Talent development is the “planning, selection and implementation of development strategies for the entire talent pool to ensure that the organisation has both the current and future supply of talent to meet strategic objectives and that development activities are aligned with organizational talent management processes” (Garavan et al. 2012, p. 6).
- Talent development is “a process that delivers capabilities that the organization needs, identifies future capabilities, delivers team capabilities, creates innovation, inspires, seeks out people’s ideas, [and] actively communicates” (Caplan 2013, p. 17).
- Talent development is “building the knowledge, skills, and abilities of others and helping them develop and achieve their potential so that the organizations they work for can succeed and grow” (Bingham 2014, para 15).
- Talent development is “efforts to groom high performers or high professionals for the future and/or to tap them to transfer the specialized knowledge of high performers” (Rothwell 2015, p. xix).
- Talent development is “a comprehensive system that consists of a set of values, activities, and processes with the aim of improving all willing and capable individuals for the mutual benefit of individuals, host organizations, and society as a whole” (Mehdiabadi and Li 2016, p. 287).

Although experts have not reached a consensus on the proper definition of talent development, key points can be identified in the aforementioned definitions.

1. Talent development is a comprehensive and continuous process.
2. Talent development is strategically aligned with organizational goals.
3. Talent development develops employees to meet current and future organizational needs.

Relatedly, talent development leaders are professionals who continuously connect organizational strategies with employee development to promote organizations’ sustainable development.

## **How Is Talent Development Different from Training?**

In the previous section, we pointed out three distinct aspects of talent development based on various experts’ definitions. Yet how do these aspects make talent development different from training?

First of all, talent development is a comprehensive and continuous development process, whereas training is a short-term planned intervention for employees who need to improve their knowledge, skills, and attitudes. Rather than providing a one-shot solution, talent development focuses on developing employees throughout their careers in their organizations. Talent development is not a set of training programs but rather a systemic approach that integrates development practices,

business strategies, and other systems (e.g., selection, performance appraisal, career development, and succession planning).

Second, talent development is strategically aligned with organizational strategies and goals. Training helps individuals meet their job requirements and improve their knowledge, skills, and attitudes in their current jobs, but talent development is connected to the overall organizational outcomes. Talent development is designed and implemented based on organization's value, business goals, strategies, and needs. The results of talent development are not limited to the individual level but instead affect organizational performance. Talent development seeks to implement organizational strategies, build corporate culture, and align individuals with organizational values to achieve business goals and improve performance.

Third, talent development develops employees to meet current and future organizational needs. Unlike training, which focuses on short-term needs, talent development is directed toward current performance improvement and future business needs. In today's rapidly changing business environment, organizations must consistently and successfully adapt to changes to ensure their sustainable development. Talent development captures these long-term dynamics and is reflected in the developmental system. For employees to be agile in approaching future needs, talent development must engage and empower the employees to ensure that they can lead their organizations through various changes. Finally, by developing individuals, talent development creates a sound talent pipeline for meeting future needs.

## How Does an Organization Build a Talent Development Structure?

To build a talent development structure, an organization must first and foremost articulate its current and future talent needs. Doing so may include determining the number of talents that will be needed at a certain time in the future, as well as the specific competencies and characteristics of the talents that are needed. Without this clear picture, an organization's talent development structure becomes ad hoc. Future and current needs can be identified through a formal talent review process and a review of the existing competency models in an organization (Caplan 2013; Garavan et al. 2012). During the formal talent review process, talent development leaders assess the existing talent pool and identify gaps between the status quo and future needs. Reviewing competency models also provides important information, but talent development leaders should not rely solely on this information because the models have been created based on the past successes. Since every organization addresses different business challenges and experiences a different kind of talent shortage, an organization should build a unique talent development structure based on its particular needs.

Gandz (2006) proposed the concept of *talent development architecture*. Talent development architecture is supported by three pillars: pathways, programs, and processes. Once organizations have clarified their talent needs, the organizations can then create developmental pathways for their employees by providing

various work experiences and challenging projects. Employees can develop their abilities and careers by following the pathways that are suggested to them by their organizations. Organizations also provide developmental programs such as training, coaching/mentoring, and informal learning opportunities. Finally, processes refer to organizations’ integrated HR systems (e.g., selection, succession planning, performance management, reward, and career development). When an HR system is seamlessly integrated with a given organization’s developmental pathways and programs, the flow of talent within the organization is readily accessible.

Rothwell et al. (2015) proposed a puzzle model that shows how an organization can build its unique talent development structure using 39 functional pieces. The 39 functional pieces were identified based on the ATD Competency Study and input from the ATD Forum. Many workplace learning practitioners are familiar with these 39 functional pieces because they handle these issues in everyday practice. Talent development is not something else but things that they are already doing. By rearranging, removing, and add pieces to their existing systems, workplace learning professionals can create their unique talent development systems that fit their organizational needs and strategies. By surveying 307 talent development leaders, Rothwell et al. (2015) found 15 core components of talent development among the 39 functional pieces: change management, coaching, compliance, evaluation of learning impact, employee engagement, executive development, instructional design, leadership development, learning technologies, management of learning programs, needs assessment, onboarding, performance improvement, performance management, and training delivery. These are the most common components of talent development across organizations, but as in the former case, components can be added and removed as necessary.

The concept of talent development architecture (Gandz 2006) and the puzzle model (Rothwell et al. 2015) serve as good guidelines for talent development leaders who would like to build sound talent development structures for their organizations. A one-size-fits-all approach is unsuitable for meeting the diverse needs of an organization in a rapidly changing business environment. Using these models, talent development leaders can create their own structures that best support their organizational strategies and foster employee engagement.

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## **New Competencies of the Talent Development Leader**

This section focuses on the transformed competencies of talent development leaders based on the changing trends and the changed role from trainers to talent development leaders. To fulfill the changed role, talent development leaders are requested to have different competencies from trainers. In the following sections, we will review the competencies of talent development leaders based on *ASTD Competency Study: The Training and Development Profession Redefined* which was published by ASTD (now ATD) in 2013 because this study is perhaps the most critical study in understanding the competencies needed by talent development leaders.

## Defining the Term Competency and Competency Model

Before we review the competencies of talent development leaders, we will briefly explain what competency means and why the competencies have changed. The term *competence* came into trend following White's seminal work, *Motivation Reconsidered: The Concept of Competence*, which was published in *Psychological Review* in 1959. White explains that because people are intrinsically motivated to achieve competence, having competency models enables organizations to tap into our own desire to achieve proficiency. Spencer and Spencer (1993) defined competency as "an underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation" (pp. 391–395). This definition was found to be burdensome, and even the authors had to continue to elaborate on the meanings of the words included within the definition such as underlying characteristic, causally, and criterion-referenced.

For this chapter, the definition given to the term *competency* is any skill, task, ability, or knowledge needed for an employee to succeed in his or her job (Mulder 2017). To achieve competence in a particular job, a person should be able to perform various tasks or skills at a specific target proficiency level. Corporations often build competency models to depict different competencies needed for certain jobs within the organization. A competency model encompasses all the competencies, tasks, skills, behavioral examples, and proficiency requirements for a particular job. It focuses on factors the organization has marked "critical" to achieving the corporate strategy.

## Reasons Competencies for Talent Development Leaders Changed over the Past Two Decades

Taking a closer look at the landscape within organizations and in the training and development field shows transformational changes over the past two decades. As we mentioned above, most notable across the globe, critical challenges occurred such as the recession and economic uncertainty; digital, mobile, and social technology; demographic shifts; and globalization. These challenges also caused the role of the organization trainer to shift and expand into the talent development leader role. The main function of the trainer was to educate employees on specific job-related topics. In this role, the trainer was not linking the training topics to the employee's personal growth or organizational growth. Trainers were not as focused to how the content was transmitted or retained by the employees.

As organizations began to connect training to the employee's personal development and the strategic growth of the organization, the role of trainer began to focus on development of employee talent and how that talent can lead to positive organizational growth. As this new role began to expand, the title of talent development leader emerged.

As a result, talent development leaders had to learn new concepts such as integrated talent management, employee engagement, and crowdsourced, collaborative, mobile, and continuous learning. These new concepts disrupted conventional



notions of the training and development function’s job and changed the competencies required for success. Talent development leaders can no longer ignore external factors that can reshape the way organizations train and develop their employees. If organizations want to maintain their competitive advantage, they must heed the warnings of these external factors and understand how to reconstruct the ways in which talent development leaders develop employees.

Talent development leaders must understand and demonstrate their competence in adopting a global mind-set, emerging and ever-changing learning technologies, emotional intelligence, industry knowledge, collaboration, and innovation. The ways in which talent development leaders can share the value of demonstrating new and emerging competencies can be shown in the following ways:

- Staying abreast of new and emerging learning technologies
- Moving from the role of trainer to a facilitator of learning and content curator
- Fostering and supporting a culture of connectivity and collaboration
- Developing an environment of knowledge generation
- Building a stronger understanding of knowledge transmission
- Developing learning activities as a process that engages learners in a variety of ways and not as one-time events
- The ability to give learners a *voice* and a *choice* in how they are developed and select learning activities that meet their individual needs
- Using metrics to demonstrate the value and impact of learning
- Being a strategic business partner at the C-Suite level to promote support for training and development efforts

Several of the more deliberate ways for talent development leaders to give credence and validity to their efforts is being engaged at all levels of the organization. For example, the competency of giving a *voice* and a *choice* can be demonstrated by leveraging the learning styles and preferences of new generations entering the workplace and also those generations leaving the workplace. The term *voice* is shown in the way in which the talent development leader incorporates feedback from the employees on how they want to be developed. The term *choice* is reflected in how the talent development leader builds a repertoire of different training activities to select from or what some people call the “cafeteria-style” learning options.

Another way for talent development leaders to enhance their effort is being viewed as an integrated talent manager. This allows the talent development leader to engage in all the processes and systems that create organizational capability and understanding the role and contributions of the learning function. Talent development leaders can also demonstrate the value and impact of learning by using metrics that are meaningful to business and using data analysis to measure the effectiveness and efficiency of learning and development. Knowing how and when to share these business analytics can help talent development leaders’ gain support from C-Suite, executives, and board of directors.

By mastering these competencies, talent development leaders are viewed more successfully as a strategic business partner who aligns their activities with the

organization's business strategies and goals and demonstrates their return on investment, especially during challenging times.

### **Specific Competencies Required for Talent Development Leaders**

Talent development leaders must master many different competencies. According to the *2013 ASTD Competency Study: The Training and Development Profession Redefined*, competencies can be sorted into the following categories: business skills, global mind-set, industry knowledge, interpersonal skills, personal skills, and technology literacy (pp. 79–91).

Talent development leaders need to illustrate their competency in business skills by showing the ability to uncover the needs and opportunities of the business, client, and learners by comparing data from different sources to conclude and using effective courses of action in developing solutions. Several key actions listed in the business skills category include the ability to diagnose learning and development issues, generating multiple alternatives to meet learning needs, understanding business operations, and creating a value proposition between business needs and specific learning solutions.

The category of global mind-set leverages talent development leaders' abilities to work effectively with individuals from different generations who have diverse styles, cultures, abilities, and motivations. Several key actions included in this category are conveying respect for all perspectives, adapting one's own behavior to accommodate others, being a champion of diversity, and soliciting contributions from a diverse group of individuals.

The industry knowledge category encompasses a perspective of how well the talent development leader actively scans and assesses information on current and emerging trends in the learning and development industry. A key element included within this category pertains to how well the talent development leader maintains their own professional knowledge while keeping a keen eye on industry changes and trends.

The interpersonal skills category is comprised of ideas on how well the talent development leader interacts with others in a way that gives them confidence and builds trust. The interpersonal skills category has subsets that include building trust, communicating effectively, influencing stakeholders, networking with partners, and understanding emotional intelligence. Key attributes of this category include operating with integrity, leading by example, treating people fairly, nurturing relationships, and ensuring compliance with legal, ethical, and regulatory requirements.

The next category, personal skills, includes how well the talent development leader deals with adaptability and change. Talent development leaders must be able to handle constant change. As a change agent for the organization, the talent development leader must remain open to different people, thoughts, and approaches and to have the ability to adjust effectively to work within many work structures and processes. Key attributes of this category include approaching change with a positive attitude, modeling self-mastery in learning, and maximizing learning opportunities.

The last category, technology literacy, is perhaps the most prevalent change to the talent development leader job within the past two decades. This category includes ideas

on how well the talent development leader demonstrates an awareness and ease of use with the existing, new and emerging technologies. The talent development leader must have the ability to demonstrate a practical application of technology trends to leverage these technologies to accomplish learning activities and achieve business goals.

## Benefits of Using New Competencies

When talent development leaders master these new competencies, they will inherit benefits for themselves, the workforce, and the overall organization. Talent development leaders gain individual competence through modeling the behaviors needed to gain momentum and support in the overall buy-in of all learning and talent development efforts. Through this process, talent development leaders become life-long learners and use their knowledge to build a benchmarking tool to ensure that the organization’s talent resources are used and managed effectively.

The workforce benefits by having a talent development leader who can help employees with career exploration and development opportunities. Talent development leaders understand how to assess competencies needed within each job type within the organization. Talent development leaders coach employees in a manner that builds trust, analyzes needs, and provides the most successful learning and development solutions, which in turn builds employee engagement and success.

Other leaders and executives of the organization view talent development leaders who master these competencies as strategic partners. This will allow the talent development leader to engage leaders in the overall employee development process using a holistic approach including all processes, policies, and programs used for learning and development purposes. One of the most important aspects of the holistic approach is to be able to fully engage all leaders by educating them on the focus of organization development from the talent development perspective. This includes leaders understanding career planning, employee development processes, and how leaders should provide coaching and feedback to gain buy-in and engagement from all employees.

## Preparing Talent Development Leaders for Future Challenges

Keeping up with these changing competencies is but only one of the challenges talent development leaders will face in the future. Several other challenges that will test the talent development leader’s knowledge and capabilities will be their understanding of defining the word *talent*, *business agility*, *global strategy*, and clarify and defining *employee engagement*.

As we mentioned above, the term *talent* has many meanings, and the definitions of talent are different across people. Therefore, it is critical that the talent development leader spend time clarifying with other leaders a clear definition of how the organization is defining the word *talent*. While many organizations view talent development for just the “high performers” within the organization, demographic changes such as a four-generational workforce have changed the words talent

development to be inclusive of all employees in the workforce. Talent development leaders assist in building learning and development solutions to transfer knowledge through all generations, cultures, and geographic boundaries.

In his book, *Obliquity: Why Our Goals Are Best Achieved Indirectly*, John Kay discusses the idea that if the environment is uncertain, imperfectly understood, and constantly changing, the product of a process of adaptation and evolution may be better adapted to that environment than the product of conscious design. He gets readers to ponder the question that if environments are constantly changing, how can we cultivate agile practices? (Kay 2011).

The term *agility* speaks to how well the talent development leader can shift their day-to-day practices and attitudes to find learning solutions to build a more flexible and adaptable workforce. Agile talent development leaders will need to be highly adaptable on a regular basis. Several aspects of agility can be shown by how the talent development leader realigns their day-to-day actions, easily recalculates priorities, can be seen as a catalyst for change, and mostly important can affect overall business results in a positive manner.

Global strategy speaks to how the talent development leader can be involved with the organization's strategic and global talent development efforts. Specifically, the talent development leader will need to assure that these efforts are aligned with future global needs to ensure that the organization is prepared for filling future talent gaps. Talent development leaders must work with C-Suite and executives to educate on how global talent development impacts the overall organization's culture. C-Suite level refers to those employees who are normally at a senior level within the organization such as Chief Executive Officer, Chief Learning Officer, Chief Financial Officers, Chief Human Resource Officer, and Chief Talent Development Officer.

Lastly, talent development leaders will need to continue to build techniques for engaging workers. Talent development leaders can achieve this goal by continuing to assist the employees by giving them the *voice* and *choice* in how they are developed. Talent development leaders will need to work with C-Suite levels and above to assure the correct budgets will be allocated to provide the many different types of learning activities such as those found in mobile and social media learning solutions.

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## Conclusion

In this chapter, explanation was given to several aspects of changes within corporate training environments. These aspects included trends shaping the business landscape, transforming training into what is now commonly known as talent development, and how the position of trainer has now grown into a highly-skilled functional position of talent development professional or learning and performance professional. These changes were made to meet the business needs of the ever-changing and fast-paced corporate environments. Another prevalent change within the corporate environment is the expansion of multi-generational workforces. In order for talent development professionals to be successful in working in today's multi-generational workforces, they must master specific competencies. These

competencies include having a global mind-set, in-depth industry knowledge, adaptability to change, interpersonal skills, and technology literacy.

As organizations continue to grow and connect training to not only the employee's personal development but to overall organization performance and outcomes, talent development professionals and learning and performance professionals will be required to grow their expertise so that they are viewed as valued partners. Organization leaders will rely on the expertise of the talent development professionals and learning and performance professionals to help develop talent within the organization and to show how talent development can lead to positive organization growth.

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# Public Education Institutions as Providers of Private Training Programs: Degree Apprenticeships in the United Kingdom

# 42

John P. Wilson

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## Abstract

The Humboldt model of higher education describes the two main missions of universities, i.e., teaching and research; however, this has increasingly been complemented with the third mission of connecting with business and communities through knowledge transfer, valorization, engagement, and training. One important dimension of this third mission is the provision of training programs which bring numerous benefits to universities and their constituent communities.

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Yet, closer inspection of this training reveals a complex array of provision, and it is argued that the term “knowledge transfer” provides a more accurate picture from a learning perspective.

In recent decades, the United Kingdom has maintained a *laissez-faire* approach allowing industry to respond to the market; however, recently there has been a significant change with a new interventionist industrial strategy. The *Industrial Strategy* document described the University of Sheffield’s Advanced Manufacturing Research Centre (AMRC) as a role model for innovation and economic growth. The AMRC Training Centre will be discussed to provide a practical context with regard to degree apprenticeships and other training which is delivered to employees of approximately 300 companies, including Boeing, McLaren, and Rolls-Royce, which have established manufacturing facilities at the AMRC.

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**Keywords**

Degree apprenticeships · Third mission · Advanced Manufacturing Research Centre · University of Sheffield

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**Introduction**

Just as castles provided the source of strength for medieval towns, and factories provided prosperity in the industrial age, universities are the source of strength in the knowledge-based economy of the twenty-first century. (Lord Dearing 2002)

The Humboldt perspective of universities describes two main missions of teaching and research; increasingly, however, this has been complemented by a third mission – that of engaging with local, national, and international communities and businesses (Schimank and Winnes 2000). The third mission is also known as third stream, triple helix, knowledge triangle, knowledge transfer, and valorization and in the United States as outreach and engagement. This repurposing of the roles of universities has emerged for a number of reasons:

- Governments encouraging university – industry relationships in a triple helix (Etzkowitz and Leydesdorff 2000).
- Limitations on state funding for universities (Universities UK 2016c).
- Demands by society for less isolationism and greater involvement from the “ivory towers” of universities (Reid 2013).
- Businesses wishing to benefit from the research conducted in universities (Abramovsky et al. 2007).
- Open innovation strategies by businesses which no longer exclusively conduct in-house R&D seeking out research and innovation from other sources including universities (Chesbrough 2006).

Historically, higher education institutions (HEI) have provided a range of vocational education programs which can be defined “as being designed to offer

a pathway to a specific career or profession – by deploying specific, technical skills used in that career” (UUK 2016a, p. 11). Using this definition, Universities UK examined the Higher Education Statistics Agency (HESA) student records as well as the Skills Funding Agency’s Individualised Learner Record to categorize nine vocational study areas: architecture, building, and planning; computer science and ICT; education and training; engineering; medicine-related subjects; law and legal studies; medicine and dentistry; social work and care; and veterinary, agriculture, and environment. Based on the definition above, 42% of universities and 54% of further education (FE) colleges provided education which can be considered vocational.

In addition to this student-focused vocational education, higher education institutions and further education colleges also provide external training and continuing professional development. The title of this chapter, “Public Education Institutions as Providers of Private Training Programs,” at first glance, would appear to be a relatively distinct area, but the closer one investigates it, the more diverse it becomes. Inspection of this training reveals a complex array of provision from short bite-sized training to long extensive programs, in house/on campus, certificated/non-certificated, bespoke/off-the-peg, face-to-face/distance, online learning, government-supported programs/individual–company sponsored, etc.

To add further complexity, definitions of training are blurred and porous, overlapping with vocational education, learning, development, and knowledge transfer (Wilson 2012a). For example, the Manpower Services Commission (1985, p. 62) defined training as:

a planned process to modify attitude, knowledge or skill behaviour through learning experience to achieve effective performance in an activity or range of activities. Its purpose, in the work situation, is to develop the abilities of the individual and to satisfy the current and future needs of the organisation.

This definition of training is also relatively limited in its scope to provide a window on university–business links, and there are also other complications in defining “private training programs.” Do these mean only direct face-to-face training should be considered? What about when training is part of a wider provision of knowledge transfer, e.g., training in the use of technology, on-the-job training, etc.? The range and variety of learning can be summarized in the 70:20:10 model of learning and development in which 70% of a person’s total learning results from challenging assignments, 20% from interactions with workplace colleagues, and 10% from structured training programs (Eichinger and Lombardo 1996). Training is too narrow a term to be fully practicable in discussing the wide range of learning opportunities which occur in the current environment. By contrast, knowledge transfer is more widely applicable and appropriate as the following definition illustrates:

Within a modern, knowledge driven economy, knowledge transfer is about transferring good ideas, research results and skills between universities, other research organisations, business and the wider community to enable innovative new products and services to be developed. (Office for Science and Technology 2002, p. 63)



It is with the above considerations in mind that this chapter will study university third mission initiatives and explore some governmental training delivery interventions by universities. Next it will describe the historical development of apprenticeships leading to the new degree apprenticeships. It will then describe the United Kingdom's industrial strategy and how the University of Sheffield's Advanced Manufacturing Research Centre is contributing toward innovation and economic growth. And finally, it will describe the Apprenticeship Standard for Postgraduate Engineers.

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## The Third Mission: University–Business Collaboration

The third mission is becoming increasingly important for universities, and the representative association for UK universities described how “Universities engage in a wide range of knowledge exchange activities, such as long-term collaborative research programmes, consultancy, and bespoke training” (Universities UK 2015, p. 12).

A Higher Education-Business and Community Interaction survey of 161 UK higher education institutions identified that 108 provided continuous work-based learning and 150 universities delivered bespoke courses on campus or business premises (HESA 2015). Employers were involved in content development and curriculum review in many of the programs, and 113 out of 161 ranked this involvement as 4 or 5 out of 5. Moreover, businesses which collaborated with universities were six times more likely to report the introduction of product innovations (Howells et al. 2012). In addition, 28% of employers were directly involved with degree program advisory boards and course design (Universities UK 2015).

The *Lambert Review of Business–University Collaboration* (Lambert 2003) noted that the continuing professional development market was valued at £23bn, and the Council for Industry and Higher Education estimated that universities only accounted for £250 m. These figures indicated substantial financial opportunities for universities which adopted an entrepreneurial approach. Perhaps more importantly, a list of potential benefits between businesses and universities included:

- Applied research in advanced technologies.
- Bespoke collaborative degree programs.
- Collaborative research.
- Education of graduates.
- Enterprise education for graduates.
- Helping government agencies encourage major employers to invest in the United Kingdom.
- Higher-level apprenticeships.
- In-company upskilling of employees.
- Industry-sector foundation degrees.
- “Science” park developments
- Spin-out companies.
- Support for entrepreneurs (Wilson 2012b, p. ii).

## Competition and Collaboration Among Universities

It has been argued that competition among universities has encouraged diversity, effectiveness, and efficiency at the same time as ensuring excellence (Wilson 2012b). Moreover, no single university offers business collaboration across all dimensions with the result that diversity provides strength. One downside of this competition is that there is the potential for universities to chase business customers in pursuit of financial returns even when they do not have a strong offering. It is not unusual for universities to talk up their excellence, but this needs to be underpinned with substance.

An alternative approach for university leaders might be to emphasize the complementary strengths different universities offer. Universities should be honest about what they can provide by mutually recognizing the abilities of other universities and, where relevant, recommending other universities. Without this perspective, competition might become a weakness (Wilson 2012b).

One strategy to overcome the limitations of competition is the concept of collaborative advantage (Kanter 1994). This collaborative advantage involves universities working in consortia and alliances to provide a broader portfolio to the business community, for example, Universities West Midlands (2018) which represents 12 universities provides a website portal which encourages interest in working with these universities and: “It fosters collaborative solutions and strong partnerships in support of economic, social and cultural wellbeing and public benefit.” (universitieswm.co.uk 2018).

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## Failure of University–Business Collaboration

Although there are many benefits of university–business collaboration, it may not always be successful for a range of reasons which are summarized below:

1. Business needs do not fit with a university’s strategy and mission.
2. A university’s capacity may not be available within the timescale required by the business.
3. A capability mismatch where a university does not have the skills or facilities needed.
4. The bidding cycle for external funding may not match the timescales required by the business.
5. Universities should provide services at full economic cost, and this may sometimes be more than businesses are willing to pay.
6. The investment by the university does not provide a sustainable payback period.
7. There is a mismatch between expectations and objectives.
8. Ownership of intellectual property can prejudice collaboration.
9. There may be different views about indemnities and liabilities between partners (Wilson 2012b).

A helpful piece of guidance to avoid some of the challenges described above is to give a clear and prompt response to collaboration enquiries and requests. No response or unnecessary delays can cause frustration and adversely impact on reputation and other collaborations with the business. One helpful strategy used by some universities is to say “No, because. . .” and quickly refer the business to other universities or providers (Wilson 2012b).

A consultancy approach is sometimes more effective for universities than only offering a menu of training programs. In an interview, a stakeholder organization representative stated: “There needs to be much more understanding [of employer needs from universities] first. Rather than ‘are you interested in buying training off us?’ [. . .] It’s about understanding what the employer’s pain is [. . .] and what model will fix that pain” (Universities UK 2016b, p. 16).

In spite of these potential shortcomings, there has been an increasing appetite by higher education institutions to build links with businesses and communities. These connections also have been encouraged by government initiatives some of which are described below.

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## **Examples of University–Business Training and Knowledge Transfer**

One of the most important factors supporting labor productivity is human capital which the OECD (2001, p. 18) described as: “The knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being.” Universities are in a prime position to support the development of human capital, and the collaboration between universities and businesses has been ongoing for many years. For example, the establishment of many civic universities in the United Kingdom was linked to the provision of medicine and engineering, and the former polytechnics also provided a range of offerings to business and industry. In an investigation of labor market training interventions and the links between education institutions and business/industry from 1839 to 2010, hundreds of initiatives were identified (Wilson 2011), a few of which will be briefly described below.

One initiative was Professional, Industrial, and Commercial Updating (Pickup) which was launched in 1982 (Department of Education and Science 1985). Its aim was to provide pump-priming finance to encourage colleges, polytechnics, and universities to increase their involvement with industry and commerce and deliver self-financing vocational courses for companies and people in employment (HM Inspectors 1990a, b). Associated with the Pickup program were Local Collaborative Projects which ran between 1984 and 1988. These were a combined initiative supported by the Manpower Services Commission and Education Department whereby employers and education providers in both HE and FE developed links to increase the amount of education and training updating (HM Inspectors 1990a, b).

Another initiative encouraged by government was the “Higher Education Reach-out to Business and the Community Fund (HEROBC)” which subsequently became

the Higher Education Innovation Fund (HEIF) (Goddard and Puukka 2008). This began in 2001 to provide a range of training and third mission activity and continues today.

Yet a further initiative was the Teaching Company Scheme which encouraged companies to partner with universities to benefit from the transfer of knowledge provided by graduates who were known as teaching company associates. In 2003, this scheme was replaced with Knowledge Transfer Partnerships which involved both universities and further education colleges. A KTP associate worked with a company on a business development project (Wilson 2011).

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## A Brief History of UK Apprenticeships

During the Middle Ages in Western Europe, merchants, landowners, and skilled tradesmen grouped together and formed guilds focusing on specific occupations; e.g., the Cutlers' Company (cutlery and metal working) was established in 1624 and, among other responsibilities, oversaw the binding of apprentices to employers. The guilds were the first organizations which systematically managed the relationship between employers and employees.

In the United Kingdom, the state first became involved with training with the introduction of the Statute of Artificers 1406 (a person who made artifacts). The statute legislated that, "every man or woman of what state or condition that he be, shall be free to set their son or daughter to take learning at any school that pleaseth them within the realm" (De Montmorency 1902, pp. 28–29). A subsequent Statute of Artificers 1563 declared that young people were "to be enstructed or taught in any of the Artes Occupacions Craftes or Misteries which they or any of them [the masters] doo use or exercise" (De Montmorency 1902, p. 71).

In the nineteenth century, apprenticeships expanded to new industries including electrical activities, engineering, and shipbuilding with approximately a quarter of a million apprentices during the 1960s. By the 1990s the number had declined to 50,000 due to economic difficulties, a decline in manufacturing, and young people attending school for longer. Also, many apprenticeships (normally 5-year length) were not matching the requirements of the labor market, and the learning was not always of an appropriate quality. This resulted in government intervention with the introduction of modern apprenticeships which raised numbers to 180,000 by 2010.

Although the numbers of apprenticeships increased during this period, there was a concern about their quality and suitability (Fuller and Unwin 2003). Some of these apprenticeships were of short duration, and their relatively low level resulted in a reduction in demand from some employers and potential apprentices (Winch and Clarke 2003; Toner 2008). A review of vocational education by Wolf (2011) observed that the UK's system of technical education was weaker than most other developed nations. Subsequently, another report by Wolf (2015, p. 1) described it as a dysfunctional and "broken training system" in which modern apprenticeships did not resemble traditional apprenticeships and had contributed to a decline in training

by employers. Moreover, government provided funding for training which many employers would have delivered anyway.

This recognition of a dysfunctional training system led to the Richard Review of Apprenticeships (2012, p. 15) which described an important observation: “Elsewhere, in Europe and beyond, apprenticeships are held in very high regard. This is a very different world from England where all the prestige is tied to a university education and all alternatives are considered second class.”

In 2016, the average level of UK productivity was calculated as 15.1% lower than the combined productivity of the other G7 nations. For the individual nations, UK productivity was above Japan (by 12.0%) and above Canada (by 3.4%); however, it was lower than Italy (9.0%), the United States (21.8%), France (22.3%), and Germany (25.6%) (Office for National Statistics 2018). A report by HM Treasury (2015) suggested a number of strategies to resolve this productivity problem including increasing the quality and quantity of apprenticeship training because of the correlation between higher skills and productivity levels, degree apprenticeships, and introducing a training levy. Higher-level skills and education are linked to higher productivity, and the Department for Business, Innovation, and Skills (BIS: 2013, p. 3) calculated that a 1% increase in the workforce possessing a university degree increased long-run productivity by 0.2–0.5%. It appeared that linking universities and apprenticeships somehow might provide a partial solution to the problem of skills and productivity.

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## Degree Apprenticeships

### An International Perspective

This chapter focuses on the context and development of degree apprenticeships in the United Kingdom, but it should also be acknowledged that previously other countries have developed hybrid forms of learning which combine vocational education and training (VET) with higher education. This provision often varies depending on national circumstances, and a detailed consideration of these is beyond the scope of this chapter; however, it is important to draw attention to some examples to illustrate the scale of these developments and the potential opportunities for learning from these wider experiences.

The separation of VET and HE in Austria, Germany, and Switzerland was described by Baethge (2006) as an “educational schism,” but increasingly there has been blurring of the distinctions between the two (Graf 2016). This has occurred for a number of reasons including socioeconomic factors, demands for higher skills, and the Bologna and Copenhagen agreements encouraging movement between VET and HE (Powell and Solga 2010).

One example is the German “Stuttgarter Modell” which began in 1972 as a cooperative initiative between companies such as Daimler, Bosch, and SEL and the State Minister for Education and Culture of Baden-Württemberg. It was subsequently called “Berufsakademie Baden-Württemberg” and is now called “Duale

Hochschule Baden-Württemberg” or “Baden-Württemberg Cooperative State University” (DHBW). This cooperative (work-integrated) education combines theory and practice through university education and on-the-job training in companies (Duale Hochschule Baden-Württemberg 2018). A similar model can also be found in South America where the Duale Hochschule Latinoamericano (2018) combines academic and work-based learning in Colombia, Mexico, Peru, and Ecuador.

The sources of funding for students’ education and training vary depending on the country, which can be the employer, state, company, student, or combinations. Below, we will discuss the UK situation in which the company/organization is predominantly responsible for funding through the apprenticeship levy.

## UK Degree Apprenticeships

In November 2014, the UK government announced the development of a new form of vocational education, i.e., degree apprenticeships (DA), which began delivery in autumn 2015 (BIS 2014). Degree apprenticeships, which were first launched in the digital sector, combine academic learning and on-the-job practical training. They contribute to filling skills gaps in the economy and respond more closely to the needs of employers. Universities UK (2016b, p. 7) stated that:

Degree apprenticeships combine university study and workplace learning to enable apprentices to gain a full bachelor’s or master’s degree. An apprentice has full-time employment status rather than student status, and receives at least an apprentice’s minimum wage.

Employer groups known as “trailblazers” develop the apprentice standards which describe what an apprentice will do and the skills they will possess. The degrees are linked to professional standards identified by professional bodies or associations which make them relevant and credible to employers and apprentices. The Institute for Apprenticeships (2018) was created in April 2017 and is responsible for supporting and overseeing the development of apprenticeships.

Historically universities have been somewhat reluctant to become involved with lower-level vocational education and training (Richard 2012); however, a number of benefits for universities were identified (UUK 2016b):

- Degree apprenticeships play an important role in government policy.
- They provide a new income stream.
- DAs attract nontraditional students and widen participation.
- Encourage universities to diversify their full-time on-campus offering, e.g., blended learning, distance, online, and weekend.
- Degree apprentices will possess good skills and be attractive to employers.
- Links with employers can be developed.

In general, the degree apprenticeships are targeted at 18–19-year-olds providing an alternative route into higher education; however, they are also open to mature

students. Furthermore, they support people from disadvantaged backgrounds for whom the cost of studying for a conventional degree is costly with fees in England being up to £9250/year. The duration of study for a DA is 1–5 years, and degree apprentices are not eligible for student loans.

Two thirds of the training costs and course fees of the degree apprenticeship are funded by government with a maximum cap, and the employer pays the other third. The employers also pay the apprentice a wage. This route toward a degree is advantageous to apprentices because not only do they receive a wage during their study, but they also do not have to pay university course fees (UUK 2016c).

The degree apprenticeship applies to undergraduate degree level 4 (certificate of higher education, CertHE), level 5 (diploma of higher education, DipHE), level 6 (degree, e.g., BA), and level 7 (master's degree, e.g., MSc) (see Fig. 1).

In September 2015, the first places on degree apprenticeships were introduced in automotive engineering, banking relationship management, construction, and digital (UUK 2016b). It was estimated that at least 60 universities and higher education institutions were intending to provide degree apprenticeships in 2017–2018 (UUK 2017) raising the number to 7600 apprentices. The majority of apprentices are locally or regionally based indicating the relevance of providing training which is accessible and responsive to employers (UUK 2017).

In May 2017, an Apprenticeship Levy of 0.5% was introduced for employers which had salary costs of £3m+. Employers who contribute to the levy can then recoup apprenticeship training costs from the fund. For organizations whose salary costs are less than £3m, the government will pay up to 90% with the employer paying the additional 10%.

Assessment of the DA provision is provided by both HEFCE and Ofsted (Office for Standards in Education, Children's Services and Skills). Traditionally, universities have been assessed by HEFCE (Higher Education Funding Council for England), and the requirement for universities to respond to the demands by

Apprenticeship Name	Qualifications and Credit Framework (QCF) Level						Equivalent Education Level
	2	3	4	5	6	7	
Degree Apprenticeship							Bachelors or Masters Degree
Higher Apprenticeship							Foundation Degree and above
Advanced Apprenticeship							2 Advanced-level passes
Intermediate Apprenticeship							5 GCSE passes , grades A*-C

**Fig. 1** Levels of apprenticeship. (Adapted from Universities UK 2017)

a different body (Ofsted) which is responsible for schools and further education colleges, etc. has sometimes been onerous (Universities UK 2017). So, how do these degree apprenticeships relate to the third mission and national industrial strategy? The next section will provide the context.

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## UK Government Industrial Strategy

For many years, the UK government adopted a laissez-faire approach to the economy which involved limited intervention based on a belief that markets were best left to manage themselves (Mill 1848). However, in 2016, a new Department for Business, Energy, and Industrial Strategy was established which recognized the role of government in supporting industries, thereby enhancing the economy. Reflecting this new role, the government published *Industrial Strategy: Building a Britain fit for the future* (HMG 2017) which, among other things, acknowledged the nation's world-renowned universities and the need to translate their research into products and services which would support future growth and industries.

Five foundations of productivity were described in the Industrial Strategy: ideas, people, infrastructure, business environment, and places. In addition, four grand challenges were identified: placing the United Kingdom at the head of the artificial intelligence and data economy; becoming a world leader in mobility for people, goods, and services; taking advantage of the movement toward clean energy; and using innovation to support the requirements of an aging society. Among the key policies were the establishment of a world-class technical education system; increased investment in science, technology, engineering, and math (STEM) skills; and establishing a National Retraining Scheme to support people in changing jobs for digital and construction (HMG 2017). To achieve all this, the Strategy stated:

“Business, academia, civil society and the government must engage together, bringing their expertise and entrepreneurial spirit, to drive us all towards success” (HMG 2017, p. 35).

The *Industrial Strategy* document described a number of examples of best practice including the University of Sheffield's Advanced Manufacturing Research Centre which will be discussed below.

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## Sheffield City Region Science Innovation Audit

The United Kingdom's levels of productivity have stagnated since the great financial crisis of 2008 and have underperformed many other nations; furthermore, many regions of the United Kingdom including the Sheffield City Region have significantly lower levels of productivity than the Southeast of England (ONS 2018). This productivity deficit has been attributed to three main factors: structural readjustment arising from a movement away from manufacturing to activities with lower productivity, a skills shortage and relatively high levels of educational underachievement, and lower levels of R&D and limited innovation and entrepreneurship (BEIS 2016).



To address these challenges, the UK government stated, in 2015, its intention to conduct Science and Innovation Audits (SIA) to identify regional strengths, limitations, and the potential opportunities for raising economic growth. The Sheffield City Region Local Enterprise Partnership and Lancashire LEP formed a consortium to investigate their strengths in high-value engineering and especially the potential to capitalize on Industry 4.0, i.e., the smart factory which integrates artificial intelligence, manufacturing, and the Internet of Things. Advanced Manufacturing Innovation Districts at both ends of the corridor linking the two regions of Sheffield and Lancashire are being developed which create innovative ecosystems.

The SIA identified four main areas of strength: firstly, a strong higher education research base with growing income streams; secondly, public sector R&D facilities, e.g., the National Nuclear Laboratory at Sellafield and large teaching hospitals – Sheffield City Region are involved with the National Health System (NHS) Test Bed programs; thirdly, translational research centers which connect academia with regional and global companies, e.g., AMRC Group with Boeing, McLaren, Rolls-Royce, and Siemens; and, fourthly, private sector collaboration, e.g., Siemens funding research at the University of Sheffield. Building on these strengths, growth opportunities were identified particularly in the area of Industry 4.0 and the “Internet of things” which integrate digital technology and manufacturing to increase productivity and add value. Specific areas of market growth were identified in aerospace, nuclear energy, rail, and healthcare technology.

Drawing upon the opportunities identified, the Audit stated that:

The vision presented here is of a *Northern Advanced Manufacturing Innovation Corridor*, bringing existing, emerging and new science and innovation assets and programmes into collaboration with industry to drive productivity growth in advanced manufacturing and key linked sectors across the region to world-class levels. (BEIS 2016, p. 8)

To achieve this vision, the Audit conducted a gap analysis between the projected vision and the underlying skills and innovation base. It noted that general private sector R&D spend was low; the region’s translational research institutions needed to be expanded to support industry; and academic research needed to be connected more strongly with local industry. There was a particular concern around intermediate technical skills and attracting and retaining graduates (BEIS 2016).

To bridge these gaps, the SIA report recommended a number of steps: investment in science and innovation infrastructure, Northern innovation support, a Northern Powerhouse Productivity Academy in Lancashire, support for internationalization, and support for talent attraction, development, and retention. In addition, a pan-Northern skills program will be developed to support the needs of advanced manufacturing and complementary sectors particularly for the skills required to support Industry 4.0. This approach is designed to encourage young people and thereby provide a talent pipeline to replace an aging workforce and retain skills in the North.

The Science Innovation Audit observed that if the region led the United Kingdom in implementing Industry 4.0, this would increase economic growth and

productivity across the United Kingdom. In doing so it would contribute to the vision of a Northern Powerhouse: “. . . joining up the North’s great towns, cities and counties, pooling their strengths, and tackling major barriers to productivity to unleash the full economic potential of the North” (HM Treasury 2016). The area is being developed as the UK’s Advanced Manufacturing Innovation District (AMID) and is designed to encourage innovation, inward investment, networking, production, research, and technology transfer.

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## **University of Sheffield’s Advanced Manufacturing Research Centre**

The University of Sheffield’s Advanced Manufacturing Research Centre with Boeing was founded in 2001 and has expanded to include two High Value Manufacturing Catapult centers (AMRC, Nuclear AMRC), Medical AMRC, and the AMRC Training Centre. These are located in two centers located on the Sheffield–Rotherham border, and they represent nearly £300m investment, have a turnover of £38m, and employ more than 600 staff. It is situated in the Sheffield City Region Enterprise Zone, and its mission is to assist manufacturers of all sizes to increase competitiveness through the use of advanced techniques, technologies, and processes (AMRC 2018). As a result, it has attracted a range of companies to locate there including a £110m Rolls-Royce Advanced Blade Casting Facility, a £50m manufacturing facility for McLaren supercars, and Boeing’s first manufacturing plant outside North America. As a result of its success, it has become a model for collaborative research between universities, academics, and industry which is being copied in Oman, South Korea, and the United States (BEIS 2016; AMRC 2018).

Researchers are organized into core groups including castings, composites, design and prototyping, integrated manufacturing, machining, Medical AMRC, metrology, National Metals Technology Centre, and structural testing. Researchers work on individual research projects for companies as well as collaborative research on generic research to support all members. The research supports a range of industrial sectors including aerospace, automotive and transport, energy, food and drink, healthcare, infrastructure, and marine.

Companies can access the AMRC research and facilities through different levels of membership: Tier 1 costs £200,000 in cash or kind, and Tier 2 costs £30,000 in cash or kind. More than 100 companies have become members, and the AMRC has a board containing industrial partners who have the opportunity to guide research direction.

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## **The AMRC Training Centre**

The AMRC was established to provide a sustainable manufacturing ecosystem which includes skilled and knowledgeable employees to support operations. For this reason, the AMRC Training Centre was established to provide a range of

training options including apprenticeship, MBA, and doctorate levels. In addition, it delivers bespoke training courses and a series of open continuing professional development (CPD) courses. The training facilities are constructed as a real manufacturing environment reflecting the apprentices' workplaces.

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## AMRC/University of Sheffield Degree Apprenticeships

Earlier in this chapter, we discussed the historical progression of apprenticeships from the medieval guilds to the recent development of degree apprenticeships in the United Kingdom. In particular, it was noted that, formerly, apprenticeships did not have the same status and respect which is found in other countries. To remedy this shortcoming, degree apprenticeships were developed by universities in liaison with employer groups known as "trailblazers" which identify and specify the apprentice standards that describe what an apprentice will do and the skills they will possess. Linking the degrees to professional standards identified by professional bodies makes them relevant and credible to employers and apprentices (University of Sheffield 2017).

All apprentices are employed full time over a period from 1 to 6 years and work at least 30 h/week. Training can be day-release or in blocks involving practical on-the-job training. University study is a key component of the degree apprenticeship program. For example, the level 7 Apprenticeship Standard for Postgraduate Engineer involves an industry-led specification for core knowledge and skills and core behaviors which are detailed below:

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### Knowledge

The theoretical knowledge to solve problems in existing and emerging technologies, applying and developing analytical techniques

Understanding of business and commercial needs/constraints

Knowledge and understanding of own competencies capabilities and limitations and ability to work within these and highlight when work goes outside of these

Understanding of financial responsibilities and authorization processes

Understanding of technical sign-off responsibilities, who within their organization need to be involved in the sign-off of product/processes

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### Skills

Safe working practices, an understanding of technical governance, and quality management

Compliance with legislation and codes but be able to seek improvements

Practical competence to deliver innovative products and services

Technical responsibility for complex engineering systems

Accountability for project(s)/program(s), finance, and personnel management

Management of trade-offs between technical and socioeconomic factors

In addition to the core knowledge and skills, postgraduate engineers need to possess core behaviors in the following areas:

- A. Knowledge and understanding
- B. Design and development of processes, systems, services, and products
- C. Responsibility, management, or leadership
- D. Communication and interpersonal skills
- E. Professional commitment

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## Conclusion

This chapter has described how the Humboldt model of a university which focused on teaching and research has been complemented with the third mission of connecting with businesses and communities through knowledge transfer, valorization, engagement, and training. This delivery of private training programs by HEIs involves a wide and complex range of provision which is difficult to consider in detail. Moreover, definitions of training are not only narrow; they do not represent the broader considerations which are contained within the term “knowledge transfer.”

For the above reasons, the UK’s Industrial Strategy document was explored together with a Science Innovation Audit of Sheffield City Region. Regional strengths were identified in four main areas: a strong higher education research base, public sector R&D facilities, translational research centers, and private sector collaboration. In particular, the University of Sheffield’s Advanced Manufacturing Research Centre was presented as a model for economic regeneration for other regions and which is also being replicated in Oman, South Korea, and the United States.

A vision of a Northern Powerhouse across the north of England and a “Northern Advanced Manufacturing Innovation Corridor” connecting centers of manufacturing excellence were described together with the gaps which needed to be overcome before the vision could be achieved. One of these gaps was the need for a more skilled workforce which would lead to higher productivity. To address this, the government introduced a strategy to increase the reputation and number of apprentices which included the development of degree apprenticeships. The core knowledge, skills, and behaviors of these DAs are identified by industry representatives, and then the DAs are delivered by universities with apprentices also learning in the workplace.

The University of Sheffield, along with many other civic universities, grew out of the University Extension movement during the late nineteenth and early twentieth centuries, and it was established by funding from local businesses and communities. This close association between the university businesses and communities has continued ever since, and the impact of the University’s AMRC is having a substantial impact not only on the local Sheffield City Region but nationally and internationally. The powerful triangular synergy of the third mission which exists between teaching, research, and community should provide a sustainable platform for future economic growth and prosperity.

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# Motivation and Engagement of Learners in Organizations **43**

Christof Nägele and Barbara E. Stalder

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## Abstract

Learning in the workplace is crucial for vocational education and training. Every organization should support its employees to learn and to develop their competencies throughout their working life. Most jobs and workplaces have great potential to motivate individuals and let them become engaged in non-formal or informal learning activities. This potential is, however, not always fully used. Not all companies are prepared to offer everybody suitable training and learning opportunities, and some individuals lack the motivation to engage in learning. We

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propose a conceptual model that explains the workers' and learners' motivation-engagement-learning process, discuss individuals' motivation and engagement as essential prerequisites of learning in organizations, and highlight individual and situational resources that foster motivation and engagement. We conclude that situational resources such as an organization's learning culture as well as the job design and the social situation at work might be even more important in motivating workers to engage in learning than individual learning needs and characteristics.

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**Keywords**

Motivation · Engagement · Workplace learning · Job resources · Individual resources

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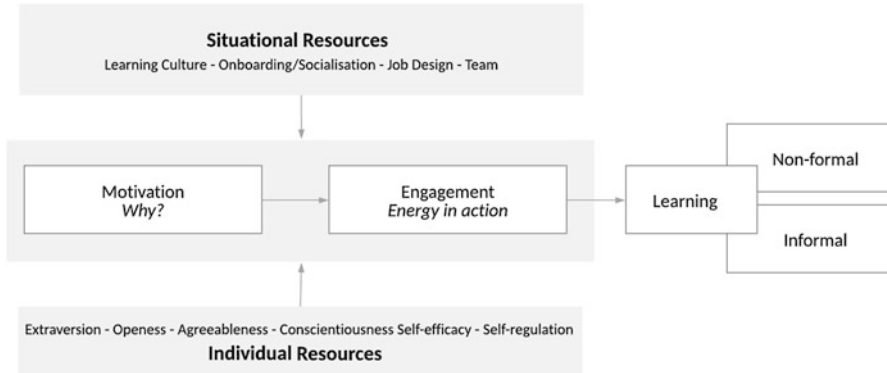
## Introduction

In times of economic and societal change, continuous learning in and through work plays an increasingly important role. Learning is essential for individuals to keep up with work's changing demands, remain employable, and develop their professional careers (Billett and Choy 2013; OECD 2017). It is important for organizations to stay successful in a competitive economic market (Høyrup 2010). Formal education and training – although an important prerequisite for learning in the workplace – cannot prepare individuals sufficiently for a dynamic work world, where tasks and work processes change rapidly (Kyndt et al. 2018). The motivation for and engagement in informal and non-formal learning therefore is essential for individuals and employers.

In this book chapter, we discuss learners' motivation and engagement in organizations and describe key factors that promote motivation and engagement in learning situations at work. Drawing from research on motivation, engagement, and learning in the workplace, we first outline the characteristics of non-formal and informal learning and explain how motivation and engagement in learning evolve. Second, we show how employers can design tasks and work environments that motivate their staffs to learn and engage in lifelong learning. Third, we highlight the learners' resources and characteristics that foster or hinder motivation, engagement, and learning in the workplace.

Our reflections are based on a conceptual model, which illustrates the motivation-engagement-learning process and its relation to situational and individual factors (Fig. 1). We presume that learning is an individual and social process and that motivation and engagement are prerequisites for successful learning. Motivational factors play a key role as an individual will only invest in learning and become engaged if he or she is motivated. Furthermore, we posit that an employee's motivation to learn always depends on situational and individual resources (Järvelä and Volet 2004). Situational resources include, for example, the organizational learning climate, job design, the team structures, and co-workers' support. Individual resources include, for example, an employee's self-esteem, optimism, self-efficacy,





**Fig. 1** Motivation, engagement, and learning: A conceptual model

resilience, hope (Saks and Gruman 2011; Xanthopoulou et al. 2009), positive core self-evaluations (Bono and Judge 2003), and the personal need for professional and individual development (Shalley et al. 2009).

## Learning at Work

*Learning* as part of work refers to lasting changes in an individual's behavior, cognitions, and emotions. It is an individual process that unfolds in the interaction between the task and social environment (Illeris 2011). Learning at work can occur spontaneously or can be initiated as a planned activity. Two forms of learning situations at work are distinguished: informal learning and non-formal learning. Both are important to advance organizational and individual competences.

### Informal Learning Situation

*Informal learning* is embedded in daily activities and work processes (Engeström 2001, 2011). It resembles a problem-solving process (Lohman 2000): The learner has to frame the context, react to triggers of the potential learning situation, examine problem-solving and learning strategies, produce alternative solutions, assess intended and unintended consequences, and evaluate what has been learned (Watkins and Marsick 1992). In informal learning situations, work activities can be used explicitly with the purpose to learn, for example, when an employee explains to a colleague how a job must be done or when someone explores various ways to best accomplish a task. Informal learning in the workplace is, however, often incidental (Kyndt et al. 2018). It emerges in situations that are unplanned and unforeseeable and that can interfere with productive work and organizational regulations (Cerasoli et al. 2018; Flynn et al. 2006). Some situations make informal learning more likely. Often, informal learning is triggered by disturbances that

hinder the action or lead to a distortion of the cognitive equilibration. Other situations that favor informal learning are handover situations, site walks, or catch-ups or cases in which something was going wrong and errors occurred (Rausch et al. 2017; Reich et al. 2017).

To make informal learning happen, not only the individual but also the co-workers need to understand and agree that the situation is a learning situation. Let's illustrate this with an example of a missed opportunity for learning: An experienced plumber needs to install a shower set together with an apprentice. It is a new product the plumber has never installed before, and he needs to read the assembly instructions. While he reads the instructions silently, the apprentice stands beside him and does nothing. They have no interaction; they do not talk. Neither the plumber nor the apprentice makes use of the unforeseen learning situation. The plumber is self-focused, staying in the mode of "let's get it done" instead of shifting into a learning mode: "Let's learn together how to do it." Why does the plumber not involve his apprentice in solving the problem? Why doesn't the apprentice intervene? He doesn't seem to be motivated to learn or become engaged in this learning situation. But is this explanation sufficient? And if so, what reasons might hinder his motivation and engagement?

## Non-formal Learning Situations

Non-formal learning situations are structured programs that are planned in advance, such as training courses or introductory programs for novice learners. The programs' education and training goals are set by the employers and reflect the organization's need to professionalize its employees (Janssens et al. 2017; Manuti et al. 2015; Wofford et al. 2013). Learning is organized and guided by a tutor, teacher, or trainer as described in the concept of cognitive apprenticeships (Collins et al. 1991). When preparing non-formal learning situations, a trainer must reflect on how to attract the learners' attention, inform them about the objectives, present the learning content, give feedback and advice, and evaluate the performance and knowledge transfer (Gagné and Medsker 1995). Important principles include the conceptualization of the whole task before executing the parts ("global before local"), the sequencing of tasks in terms of increasing complexity and difficulty, and an increasing task diversity in a variety of situations (Collins 2006). To support the learning process, the trainer/tutor serves as a model (she/he performs the task, while the learners observe), stimulates reflection (learners verbalize what they do and learn), and gives advice and support. Often, the transfer of competencies acquired in non-formal training programs is limited (Blume et al. 2010; Holton et al. 2000). Let's illustrate this support again with an example. New electrical installations need to be approved by external inspectors. The fewer errors an inspector finds, the better for the company. To reduce the number of complaints and save time, the company organizes a training course to teach its employees how they can test the electrical installations before the external inspection. During the training, the employees follow the trainer's instructions and use the test device. However, when going back to work

on the construction site, they do not apply what they have learned. The trainer attributes this poor transfer to the employees' missing motivation and engagement. But other explanations might also be possible, such as poor quality of instruction or employees' unwillingness to take on the additional responsibility.

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## Motivation

*Motivation* refers to the question of why individuals act in a situation. It directs a learner's behavior toward particular learning goals and can lead to increased effort and engagement (Kanfer et al. 2017). Often, organizations attempt to motivate individuals with external rewards, sanctions, or imposed targets (Kuvaas et al. 2017). This attempt to motivate individuals externally often fails, and research shows that individuals are best motivated through internal motives. Intrinsic motivation develops if an individual's personal values are met or if he or she identifies with the work and significant others and can express him- or herself at work (Katz and Kahn 1978; Ryan and Deci 2000). Individuals that perceive themselves as competent and responsible at work are more likely to be intrinsically motivated (Dysvik and Kuvaas 2014). This perception is important because learning is an individual, constructive process in a social setting and relies on internal motivation (Illeris 2004).

The needs for autonomy, competence, and relatedness are universal (Deci and Ryan 2000). They vary to a lesser extent between individuals than more specific needs like the achievement motivation or the need for power (McClelland 1965). The latter motives are shaped by an individual's biography, his or her learning experiences, the subjective interpretation of these experiences, and the situation in the workplace. Ideally, learning experiences lead to the development of an interest in a specific topic through strengthening self-regulatory processes (Lent and Brown 2013).

A key process to motivate workers to learn is the definition of goals (Kanfer et al. 2017). Goals steer an individuals' attention and channel the investment of energy toward goal achievement (Locke and Latham 2002; Lunenburg 2011). As goals need to be internalized by an individual, the definition of goals is a crucial phase in the motivational process. Therefore, individual perceptions of the behavioral control, subjective norms, and attitudes determine which goals are set and adopted (Ajzen 2012). The behavioral control describes an individual's perception of his or her freedom and capabilities to act according to the organization's expectation. The pros and cons of pursuing a certain goal may lead to a redefinition of the goal. Goals can unfold their full power and induce learning only if an individual internalizes a goal and makes an externally set goal an "own goal." A person that accepts a goal unwillingly will be little motivated to achieve the goal and learn. Once goals are set, engagement processes describe how people strive to reach their goals. Successful goal striving and achievement depends on self-regulatory mechanisms, self-monitoring, self-evaluation, and the allocation of resources (Kanfer and Ackerman 1989). In sum, the development of intrinsic motivation relies on individual and workplace resources, which develop in the interaction of an individual's motives, values, characteristics, and situational characteristics (Kanfer et al. 2017).

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## Engagement

Whereas motivation answers the question *why* specific behaviors are chosen, engagement refers to the active involvement in a task or activity and the question of “energy in action” (Grohmann et al. 2014). Motivation and engagement are related but distinct. A learner may be motivated but not actively engaged in a learning-oriented task. The motivation to learn is necessary but not sufficient for engagement in learning (Appleton et al. 2006).

Engagement at work refers to “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al. 2002, p. 74). Vigorous workers feel energetic and are willing to put effort into their work. Dedicated employees are highly involved in their work and experience a sense of significance, enthusiasm, and challenge. Absorbed individuals are highly concentrated and engrossed in work, so time passes quickly (Bakker and Demerouti 2008). In learning-related contexts, definitions of engagement stress behavioral components, such as active participation in work or training activities (Billett 2004). Engaged learners participate in learning activities with their head, heart, and hands. They put mental effort into learning and monitoring their comprehension and want to go beyond the requirements (cognitive component). They show interest, enjoyment, and curiosity in the learning objective rather than feeling bored or anxious (emotional component). They are focused and persistent, sustain their goal-directed activities, and demonstrate a high physical learning effort rather than being passive recipients or trying to avoid the situation (behavioral component) (Kanfer et al. 2017; Schaufeli et al. 2002).

Like motivation, engagement in learning activities emerges in the interaction of situational (social, organizational, and task features) and individual factors (Billett 2001). Engagement and its cognitive, emotional, and behavioral components therefore vary in intensity, duration, and stability. It might change from one day to another or between persons, tasks, and situations (Fuller and Unwin 2004; Sonnentag 2017). In general, positive learning and work outcomes are achieved if engagement is high but balanced, so it does not overly deplete individual resources (Bakker et al. 2004).

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## Situational Resources

Situational resources play a crucial role in motivating apprentices, organizational newcomers, and more experienced employees to learn and become engaged in learning activities in the workplace (Billett and Choy 2013). Situational resources refer to physical, mental, social, or organizational aspects of work that serve to achieve work goals, help meet and reduce job demands, and stimulate learning and personal growth (Bakker and Demerouti 2007). Research has shown that high levels of situational resources are positively related to learning (De Witte et al. 2007), work engagement (Schaufeli et al. 2009), and job satisfaction (Keller and Semmer 2013). The availability of resources affects motivational and engagement processes, and in turn, being motivated and engaged helps workers create additional resources in the long run (Xanthopoulou et al. 2009).

A challenging, empowering, and supportive work situation that responds to an individual's need for autonomy, competence, and relatedness is an important precondition for motivation and engagement at work (Deci and Ryan 2000; Messmann and Mulder 2015). Most important for learning are the cooperation with and learning from other members of the community, motivating tasks, and a learning-conducive organizational culture (Billett 2004; Hackman 1980; Nikolova et al. 2016). Organizational and work-related factors can hinder or foster learning at work (Kyndt et al. 2018). All these factors can be shaped by an organization, setting the stage for the motivation and engagement to learn to occur (Tynjälä 2008).

In the following sections, we will discuss organizations' strategies and means to foster their staffs' motivation and engagement in learning activities, focusing on the learning culture, job design, and social relations and exchange processes with colleagues, trainers, and supervisors.

## The Learning Culture

The organizational learning culture is the backdrop against which individuals' motivation and engagement emerge and which makes learning possible and effective. An organization that acknowledges learning as a guiding principle of its activities will more likely facilitate and support the learning of all its employees. An organizational culture dedicated to learning defines learning-oriented goals for all employees and for the organization as a whole. It defines how goals can be achieved and allocates adequate resources to support workers to engage actively in learning. It transfers the power from the organization to the employees and allows them to create, shape, and change their realities (Senge 1990). Organizations with a learning-conducive culture enable the direct transfer of knowledge across organizational boundaries (Remedios and Boreham 2004) and foster lifelong learning through high job complexity learning from mistakes, dialogue, inquiry (Kyndt et al. 2016, 2018), team learning, and empowerment (Egan et al. 2004; Gil and Mataveli 2017; Joo and Lim 2009; Marsick and Watkins 2003).

To establish and maintain a learning-oriented organizational culture, leaders and supervisors need to determine how and to what extent the current organizational culture provides or limits opportunities to engage in learning. This evaluation includes reflecting on, for example, the organization's overall learning goals, the employees' learning needs, the expectation of workers' continuous competence development, the knowledge transfer between learning locations, and the job design (Noe et al. 2014; Sonnentag 2017).

The first crucial phase regarding motivation and engagement is the time of onboarding and organizational socialization, when newcomers learn about and adapt to norms, values, and rules of a professional domain and of the organization. It is also the time when organizational learning and engagement expectations at work are communicated (Bauer and Erdogan 2011; Saks and Gruman 2012). Positive experiences in the first weeks and months in a new job and organization are essential for workers' social integration and commitment to the organization (Nägele and

Neuenschwander 2014). Therefore, employers should reflect on the adequate way to structure and accompany the first phase after organizational entry. They have to think about, for example, whether they want to follow a more institutional or a more individual socialization approach and how they can build on new employees' prior knowledge and work experiences (Jones 1986; Van Maanen and Schein 1979). A clear and unambiguous communication helps an individual orient herself or himself in the organization with respect to learning and the expected level of engagement.

## The Job Design

The job design concerns how work is structured, organized, experienced, and enacted (Grant et al. 2010). Well-designed jobs have the potential to motivate people and allow them to become engaged in learning (Wielenga-Meijer et al. 2010). If core job dimensions such as skill variety, task identity, task significance, autonomy, and feedback regarding the task are well-designed, people feel responsible for the outcomes of their work. Having a sense of responsibility makes work meaningful, satisfying, and motivating (Hackman and Oldham 1975; Oldham and Hackman 2010). Well-designed jobs can motivate employees to learn if they have the opportunity to engage in complete tasks, including elements of planning, preparing, completing, and evaluating the task (Dehnbostel and Schröder 2017; Frese and Zapf 1994). Tasks must be complex in the sense that they demand employees to process information and they must offer employees a chance to apply various strategies to accomplish them successfully (Hirschmann and Mulder 2018). Additionally, a job design that fosters motivation and engagements implies variation at the level of the job itself, including temporary job changes, cross-trainings involving employees in extra-role activities, and job enrichment through additional responsibilities and functions (Cunningham and Hillier 2013).

In sum, well-designed jobs allow workers to select their own goals (Kanfer et al. 2017; Locke and Latham 2002), self-regulate their learning, and shape their own learning pathways (Bandura 1986). It offers ample opportunities for learning, competence development, and recognition from significant others, and it enables workers to form a vocational identity and design a meaningful career (Stalder and Nägele 2015).

## The Colleagues, Trainers, and Supervisors

Most learning is embedded in and influenced by the organization's social structures, the work team's composition, and opportunities to network and interact with more experienced colleagues, tutors, supervisors, and mentors (Eraut 2011; Kyndt et al. 2018). To motivate workers to engage in learning activities, colleagues, trainers, and supervisors can use a vast range of behaviors and activities, for example, "providing feedback, role-playing, observing, listening, asking questions (the 'what do you

think and why' investigative questions), talking things through (explaining and seeking understanding), walking through things step by step ('you drive,' I'll take the passenger seat), seeking others for knowledge or additional insights as needed, sharing materials and resources, using examples, removing obstacles, broadening perspectives, being a role model, and focusing on the big picture" (Ellinger and Cseh 2007, pp. 443–444).

Supervisors and teams facilitate engagement and learning by making it possible to explore ideas and processes, discuss differences, and resolve these differences with the aim to co-construct a new and shared understanding of the situation (Lehmann-Willenbrock 2017). The co-construction and development of a shared understanding of the task depend on complex interpersonal relations and require dialogue and exchange (Filliettaz et al. 2015). Leadership, relationships, and relationship dynamics become a central element of learning at work (Cunningham and Hillier 2013). The availability and willingness of trainers, co-workers, and supervisors to share information and provide precise, constructive, and helpful feedback and to offer adequate guidance and support is therefore essential to stimulate motivation, engagement, and learning (Billett 2000; Kyndt et al. 2016).

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## Individual Resources

Individual resources such as the learner's cognitive abilities, educational level, personality, attitudes toward learning, and proactivity play an essential role in the motivation-engagement process at work. Of importance is how people evaluate their own effectiveness, capability, and worthiness (Bono and Judge 2003). This self-evaluation co-determines whether and how strongly individuals are motivated to engage in learning activities. It affects self-regulation strategies, which are grounded in an individual's belief he or she can have an impact on the environment and the ability to control it through its own activities (Xanthopoulou et al. 2009). Self-evaluations rely on personality traits. A positive self-evaluation is more likely if an individual is extroverted (assertive and active), open to experiences and others' ideas, agreeability, and achievement striving (a facet of being conscientious) (Major et al. 2006). Neurotic and anxious individuals evaluate themselves less positively, which hinders their motivation and engagement (Major et al. 2006; Webster and Martocchio 1993). It has often been argued that personality traits are rather fixed. This "fact" is, however, increasingly challenged, and it has been shown that an individual's personality can change over time through experiences and interventions like an apprenticeship training (Roberts et al. 2017; Schallberger et al. 1984; Semmer and Schallberger 1996). This challenge is in line with research on identity development, which includes changes in personality (Collin 2009; Field 2011).

Personality factors are often overruled by, for example, goal-setting processes, and goal orientation seems to be a more proximal predictor of motivation than personality traits (Preenen et al. 2012; Steinmayr et al. 2011; Zweig and Webster 2004). Once goals are set, they lead to higher performance through self-affirmatory processes (Schwinger and Otterpohl 2017). Individual factors such as personality,



attitudes toward learning, proactivity, self-efficacy (Kyndt et al. 2016, 2018), and self-awareness about the situation and the available support can foster motivation and engagement and lead to an increased chance that learning opportunities are recognized and used (Marsick and Watkins 2001). But the same individual factors are determined by workplace factors. Employers should be aware of this and take it into account when designing the workplace.

Consequently, self-evaluations depend on situational, workplace-related factors and learning experiences. Learning experiences have an effect on an individual's self-efficacy and self-esteem (Lent et al. 2002), his or her optimism and hope (Saks and Gruman 2011; Xanthopoulou et al. 2009), and core self-evaluations (Bono and Judge 2003). Learning experiences form interests and nourish the need for development (Shalley et al. 2009).

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## Conclusion

Motivation and engagement are essential for learning because learning is an active process in a demanding environment, which is structured by the tasks, immediate social environment, and organization (Illeris 2011). In this setting, individuals need to be offered non-formal and informal learning situations that allow them to learn new skills, behaviors, and attitudes to develop professional and personal competencies. Individuals are forced to shape their work situations, make use of learning opportunities, and create their own learning paths. Therefore, individual resources, such as a positive self-evaluation or a proactive behavior, are helpful, along with the ability to reflect on one's motivation and engagement to learn. But it would be too simple to attribute motivation and engagement uniquely and primarily to the individual. Individuals have a basic need for autonomy, competence, and relatedness (Deci and Ryan 2000), which form a solid fundament for lifelong learning and development. But too often the fulfillment of basic needs is hindered by organizational factors, and the lack of situational resources hampers employees' motivation and engagement in learning. Intrinsic motivation and engagement in learning will develop best if an organization emphasizes learning as a core organizational goal, learners are supported and guided, and they have the opportunity for self-determination and self-reflection.

Organizational strategies help build an environment that helps individuals become motivated and engaged. These organizational strategies and measures include a positive and open learning culture, thoughtful socialization process, job design that allows for learning at work, and supportive social environment. Such measures and strategies are essential not only for individual learning processes but also for a productive and innovative organization.

We argue that organizational resources might have an even stronger effect on learners' motivation and engagement than individual resources and that an individual's personality and self-evaluation are significantly shaped by the environment. Therefore, in the first example given at the beginning of the chapter, it is neither the plumber's nor the apprentice's sole fault that they missed the opportunity to make



use of the incidental learning situation. The missed learning opportunity might also be due to organizational factors, such as an organization that does not stress and communicate that learning at work is important for everybody in every situation. Also, the second example, in which almost no transfer of learning from the training to the workplace occurred, needs to be analyzed in the context of the organizational learning culture. Surely, non-formal and informal learning rely on individuals' motivation and engagement. Learning at work can be motivating in itself if individuals work on real tasks. But this is not enough. The interplay of people, tasks, technology, and the organizational learning culture motivates individuals to learn and helps them become and stay engaged in learning. To help an individual want to keep his or her knowledge and skills up to date experiment, ask for feedback, and self-reflect on actions and learning activities, this interplay of organizational and individual psychological factors must be respected.

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# Technical and Vocational Education and Training in Small- and Medium-Sized Enterprises

# 44

## A Critical Overview

Harry Matlay and Rob F. Poell

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### Abstract

The aim of this chapter is to provide a critical overview of relevant aspects related to Technical and Vocational Education and Training (TVET) in small- and medium-sized enterprises (SMEs). In the first section, the authors conceptualize the key terms associated with TVET in SMEs. The second section provides an insight into TVET prevalence, participation rates, and investment in the SME sector of various countries. The third section of the chapter addresses issues and challenges that are critical to TVET in SMEs, such as formal versus informal training, generalist versus specialist training, and supporting finance sources in industrially developed and developing economies, as well as countries in transition. The chapter concludes by exploring the future of TVET in an SME context, as impacted by recent trends in globalization, technological developments, robotization, social media, and the increasing personalization of learning.

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**Keywords**

Technical and Vocational Education and Training (TVET) · Small and Medium-sized Enterprises (SMEs) · Formal vs. informal training · Generalist vs. specialist training · Human resource development, work-related learning

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**Introduction**

The origins of the term “Technical and Vocational Education and Training” (TVET), in its various evolutionary forms, can be traced back two and a half centuries, as a reaction to the elitism inherent in the traditional, church-dominated, English education system (Simon 1960) and to the emergence of the first industrial nation (Matlay 1991). A great deal has been written about the English education system, its origins, development, and structure (see, e.g., Evans 1975). It is beyond the scope of this chapter to provide a comprehensive overview and critique of the evolution of the English system of education. Nevertheless, its impact upon the shaping and the progress of national and international education should not be understated (Evetts 1973). Briefly, several distinct stages of educational development (cf. Silver (2007)) can be identified: (i) Anglo-Saxon beginnings (cc. 600–1066); (ii) early medieval, as a function of the church (1066–1300); medieval, within and outside the church (1300–1780); industrial England (1780–1945); and, educational growth and expansion (1945–present). The inherent elitism of, and class influence on, the early English liberal education and its structure as well as the eventual reaction against it has influenced considerably the long-term development of alternative, as well as complementary, educational movements (O’Day 1982; Sharpe 1997). Importantly, however, it was the beginning of the Industrial Revolution and the rapid growth of the uneducated and largely unskilled working class (see Lawson and Silver 1973) that precipitated the emergence of vocationalism, as a productive and skill generating alternative to religious and liberal education (Matlay 1992; Wrigley 1993).

As countries across Europe and, later on, elsewhere began embracing industrialization, the economic imperative highlighted a growing need for “modern,” skill- and knowledge-forming, practice-oriented, and vocational education. Throughout the nineteenth century, modern public schools in England, Germany, France, and Italy offered postprimary vocational education in competition with traditional liberal education, aimed largely to fulfill the growing demand for both educated labor and the needs of middle-class children, aspiring to gain access to managerial positions in industry and commerce (Craig 1981). In addition, traditional European elites also perceived vocationally-oriented education as the route to modern, high-status professional positions (Kaebler 1981). Given the growing demand for vocational studies and related certification, it is not surprising that this sector of the educational system grew at a relatively rapid rate. Unfortunately, however, as it is the case in other sectors of a nation’s socioeconomic and cultural infrastructure, expansion led invariably to fragmentation and unequal private/public support as well as conceptual and contextual confusion.



In terms of TVET for smaller businesses (as opposed to large businesses and corporations), its emergence, development, and focus on the actual or perceived needs of small- and medium-sized enterprise (SME) owner/managers and their workforce are relatively recent. Historically, TVET in, and for, SMEs only reached the agendas of policy makers and educational leaders during an economically challenging, post-World War II, period. Due to the “oil shocks” and consequent cycles of recessionary “boom and bust” economic conditions, large-scale industrial restructuring acted to diminish the overall importance of large corporations and, at the same time, accentuated the emergent importance and growing contribution of the SME sector to the industrial health and economic success of nations. In the United Kingdom (UK), for example, the Bolton Report (1971) highlighted serious concerns in relation to the survival of small businesses in this country (Matlay 1993). It provides a guideline SME definition based on the number of employees (including owner/managers), for three size ranges within this bracket: (i) micro businesses, with up to 9 employees; (ii) small businesses, employing between 10 and 49 individuals; and (iii) medium-sized enterprises, with a payroll of between 50 and 249 employees. The other two, complementary definitions, based on turnover levels and value of assets, could not be used to any significant effect due to the lack of reliable and transparent data (Matlay 1996). A similar definition has been recommended by the European Commission in 1996 and in 2003, although it has since been adjusted a number of times (see EC 2003). Unfortunately, however, SME definitions in North America, Australasia, China, and India differ significantly and are considerably larger in number of employees, turnover levels, and value of assets, as reflected in published accounts (Matlay 2002).

The Bolton Committee (1971) also made, for the first time, reference to a demand for Vocational Education and Training (VET), in order to satisfy the specific requirements of small business owner/managers and their workforce (Matlay 1996). The Wilson Committee (1979) confirmed the upward trend in the number of SMEs in the UK and called for more and better financial education for owner/managers. There followed a long period of numerical expansion of the SME sector, which continues until the present day, emphasizing the growing need for relevant TVET supply to satisfy the varied needs of a large population of owner/managers and their workforce (Hussain and Matlay 2018).

The rest of the chapter is structured as follows: in the next section, the authors conceptualize the key terminology associated with TVET in general and small- and medium-sized enterprises (SMEs) in particular; in the following section, they provide an insight into TVET prevalence, participation rates, and investment in the SME sectors of various countries; this is followed by a critical evaluation of issues and challenges that are vitally important to TVET provision in SMEs, such as formal versus informal training, generalist versus specialist training, and supporting finance sources in industrially developed and developing economies, as well as countries in transition; the chapter concludes with an exploration of the future of TVET in an SME context, as impacted by recent trends in globalization, technological developments, robotization, social media, and the increasing personalization of learning.



## Key Terms Associated with TVET in SMEs

There are a small number of definitional, conceptual, and contextual terms that are considered crucial to the theory and practice of TVET in SMEs. Perhaps the most important of these is the definition of the term SME. The Organisation for Economic Co-operation and Development (OECD) variously estimates that SMEs represent 99.8% of all economically active units in the world, inclusive of industrially developed and developing countries as well as nations in transition (OECD-UNIDO 2004; OECD 2010). In his overview of statistical data relevant to TVET, Matlay (2017) claims that “official” figures represent only a conservative estimate of the world SME population, which is based on value-added tax (VAT) with a compulsory relatively high threshold. Therefore, a significant proportion of self-employed entrepreneurs and micro businesses are not included in the official statistics. In addition, none of the businesses operating in the informal sector of an economy are taken into count. Thus, it can be safely assumed that official statistics under represent the smaller businesses, to the advantage of medium-sized firms and large organizations. This size of businesses employs over 63% of a nation’s workforce and contributes to about 55% of their total annual Gross National Product (GDP).

Given their importance to local, regional, and national economic development, one would expect a measure of standardization in the SME definition and relevant official statistics. Unfortunately, however, this is not always the case. Generally speaking, the term “SMEs” has emerged, in recent years, to represent a convenient “umbrella” concept which incorporates, under such a vague description, a plethora of “smaller firms” operating in a diversity of settings and contexts. Their overall socioeconomic, cultural, and business impact is manipulated by the media and economic observers, in contrast to “larger businesses,” ensuing in an almost useless comparison. Nevertheless, statistical manipulation acts in favor of “larger businesses” in terms of resource allocation and politically beneficial representation. Importantly, however, apart from media purposes and related official rhetoric, it does not appear to satisfy any of the main stakeholders that profess to have a vested interest in smaller businesses (Matlay 2011). Many attempts have been made to construct a formal, universally accepted, standard definition of what represents SMEs. Definitional difficulties are important not only for academics and researchers but also to governments and their representatives, as well as support agencies, economic observers, and employer organizations. The International Labour Organization (ILO) has collected over 50 definitions that purported to relate to the SME concept as used by relevant stake holders (ILO 2006, 2015), to which they added a definition specifically for training purposes (ILO 2013). Most stakeholders, however, bypass conceptual difficulties by purposefully adopting their own “working definition,” one that better suits their stated aims and objectives (Matlay 2000). This widely used strategy further complicates an already acrimonious and long disputed conceptual argument among stakeholders, without adding anything of substance to the generalization of research results or the clarity of related outcomes (Matlay 2002).

There are a number of direct and indirect links between TVET and the performance of SMEs. Searching for an acceptable, complete, and all-encompassing definition of TVET in SMEs has proved a time-consuming and ultimately futile exercise, mostly because of conceptual and contextual difficulties, as well as the heterogeneity of this economic sector. The authors of this chapter would prefer the widest and most encompassing definition and therefore have settled on defining TVET in SMEs as postprimary education and training that acts to increase an individual's productive work (both economic and social) in SMEs and which motivates him or her to undertake continuous, lifelong learning and personal development. This convergent definition (as opposed to its negative opposite, the divergent approach) encompasses action, responsibility, and benefits across the widest spectrum of stakeholders, from the individual learner to the society as a whole (see, Matlay 1976–2017). Despite the entrenched dichotomy between SME conceptual universality and standardization, there are a number of key terms that can be associated with TVET in SMEs. Although some aspects of these conceptual terms overlap in practice, it is worth differentiating among them for the benefit of clarity and thoroughness of the overview. A brief overview of these terms, in the context of SMEs, is outlined below (for a more detailed overview, please see Matlay 2000):

- *Vocational Education (VE)* ~ appears to represent one of the earliest attempts to distinguish between liberal and vocational, postprimary education, on offer in secondary, tertiary, and specialized institutions.
  - *Continuing Vocational Education (CVE)* ~ involving a planned route of increasing the vocational education of employees, throughout their career.
  - *Continuing Personal Development (CPD)* ~ (not to be confused with continuing professional development) generally applied to family members involved in small businesses and/or manager in managerial small firms.
- *Vocational Training (VT)* ~ is usually applied to on-site provision, such as apprenticeships, both traditional and new, and shorter training schemes.
- *Vocational Education and Training (VET)* ~ involves a combination of the above two offerings, traditionally including a combination of on-site and off-site and formal and informal provision, containing both theory and practice.
- *Training* ~ is a widely used, general label, incorporating specific efforts, schemes, courses, and related expenditure and used to increase skills, productivity, motivation, and competencies in SMEs.
- *The Learning Small Business* ~ is a contextual concept designating smaller firms that encourage learning and related culture, among both managers and employees.
  - *Lifelong Learning* ~ is aimed to increase attitudes, motivation, and a willingness to learn throughout an individual's life, regardless of age and position.
  - *Lifelong Training* ~ is aimed to increase attitudes, motivation, and a willingness to train throughout an employee's working life, regardless of function or position.
- *Human Resource Management (HRM)* ~ generally considered an organizational function and position, specifically designated to recruit and manage a firm's employees, inclusive of employee termination or early/old age retirement.

- *Human Resource Development (HRD)* ~ represents an organizational function and position, specifically designated for the development of talented, promising, or average employees.
  - *Management Learning* ~ is aimed to increase attitudes, motivation, and willingness to learn in the context of managerial functions and/or positions.
  - *Management Training* ~ is aimed to increase attitudes, motivation and, a willingness to train in the context of operational or sales/marketing function or position.

In the last two decades or so, there has been an important new addition to TVET in SMEs, one that has been variously described as a “game changer” and a “quantum leap” in the development of this overused umbrella label, namely, the emergence and rapid growth of Enterprise and Entrepreneurship Education (E&EE). Following on from the tremendous growth in, and recognition of, entrepreneurship as the panacea to declining economic activity and prevailing recessionary condition, E&EE aims to increase both the number and the quality of entrepreneurs entering an economy and engaging in new venture creation (Matlay 2005). Typically, E&EE provision is mostly offered by Higher Education Institutes (HEIs), although recently, secondary schools and private providers are also offering education and training for new and established entrepreneurs (Matlay 2006). There are two distinct components of E&EE, both of which are relevant to TVET provision in SMEs:

- *Enterprise Education and Training* focuses specifically upon educating and training individuals to develop their potential and capabilities and enhance their entrepreneurial abilities and skills.
- *Entrepreneurship Education and Training* focuses more widely upon educating individuals in the processes and practicalities of new venture creation, its management, and development.

It should be noted, however, that as a convenient and expedient shortcut, most academics, researchers, and commentators, as well as government officials and representatives, tend to use the term entrepreneurship education to incorporate or cover all aspects of TVET relating to E&ET. Individually and cumulatively, these key terms cover the main aspects of TVET in an SME context. In the next section of this chapter, the authors provide an insight into TVET prevalence, participation rates, and related investment in the SME sector of various countries.

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## **TVET Prevalence, Participation Rates, and Related Investment**

The extant literature suggests that, overall, SMEs invest less in formal training and development compared to larger organizations (Nolan 2017). Unlike the latter, “SMEs are unlikely to have a dedicated HRD, or even HR, specialist (. . .) Furthermore, few SMEs have a specific HRD budget” (Short and Grey 2017, p. 3). Nolan and Garavan (2016) state that SMEs prefer informal approaches to HRD: “The

evidence suggests a strong belief on the part of SME owner-managers and employees that informal, on-the-job, experiential workplace methods are the most critical to job competence development due to their context-specific nature” (p. 92). Nolan (2017) mentions as a reason for SMEs’ lack of willingness to invest time and money in formal training and development including e-learning: the high opportunity cost of utilizing formal methods. Offering evidence from Australian SMEs, Barrett (2015) concluded that they “did engage workers in formal training when necessary but it was put in the context of the idiosyncratic approach of the owner-manager and the day-to-day needs of the firm” (p. . . .). Despite the generally lower investment in training among SMEs, however, Bishop (2015) showed how “corporatist” systems (e.g., those in Germanic and Scandinavian countries) are often more supportive to skills development in small companies than the “liberal, free market” systems found elsewhere (e.g., USA, UK, and Canada).

Nevertheless, the relatively low investment in formal training and development interventions by SMEs is echoed in a large-scale study among 48,000 firms across 99 developing countries, relying heavily on the manufacturing sector (78%). Almeida and Aterido (2015) analyzed the relationship between company size and investment in job training by employers and found a large and positive correlation. Specifically, small (11–50 permanent employees), medium (50–250), and large firms (over 250) invested 13, 30, and 40 percentage points more in formal training than did micro firms (under 10 employees). On average, 39% of companies provided their employees with job training. Countries in South Asia, the Middle East, and Africa invested the least, whereas at least 70% of companies in Slovakia, Chile, and Thailand offered their workforce training. Compared to firms that offered training, those that did not were smaller, more closed, younger, operating in less capital-intensive sectors, having lower labor productivity, paying lower wages, with a less skilled workforce and lower investments in technology.

According to the Organisation for Economic Cooperation and Development (OECD 2015), micro firms and SMEs “invest a larger proportion of their value added in organisational and managerial capabilities than large firms” (p. . . .). For 22 developed countries all over the world investigated in 2011–2012, it is estimated that 6–7% of value added was invested in training, on-the-job training accounted for 2.4% by itself. For micro firms the percentage was even higher than for SMEs. Over 50% of all investment in organizational capabilities among SMEs is spent on managers, compared to 45% in large firms, which is surprising in view of what Georgiadis and Pitelis (2016) found among SMEs in the UK accommodation and food service sector. According to their data, “employees’ training had a stronger positive impact on firms’ labour productivity and profitability than that of managers” (p. . . .). Mostly in line with Bishop’s analysis mentioned above, SMEs invested in organizational capital and on-the-job training most in Sweden, Denmark, and France (OECD 2015).

In the 22 developed countries considered, in 2011–2012 on average 61% of employees participated in formal and/or on-the-job training at least once (OECD 2015). There were however substantial differences in the proportion of employees trained (34% in Italy versus 77% in Finland) as well as in how much was invested.

Data showed that in Denmark, Korea, and Australia, the highest percentages of investment respective to total value added were found: for formal (1.8%), on-the-job (2.8%), and both types of training together (6.3%), respectively. In line with larger companies, SMEs in the service sectors invest a higher share of value added in training (6.3% on average) than do those in manufacturing (4.2% on average) (OECD 2015).

A number of country-specific studies on the prevalence of TVET in SMEs have been conducted in countries that were not included in the abovementioned OECD data. Damoah et al. (2016) investigated 85 SMEs in Accra, Ghana, and found that the internal resource capacity of a company has considerable impact on participation in formal training programs. Especially larger SMEs with younger owner/managers were therefore prone to investing more in TVET. A study among 533 SMEs in China (Bai et al. 2016) looked at the motives, intentions and actions of their CEOs in offering their employees training. The CEOs were focused more on the benefits of training for the firm than on those for their employees. External constraints contributed significantly to the lack of training provision, making SMEs in China reluctant to provide formal employee training at all. A Vietnamese longitudinal study (Duy et al. 2015) calculated the impact of SMEs investing in off-the-job training on their performance. The results showed that training had a positive impact on firms' return-on-assets (ROA) in the short term. However, there was no impact of training investment on firm revenue and profit either in the short term or after 1–2 years, which might explain why SMEs are reluctant to offer formal training and see a better trade-off with informal learning approaches. A comparative study conducted among family-managed SMEs and large business units in India (Bhattacharyya 2016), for instance, applauded the former's best practices in talent development by way of mentoring, cross-skilling, and fostering employee engagement. And Jeong et al. (2018) explored informal learning in South Korean knowledge-intensive SMEs, taking into account its embeddedness in a culturally sensitive context. The latter encompasses "a family-like atmosphere, one employee – multiple tasks, passive investment in employees, and the absence of systems" (p. . . .). The authors conclude that employee learning in South Korean SMEs hinged entirely on informal learning, focused on immediate application as well as trial and error and was strongly relationship/client needs-based, which is likely to be the case for SMEs in other countries around the world just as much.

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## Issues and Challenges Critical to TVET in SMEs

There are a number of important issues and challenges that affect the provision, as well as the outcomes of TVET in an SME context. Interestingly, the majority of these reflect ongoing conceptual and contextual difficulties, most of which are yet to be resolved to the satisfaction of the any of the main stakeholders who profess interest, and involvement, in TVET in SMEs. The authors provide below a brief generalized overview of the main difficulties and challenges associated with educating and training entrepreneurs, owner/managers, and individuals employed in their firms:

- *Definitional diversity* ~ this chapter links together three main yet interrelated topics: TVET, entrepreneurship, and SMEs. Within each of these important topics, there exists a diversity of definitional difficulties, disagreements, and variations.
- *Conceptual diversity* ~ inherent in all three topics and drives a divergent set of stakeholder' interests, approaches, and agendas. It has created a paradox, which ultimately acts as a strong barrier to the supply and demand for TVET.
- *Contextual diversity* ~ intrinsic to the SME sector and symptomatic of the heterogeneity of business sizes, variety of economic activities, diversity of locations, and the assortment of product and service outputs.

Although for the purpose of this chapter, these issues are simplified and forcibly dichotomized, in practice they overlap considerably and, in the process, complicate as well as amplify an already deeply entrenched, highly dogmatic, and long-standing TVET debate. Importantly, however, in order to resolve, or at least mitigate, some of the many issues affecting the provision, efficiency, and impact of TVET in SMEs, there needs to be a clarity and transparency in relation to the meaning of the terminology and typology in existence, so far.

Definitional diversity invariably results in confusion among TVET providers (i.e., supply side), their SME-based target market (i.e., demand side) and government agencies and their representatives (i.e., funding and control side). Matlay (1993, 1996, 1998, 2002) has repeatedly highlighted the existence of a “Paradox of Training” in the SME sector of the UK economy. This misalignment between training providers' preferences and owner/managers' positive and very positive attitudes to TVET accounted for over 90% being in favor but fewer than 10% of them providing any training for their workforce. The paradox holds true to the whole SME sector and across the full range of definitional, conceptual, and contextual diversity. Similarly, the marginally higher TVET uptake reported by some of the larger of these small businesses and all medium-sized enterprises can be attributed almost exclusively to compulsory and regulated provision, such as Health and Safety training.

Similarly, conceptual diversity seems to grow and get worse each year, caused largely by government and funder inspired “newest/latest terminology/trend,” combined with suppliers “rebranding” and/or “repackaging” old and, in some cases, even obsolete courses in order to comply with an artificially created “training demand.” In turn, academics and researchers, driven by their universities' obsession with “third sector funding,” tend to comply and reinforce conceptual trends, such as, among many others, “knowledge management” (KM) and “talent management” (TM). Both KM and TM incorporate major TVET elements and represent important aspects of strategic SME recruitment, training, and HRM/HRD. In terms of financing TVET, due to the growing diversity of new trends, it has become increasingly difficult to locate, evaluate, and establish the efficiency and/or impact of a wide range of shorter term training initiatives. This also impacts upon SME owner/managers' ability to match their specific TVET needs to the available sources of training and related funding subsidies.

In turn, contextual diversity, which relates mostly to the inherent heterogeneity of the SME sector of an economy, also acts as a major barrier to TVET uptake and successful implementation. First, the sector is dominated by the self-employed owner and micro business owner/manager: estimates variously place their numbers between 77% and 86% of the total SME population. Second, the variety of products manufactured, as well as of services on offer in SMEs, range considerably across the sector, mirroring the magnitude of niche markets its services locally, nationally, regionally, and globally. Third, the variety of locations (e.g., inner city, outer city, urban, and rural) can influence significantly the quantity, quality, and type of TVET needs and availability, as well as the buying power of owner/managers. Contextual diversity also affects proximity of, and access to, TVET. This is particularly acute in the case of old fashioned, rural owner/managers and those who lag behind in terms of the adoption or implementation of Information and Communication Technologies (ICTs). There appears to exist a resistance to acquiring and using the latest technologies across the internal functions and operational delimitations of both urban and rural SMEs.

Linked to the above computing and ICT challenges, several recent trends might affect TVET in SMEs in the near future. On the one hand, globalization and robotization (Frey and Osborne 2013) impact jobs in SMEs perhaps more so than those in large companies, which puts a premium on the importance of SMEs engaging in formal and (especially) informal learning. It is a strength of SMEs that they are, almost by nature, more agile than major corporations and other large organizations although, as hinted at above, much depends on the willingness and ability of the owner/manager to engage in renewal. On the other hand, technological developments including the widespread use of social media are enabling the increased personalization of learning (Redecker and Punie 2013). Work-related learning, even together with other people, is now possible almost at all times, in all places and increasingly customized to every individual. The informal nature of such personalized learning makes it likely an attractive proposition for SMEs, offering as it does a viable alternative for expensive, formal off-site training programs.

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## Concluding Remarks

In this chapter, the authors provide a critical overview of relevant aspects related to TVET in SMEs. It emerges that the rapid growth and expansion of TVET offered to SMEs has had a mixed impact upon the SME sector: both the theory and the practice have moved on from an initial attempt to conscribe large firm training and development support to relevant and successful smaller business solutions. Although some of the old-fashioned views still persist amongst the older generation, in recent years new and specific directions have emerged and developed, customized largely to the explicit needs of owner/managers and their workforce. Fortuitously, most TVET professionals proved perceptive to guidance and continue to improve and further develop TVET initiatives, programs, and



courses, designated specifically for servicing a large and heterogeneous sector of a nation's economy. Data presented in this chapter highlights national and regional similarities, as well as differences, in the uptake of TVET provision, which adds further credence and importance to a prevailing paradox of training in SMEs. In addition, SMEs are less likely to invest in formal training and development, as compared to their larger counterparts. Generally speaking, smaller businesses tend not to plan their training and TVET investment, lack periodic HRD plans and budgets, and mostly added to a short-term view of fulfilling their training needs, obligations, and challenges. Thus, SME owner/managers tend to view TVET and related expenditure as a cost to be met, as and when absolutely necessary. Only a minority of them view TVET as an investment, to be planned ahead and undertaken periodically, on a regular basis.

In terms of the TVET theory and practice, the authors have identified three main categories of barriers and challenges associated with educating and training owner/managers and those individuals who are employed in their businesses, full time as well as part time: definitional, conceptual, and contextual diversities. Individually and cumulatively, these barriers and challenges tend to handicap some of the efforts and initiatives of the main stakeholders who profess an interest in TVET in SMEs. It should be noted, however, that longitudinally, the narrowing of the gap between TVET supply and demand, as highlighted by the long-term diminishing of the training paradox, seems to indicate that stakeholders' efforts to align training on offer to specific SME needs have met with increasing success. Further research is needed on this topic, to involve all those stakeholders who are engaged with TVET in SMEs, in order to make it even more relevant and attractive to SME owner/managers and their employees.

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# Inclusion of Unemployed People at Social Risk and Private Training Markets in Ireland, Portugal, and Spain

# 45

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## Abstract

The Europe 2020 Strategy arose from the serious economic and social crisis experienced on the European continent in recent years. One of its objectives is to reduce the number of people at risk of poverty and social exclusion by 20 million before 2020. For this reason, adult education programs being developed in EU countries are an important contribution to the achievement of this objective. This chapter first addresses the legislative measures adopted in Europe regarding the training of adults and integrating the long-term unemployed and people at risk of social exclusion into the labor market. Next, the actions developed by companies and private entities in Ireland, Portugal, and Spain are analyzed with the aim of socially and occupationally integrating these people, given the high rates of poverty and risk of social exclusion in each of these countries. Ireland's Back to Education Initiative (BTEI) is addressed, as well as Portugal's EFA courses and Spain's training in alternation with the employment and insertion companies approach. In conclusion, it is analyzed what factors companies must consider in

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the field of training to socially and occupationally integrate these disadvantaged groups.

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**Keywords**

Social exclusion · Private training entities · Long-term unemployed · Insertion companies

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## Introduction

Europe has experienced a significant economic and social crisis in recent years. For this reason, European institutions have sought to respond by establishing a series of objectives to be achieved by all European Union (EU) countries before 2020: the Europe 2020 Strategy (Comisión Europea 2010). One objective is reducing the school drop-out rate to below 10%; therefore, the training of adults in European countries contributes significantly to the achievement of these objectives.

At present, many European adults have a low level of both academic and occupational competence, so it would be necessary to start with the development of these skills, as well as second-chance measures that would serve to incorporate these people into working life, especially among groups that are at risk of social exclusion. In 2015 more than a quarter of the EU population between 25 and 64 years of age had left the education system after obtaining an education equal to the lowest grade of secondary education.

Another objective of the Europe 2020 Strategy (Comisión Europea 2010) is reducing the number of people who are at risk of poverty and social exclusion by at least 20 million. Based on the idea that there is a close relationship between educational achievement and social progress, training these groups is crucial to achieving this objective. The chances of living in poverty or experiencing social exclusion among people who only have a basic education are almost three times larger than people with university-level studies (Consejo de la Unión Europea 2016), and unemployment rates are higher among those with a lower level of education (Sapelli 2005).

Therefore, it would be necessary to promote the training of young people and adults who are at risk of social exclusion. This would contribute to the economic development of countries with high levels of poverty and exclusion, given the investment in human capital is crucial to promoting economic prosperity, full employment, and social cohesion (Villalobos and Pedroza 2009). In fact, the EU's objective is to promote a competitive economy based on knowledge and innovation that makes the most of resources and human capital in all EU countries (Comisión Europea 2010). Hence, public institutions and private companies and entities can play a decisive role in this endeavor.

Accordingly, throughout this chapter, the response offered by entities and companies in the field of adult education will be addressed to those who are at risk of social exclusion in three European countries: Portugal, Ireland, and Spain. These countries have been selected because they have suffered a serious economic and

social crisis in recent years and experienced high levels of poverty. In 2016, poverty and the risk of social exclusion rates have been quite high in these three territories: Ireland (24.2%), Portugal (25.1%), and Spain (27.9%) (Eurostat 2016). The impoverishment of the population has been much more pronounced in these countries than the official statistics show because as poverty increased, a large part of the population has become significantly impoverished.

Likewise, people who are at risk of social exclusion in these countries are characterized by suffering long periods of unemployment and having a low level of education (European Commission 2017). For this reason, the measures established in the field of vocational training will be analyzed, especially for people who are unemployed and living in poverty in Ireland, Portugal, and Spain, as well as actions taken by private entities and companies in these countries to achieve socio-labor integration.

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### **Lessons Learned from Comparing Training Processes of Socio-labor Insertion for People Who Are at Risk of Social Exclusion**

Developed as a result of the Fifth International Conference on Adult Education (UNESCO 1997), the Hamburg Declaration on Adult Learning, which was signed by 130 countries, 478 NGOs, and 237 foundations, affirmed that adult education consists of a set of learning processes, whether formal or informal, from which adults develop skills, enrich their knowledge, and improve their technical or professional qualifications or reorient themselves to meet their own needs and those of society. It was a new vision of education that considers learning a lifelong process. Therefore, learning throughout life demands complementarity in processes and continuity over time. In this sense, continuing vocational education and training (CVET), as part of adult learning aimed at professional development, is essential for any country's economic competitiveness, productivity, and growth. Hence, the European Center for the Development of Vocational Training (CEDEFOP) defines CVET as "education or training after initial education or entry into working life, aimed at helping individuals to improve or update their knowledge and/or skills; acquire new skills for a career move or retraining; continue their personal or professional development" (CEDEFOP and Tissot 2014, p. 51). Therefore, CVET stands out among all forms of adult learning not only for its orientation to professional development but also for satisfying the labor market's needs. Hence, all the European Union's related statements and documents have recognized their importance, especially in the Council Resolution on a renewed European Agenda for Adult Learning (Council of the European Union 2011). Thus, CVET is key to achieving the EU's social and economic objectives, especially those involving the participation of adults in lifelong learning, improving the employability of individuals, and increasing employment in the EU (CEDEFOP 2015). Accordingly, in a 2009 resolution on the active inclusion of people excluded from the labor market, the European Parliament established that EU countries must expand and improve investment in human capital through

inclusive education and training policies. In addition, the Council of the EU indicated in a recommendation on Upskilling Pathways (Consejo de la Unión Europea 2016) that all EU states should promote that adults with a low level of knowledge and skills, such as those who have left the educational system before completing the second cycle of secondary education, acquire the relevant knowledge and skills needed to integrate into the labor market and, thus, be able to progress to level 3 or 4 qualifications of the European Qualifications Framework. For these reasons, CVET plays an essential role in the integration of people at risk of poverty and social exclusion in different European countries.

The challenge of integration relates to andragogy since this discipline has been a determining factor in the development of adult learning. Andragogy is a theory and practice that has focused on the person (i.e., on the adults who learn), thus providing a different methodological alternative in this field of knowledge. It is defined as a set of basic principles of adult learning that apply to all adult learning situations and is based on the following six principles, including the learner's need to know, self-concept, prior experience, readiness to learn, orientation to learning, and motivation to learn (Knowles et al. 2012). These principles are very important when working with all types of adults, especially with people at risk of social exclusion.

The first principle implies that the facilitator must help the student be cognizant of the need to know since the adult needs to comprehend why learning is important, the reason for learning, and how to carry it out (Knowles 1980).

According to the andragogic model, an adult has a self-concept and a sense of being a self-directed and autonomous person, which is the second principle. This vision is based on the idea that an adult has a self-concept of being responsible for his or her life and decisions, and hence, needs to be considered someone who is qualified for self-direction. Self-directed learning is based on personal autonomy, or taking control of the goals of one's learning and assuming ownership of it (Ghost Bear 2012). Therefore, when adults begin participating in educational and training activities, they balk at situations in which they feel other people are attempting to impose their will. Therefore, the facilitating teacher's task, according to Knowles, is to identify, guide, and respect the adult student's decisions concerning their level of autonomy while learning (Sánchez 2015).

The third principle states that adults who participate in any educational activity come to it with a large volume and quality of experience. This implies that a group of adult students is diverse and heterogeneous in relation to their needs, motivation, interests, and learning styles; therefore, it is necessary to individualize teaching methods. These adult students' experience and prior knowledge can be a valuable resource for some types of learning. Hence, according to Knowles, using methodologies and learning techniques that emphasize experimentation so that adult students can use their experience to advance their learning is important. Hence, if adults' experience is ignored or devalued in a learning process, these adults will perceive it as a rejection not only of their experience but also of themselves as individuals (Knowles 1990).

According to the fourth principle, which is related to the student's willingness to learn, adults are prepared to learn the things they need to know to be able to cope

with real-life situations. This relates to the overcoming of tasks from one developmental stage to the next (Sánchez 2015).

Concerning to the fifth principle, adult learning orientation must be centered on life, a task, or a problem. Therefore, the motivation for learning in adults is greater when they perceive that they need help to perform tasks or achieve the goals, or they have parents who face problems with their lives. In this way, learning is more effective. According to Knowles (1980), the lack of recognition of this characteristic in adult learning has been the main cause of dropping out of school for a long time.

Finally, the sixth principle states that motivation is a fundamental element of learning. Although many adults respond to external motivations, such as improving one's work performance ratings or the perceived opportunity for a higher salary, other motivations are of an internal nature, such as self-esteem and personal satisfaction (Knowles et al. 2012).

However, to help design educational programs aimed at adults with social integration difficulties, a North American foundation (Roberts and Price 2013) launched the Shifting Gears project a few years ago. It was developed in six Midwestern states in the United States to help working-age adults with low educational levels and few professional qualifications progress professionally. The project involved 4,000 adults and was based on systemic change through collaboration among leaders at adult basic education agencies, community and technical colleges, and workforce development programs. The project required participating states to replace existing educational and employment services with a more cohesive approach that considered the needs and real circumstances of low-skilled adults.

Another significant example related to the design of educational programs for young adults at risk of social exclusion is the Young Adult Literacy Program created in 2008 by a New York institution (Hossain and Terwelp 2015). This program is aimed at young adults between 16 and 24 years of age who left school prematurely and did not have a job, thus constituting a group at risk of poverty and social exclusion. The program is characterized by the fact that these adults receive academic instruction in literacy and mathematics, personalized social support, transportation aid, preparation activities for employment accompanied by small economic benefits, and training in personal and work skills. All these components are based on a holistic approach, since the program's staff coordinate and work jointly in each of these areas. They also offer the learners relationships based on trust as well as physical, emotional, and psychological security (Hossain and Terwelp 2015).

In Africa, the UNESCO's Institute for Lifelong Learning (Bolly and Jonas 2015) conducted research that aimed to measure the learning outcomes of adults with low educational levels in various literacy programs in different African countries. To this end, the participants' communicative and mathematical competencies and skills for measuring time and space were evaluated. Knowledge regarding health and wellbeing, care of the environment, citizenship, and employment were also evaluated. These areas were selected by the research because of their importance in the design of adult literacy programs.

Furthermore, in connection to the use of innovative methodologies in the design of adult literacy programs, various learning experiences have been developed based on the

use of personal mobile devices that are intended to provide functional support to adults with low literacy levels. For example, a mobile application (Munteanu et al. 2014) was developed in Canada and designed to be used both in the classroom and in daily life. Its purpose is to help adults improve their literacy level and increase independence. After conducting various studies, it has been demonstrated that using these devices increases users' motivation and interest in learning and raises their level of confidence in educational activity participation, as well as facing the challenges of daily life.

Finally, bearing in mind that one of the priority groups in the field of adult education in Europe is people at risk of poverty and social exclusion, the profile of these individuals is then tackled. The risk of social exclusion is a situation in which any person can be immersed at some point in their life, negatively affecting the individual's development, whether on a personal, social, or economic level. To measure the population at risk of poverty and social exclusion, the AROPE (At Risk of Poverty and/or Exclusion) indicator is used in Europe, which refers to the percentage of the population that is at risk of poverty, social exclusion, or both (Llano 2017). The AROPE population includes people living in households in which there is at least one of the following three circumstances: they are at risk of poverty, suffer severe material deprivation, and/or there is a low intensity of employment (MSSSI 2014).

There are different approaches to describing the situation of people who are at risk of exclusion due to its multidimensional characteristics. However, some of the common risk factors are as follows:

(a) Economic

These people live in a situation characterized by economic instability and a shortage of resources. They usually have low incomes and fewer opportunities to access economic benefits. This economic situation means that they do not have housing, and if they do have housing, it lacks the minimum conditions of habitability. Also, they usually live without medical insurance.

(b) Personal

They are unable to participate in decisions that affect their own lives, which is an indicator of their low level of personal development. They are unmotivated individuals with unhealthy lifestyles, so they tend to require more frequent or intensive health services.

(c) Social

People who are in this situation are habitually characterized by the deterioration of their social, family, and community ties. At the family level, they usually have a weak family network (Jiménez 2008). Furthermore, they do not have access to recreational spaces and social relations, being unable to participate in social life under conditions of equality. This last situation is especially serious among immigrants.

(d) Labor

These individuals are characterized by employment instability; their occupations are habitually precarious, and they can experience long periods of unemployment. For this reason, they generally have little work experience and a low educational level, as well as few if any professional qualifications. Some are illiterate. They also tend to be in age groups that are not preferred in the labor market.



For all these reasons, the training programs offered in Portugal, Ireland, and Spain for people who are at risk of social exclusion is discussed below. Thus, the measures established in the field of professional training in each of these countries are analyzed, as well as the action taken by private entities and companies. The ultimate purpose of these measures is to socially and professionally train and integrate this group of individuals.

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## Inclusion and Training Markets in Ireland

Most of Ireland's professional training programs take place in the public sector; however, private providers also play an important role in this sector. To gain a broad understanding of how vocational training works in Ireland, it is necessary to first address how the education system is structured. Ireland's educational system is divided into four stages: primary, secondary, further education and training (i.e., further education and training [FET] and postsecondary education), and higher education. Vocational education and training (VET) is taught at the FET level, although there is also something in higher education.

Digging deeper into the structure of the Irish educational system, there is a 3-year program in lower secondary education that leads to obtaining the title of junior cycle program of achievement. Subsequently, an optional 1-year program is established called the transition year, which is part of upper secondary education. Students can then access the leaving certificate program, which lasts 2 years and culminates in the leaving certificate examination. There is also a leaving certificate vocational program (LCVP) that is similar to the leaving certificate program. It is characterized by providing technical content as well as some additional professional training modules. It is a 2-year program that was introduced in 1989 (Heraty et al. 2000). The certificate issued at the end of these studies includes additional information learned in the professional modules. The legal authority on vocational training is the 16 education and training boards (ETBs) distributed throughout the country, as established by the Education and Training Boards Act of 2013 (Irish Statute Book 2013). ETBs maintain and manage second-level schools, further education colleges, multi-faith community national schools, and a variety of adult centers that offer professional training programs (CEDEFOP 2014).

A new further education authority, called SOLAS (AnseSebibis Oideachais Leanúnaigh agus Scileanna/Continuing Education and Skills Service), was created in 2013. Its mission is to coordinate the 16 regional ETBs in addition to hiring professional training providers in the private and community field through competitive tenders. The active inclusion of people at risk of exclusion is one of the four strategic objectives that underpin the Further Education and Training Strategy 2014–2019 (DES 2016) and aims to support the participation of people of all ages and abilities in further education and training (FET). It is taught in vocational schools, adult education centers, and private centers and covers all postsecondary educational activities except higher education, including adult literacy, vocational

education and training, second-chance programs for dropouts and the unemployed, and adult and community education.

Likewise, in recent years, Ireland has linked the training provided in FET with the needs of the labor market. In fact, in this country, a solid mechanism has been developed to identify competencies demanded by the labor market. The task is supervised by a group of experts composed of government representatives, representatives of workers and companies, and professional training providers (CEDEFOP 2014).

ETBs also operate a series of professional training programs. One of them is the Youthreach educational program that currently serves 3,313 students who left school prematurely. Its objective is to socially reintegrate young people between the ages of 15 and 20 and provide them with professional skills so that they can access the labor market. The program's length is 2 years full time and characterized by offering a policy of continuous admission. Classes are taught for 35 h per week over a 45-week period. Once the training is completed, the young person can access a post-leaving certification course (PLC), request an apprenticeship, or find employment. In this program, the needs of young people are identified, and an individual learning plan is negotiated according to the center's capacities. Two very important aspects of the program are the possibility that young people have of opting for different thematic areas, as well as the friendly teachers and its comprehensive nature.

The program is organized in two phases. The first phase, called the foundation phase, allows young people to overcome learning difficulties, develop their self-esteem, and acquire the necessary skills to continue learning, especially in reading, writing, and arithmetic (Dolan and McGrath 2006). The second phase is the progression phase; it promotes the development of professional competencies through a series of training options and work experiences that lead to various forms of certification. The program offers training in different professional fields, such as hairdressing, crafts, carpentry, catering, photography, sports, and computer science. It also has a work experience program.

ETBs also offer community education that meets the educational needs of local groups, currently covering some 53,415 people. Community education unites people and communities, thus contributing to social cohesion (Further Education Development Unit 2012a). It also enables intergenerational learning, increasing self-confidence and self-esteem, especially among those whose prior formal education was a negative experience. This program improves the possibilities for broader learning, as well as acquiring qualifications and accessing the labor market.

In addition to providing training in Skills for Work (SFW) to some 3,000 workers with low levels of professional qualification, sometimes even in the workplace, ETBs also offer adult literacy programs throughout the country, including English as a second language. These literacy programs currently serve about 57,000 people.

The Vocational Training Opportunities Scheme offered by ETBs is a second-chance program for unemployed people that includes courses of up to 2 years. Its implementation has been very successful. Students who participate in this training

modality can take courses in the junior or leaving certificate programs or modules that are certified by Quality and Qualifications Ireland (QQI) at the foundation level, level 1, level 2, or level 3. The courses are taught 30 h a week, aimed at unemployed people over 21 years of age (Kis 2010) and designed to improve these individuals' employability, as well as prepare them for new opportunities that lead to gainful employment.

Another training program is the Back to Education Initiative (BTEI), which is part time with 32,066 students currently enrolled and in which private entities and providers also participate. It is a brilliant initiative in the field of training people at risk of social exclusion. This project offers a wide range of part-time accredited courses for young people and adults with an educational level below upper secondary education. The purpose is to facilitate access and progression to other educational levels or certain employment routes.

The Back to Education Initiative (BTEI) allows the entities and companies involved to increase individuals' participation through flexible options that adapt to students' individual circumstances, which enables them to combine work, family, and job responsibilities (Further Education Development Unit 2012a). These courses can be accessed through literacy and community education programs. The BTEI allows entities and companies to expand the provision of courses that lead to certification in levels 3 and 4 of the National Framework of Qualifications (NFQ). These courses allow participating individuals to access education and training full time. Information and communication technology (ICT) training is also offered. BTEI is designed for adults and young people who dropped out of school and have a low literacy level (Further Education Development Unit 2012b). The program also works with the unemployed, especially with the long-term unemployed, the elderly, women who have social participation difficulties, men suffering from rural isolation, and single parents who have minors under their care. The latter have difficulty participating in full-time training programs. Other important recipients are the homeless, ex-prisoners, people with disabilities, and immigrants who need support in language learning and literacy.

It is important to emphasize that within these groups, priority is always given to people with the most educational disadvantages, offering access to those who come from the literacy and community education programs. Moreover, no more than 30% of the available places can be directed to people who have already obtained certification in upper secondary-level education (i.e., a leaving certificate or equivalent).

The programs must not exceed more than 17 h per week or 400 h per year and may be taught in the mornings or afternoons, at night, or on weekends. They can also be organized as intensive courses and even summer courses. The courses can be organized into modules to allow the accumulation of credits, thus facilitating the students' progression in their studies. The content of these courses must be relevant to the students' personal, social, and cultural needs, as well as the labor market's needs.

This type of training develops key competencies related to communication, mathematics, information and communication technologies, interpersonal and social competencies, and specific vocational skills. All courses must be related to the

subjects of the junior or leaving certificate or to degrees accredited by the Further Education and Training Awards Council (FETAC). Since 2001, the FETAC is the only national body in charge of the accreditation of the Further Education and Training (Conroy and O’Leary 2007). Students in these programs are offered educational guidance since they are at the center of the learning process. Private providers of these courses are required to have a flexible approach to the evaluation and validation of learning, as well as the accumulation and transferability of credits.

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## **Inclusion and Training Markets in Portugal**

The education system in Portugal is divided into three stages: basic, secondary, and higher education. The Ministry of Education is responsible for education from the preschool level to upper secondary education, while the Ministry of Labor is responsible for continuous professional training and the measures of activation of the labor market. The National System of Qualifications (SNQ) reorganized vocational training into a single system within the competences of education and employment authorities (CEDEFOP 2017). Law 85/2009 established compulsory basic and secondary education up to the age of 18 years. Basic education lasts 9 years and is divided into three consecutive cycles, and professional training occurs in education and training courses and vocational courses.

Secondary education is oriented to both pursuing higher education and entering the world of work. The structure of this secondary level is based on 3 years of schooling and comprises a variety of courses. Thus, there are scientific-humanistic courses, specialized artistic teaching courses, and courses with own plans that usually have a scientific-technological component (Ministério da Educação e Ciência 2012). There are also courses of recurrent education at the secondary level that constitute a second-chance teaching modality aimed at those who could not complete their studies, as well as those who seek a cultural and professional promotion. It constitutes a modality of adult education similar to the studies that take place during daytime teaching and lead, therefore, to obtaining an equivalent certification.

At this level of secondary education, professional courses are also taught, which are essentially aimed at students who intend to join the world of work. Their duration is between 3,200 and 3,440 h (Ministério da Educação e Ciência 2013) and are subdivided into three areas: (a) the sociocultural field, comprising 1,000 h, in which Portuguese, a foreign language, the area of integration, information and communication technologies, and physical education are taught; (b) the science field, comprising 500 h, which contains two to three disciplines depending on the professional qualifications to be acquired; and (c) the technical field, comprising 1,000 h, which includes three to four disciplines, and an additional 600–840 h of training in a work context.

It should also be mentioned that secondary education also includes vocational courses for students over 16 years of age who are at risk dropping out; they are offered technical courses that allow them to obtain a specific professional skill

(Ministério da Educação e Ciência 2012). In these secondary-level vocational courses, companies, entities, and social institutions of the school area that are involved in providing students with training programs in a business context collaborate, thus contributing to the vocational component. These courses are 2 years in duration with a class size between 20 and 24 students and structured in three parts (Ministério da Educação e Ciência 2015): a 600-h general part contains disciplines such as Portuguese and English; a 300-h part integrates other disciplines, such as applied mathematics; and a third part involves vocational disciplines with 700 h of Short Training Units Duration and, finally, a 1,400-h formative stage. Both the vocational part and the formative stage are developed within a framework of flexibility; the formative stage is based on a model of alternation between real training in the context of a company and practical training. The professionals that comprise the pedagogical team are the coordinator, the group tutor, the teaching staff of the different disciplines, and the school psychologist who coaches the entire teaching process, always in coordination with the family. These secondary-level vocational courses in secondary education confer the fourth level of qualification of the National Qualifications Framework of Portugal.

At the postsecondary education level, vocational training programs combine general education, scientific education, and technological training in a work environment. These are called Technological Specialization Courses (CET) and generally last between 1 year and a year and a half, and 30–46% of the time is spent in work-based learning (CEDEFOP 2017).

An important tool created in Portugal in the field of adult education and aimed at promoting the reduction of skills deficits and improving levels of employability and social and professional inclusion are education and adult training (EFA) courses. These courses are aimed at people over 18 years of age who do not have adequate educational and professional qualifications to enter the labor market and, most importantly, those who have not completed basic or secondary education (Taveira 2010). Specifically, the recipients of these courses are groups of people at risk of social exclusion. The courses may correspond to the level of basic education as well as to the level of secondary education. EFA courses at the secondary level, which are usually taught on a day or full-time basis, can only be attended by adults of 23 years of age or older (Ministérios do Trabalho e da Solidariedade Social e da Educação e Ciência 2008).

Many of the entities promoting EFA courses are companies, business associations, unions, education centers, and associations of local, regional, or national scope, although some are public entities. All participating entities must be integrated into the network of training entities within the framework of the National Qualifications System.

The offer of EFA courses has been gradually expanded to include a growing number of entities and promoter companies, as well as adults in training. A new initiative called New Opportunities has been created that aims to further increase the number of EFA courses at the basic and secondary levels. The goal is the generalization of secondary education as a minimum level of qualification for the entire population.

The EFA training model is based on the perspective of lifelong learning. Thus, adults who participate in flexible training itineraries must carry out a Recognition, Validation, and Certification of Competencies (RVCC) process that they have previously acquired formally, not formally or informally (Silva 2015). A modular training model is used in these courses, which has been structured from the training references that are included in the National Catalog of Qualifications. They address various areas of key competencies such as citizenship and employability, language and communication, mathematics for life, information and communication technologies, and technological training. The language and communication area also includes competencies related to a foreign language. Technological training compulsorily integrates practical training in the context of work (Ministérios da Economia e do Emprego e da Educação e Ciencia 2008). This period of practical training must be guided by an individualized plan that has been agreed upon by the training entity, student in training, and company where the internship is carried out. These courses also include a “learning with autonomy” module at the basic level or a “reflective portfolio of learning” at the secondary level (Taveira 2010).

The groups can include 15–30 students and can provide a double certification (i.e., school and professional). The duration of the training, rules, and weekly workload are usually adjusted to the students’ living conditions. However, the number of training hours cannot exceed 7 h per day or 35 h per week, and if it takes place after work, it cannot exceed 4 h per day. The technical-pedagogical team responsible for the EFA courses is made up of a group of trainers responsible for each of the key competency areas, tutors of practical training in the work context, and a personal and social mediator. This mediator participates in the selection of students as well as the diagnosis, monitoring, and personal, social, and pedagogical orientation of the students. In turn, the trainers participate in the diagnosis of the students, create a training plan, develop the training in the corresponding area, and produce the necessary pedagogical materials (Ministérios do Trabalho e da Solidariedade Social e da Educação e Ciencia 2008). The evaluation method in these courses is based on the continuous and systematic observation of the training process, using multiple techniques and instruments for collecting information. At the end of an EFA course, a certificate of qualification is issued that may correspond to some of the cycles of basic education, some secondary education, or professional certification.

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## **Inclusion and Training Markets in Spain**

Vocational training in Spain is made up of two subsystems: the Subsystem of Initial or Regulated Professional Training, which depends on the Ministry of Education, Culture, and Sports and Autonomous Communities; and the Vocational Training Subsystem for Employment, linked to the Ministry of Employment and Social Security and the Autonomous Communities. To analyze the Initial or Regulated Professional Training Subsystem, it is necessary to begin with the structure of the Spanish educational system. It is regulated by both the Organic Law of Education

(LOE) and the Organic Law for the Improvement of Educational Quality (LOMCE). Mandatory schooling ranges from 6 to 16 years. Primary education consists of six academic courses, while compulsory secondary education comprises four courses. In the fourth course, students can choose between an academic education followed by a baccalaureate or applied teaching to continue studies in vocational training. Once the graduate in compulsory secondary education degree has been obtained, those who wish to pursue professional studies can access the middle-grade vocational training cycles. These trainings have a modular structure, and they earn the title of technician in the corresponding training field when these trainings are completed (Ministerio de Educación y Ciencia 2007).

There are also some training programs that have the character of postsecondary education: the vocational training cycles of a higher degree. They are accessed with the bachelor's degree or the title of middle degree technician. Once these studies are completed, the title of superior technician is obtained in the corresponding training field.

The Middle-Grade Vocational Training Cycles are designed to offer a specialized and qualified workforce that allows them to occupy jobs in the sectors of industry or services. The Higher Degree Training Cycles are designed to train future highly specialized technicians or middle managers of companies in any economic sector. All training cycles are grouped into 26 professional families and have a duration of 2,000 h, equivalent to two academic years. These cycles include various professional modules associated with competency units of the National Catalog of Professional Qualifications, as well as training modules and career guidance, business and entrepreneurial initiative, and training in work centers. Likewise, the Organic Law for the Improvement of Educational Quality (LOMCE) (Jefatura del Estado 2013) created Basic Vocational Training Cycles. These are aimed at students who have failed during secondary education, constituting an important way to prevent drop-outs, thus facilitating students' engagement in the education system and preventing future social exclusion.

The professional profile of these degrees includes units of competence of a complete professional qualification level 1, belonging to the National Catalog of Professional Qualifications. The training leading to basic professional titles enables learners to carry out the functions of a basic level of prevention. These teachings also have a modular structure, including professional modules that guarantee the acquisition of the skills of lifelong learning (Communication and Social Sciences and Applied Sciences), professional modules that guarantee necessary training in professional skills for professional life and labor insertion, and a training in the work center (FCT) professional module that takes place in the company (Ministerio de Educación, Cultura y Deporte 2014). The total duration of these basic training cycles is 2,000 h, equivalent to two full-time academic courses.

Next, the second subsystem that exists in Spain will be addressed. In Spain, within the subsystem of Vocational Training for Employment (Jefatura del Estado 2015), there is a very useful instrument called offer training that consists of training plans aimed at both employed and unemployed workers. Training plans aimed at unemployed workers are designed to improve their employability. The actions



developed within the plan consider current job opportunities in the market and the detected qualification needs. It includes actions that enable learners to earn certificates of professionalism included in the National Catalog of Professional Qualifications (CNCP). Currently, they focus on people who are in a special unemployment situation, specifically, young people without qualifications, victims of gender violence, the long-term unemployed, people over 45 years of age, and other individuals at risk of social exclusion. The goal is to obtain a certificate of professionalism, as it is an accreditation instrument highly valued in the workplace that can be taught by private training providers.

The National Repertoire of Professional Certificates orders the 620 existing certificates in 26 professional families according to the levels of qualification established by the regulations, which is 1, 2, and 3. In the field of Vocational Training for Employment, the certificate of professionalism is responsible for accrediting the competence units that make up the qualification with which they are associated. They are valid throughout the country, and although they are of an official nature since they are issued by the State Public Employment Service (SEPE) and the competent administrations of the autonomous communities, they do not regulate the exercise of a profession (Ministerio de Empleo y Seguridad Social 2013).

Next, different instructive modalities pertaining to alternation training are discussed. Developed by entities, consortiums, or associations, their purpose is the immediate employment of participants. This type of vocational training for employment is most directly related to real employment; therefore, it is configured as training support for hiring. Its purpose is to impart professional skills, allowing users to combine periods of training in an educational center with others in the workplace. There are several modalities: workshop schools, craft houses, employment workshops, and training programs in alternation with employment (PFAE). All these are projects where training and employment are combined. Workshop schools and craft houses are aimed at unemployed persons under 25 years of age, and the employment workshops are for persons older than 25 years of age. PFAEs generally cover the entire age range. During the project, users receive occupational training mainly aimed at obtaining certificates of professionalism that are then accredited, and, at the same time, a work contract is made for training. In workshop schools and craft houses, students receive a scholarship during the first 6 months, and the contract is made in the 7th month.

Therefore, employment workshops constitute a mixed employment and training program that aims to improve the employability of the unemployed aged 25 and older with the aim of facilitating gainful employment (Ministerio de Trabajo y Asuntos Sociales 2001). They are also developed by entities, consortiums, or associations. In employment workshops, work and services of social interest are performed, which allow the participating students to carry out an effective job while receiving occupational training for a profession, thereby increasing the user's chances of gainful employment.

Employment workshops are integrated into comprehensive employment plans that respond to the demands of the labor market, thus activating regional development, generating wealth, and, consequently, creating jobs. These workshops have



a maximum duration of 1 year, with the students being hired by the promoters through a training contract. They receive salaries equivalent to the minimum interprofessional salary established annually. Students receive occupational vocational training, as well as basic training and information and communication technologies training. Upon completion of the employment workshop program, students earn a certificate that can be validated in whole or in part by a certificate of professionalism.

All these modalities are aimed at improving the qualifications and employment possibilities of groups of unemployed people with low levels of qualification, young people who have left the education system, and people with special difficulties of social insertion. Training is centered in the fields of agriculture, construction, stonework, and gardening, among others. Although they are financed by different autonomous communities, they are promoted by local and private entities that intend to respond to a specific local need, such as the restoration of a monument. Other examples include private entities which produce fruits and vegetables for the social services of a given municipality. At the end of the employment workshop, the promoter entity is responsible for providing technical assistance to the participating workers, both for the search for employment as an employee and for the establishment of their own business. All this is done through its own guidance and counseling unit but always in collaboration with the Public Employment Service. Access to the labor market among students of the employment workshops is 45–50%, while, among students of craft houses and workshop schools, the percentage increases to 60–65%.

Another very useful instrument is addressed in the training of people at risk of social exclusion: insertion companies. These companies play an important role in the processes of labor insertion of people in situations of social vulnerability. Currently, they focus on four disadvantaged groups: immigrants, women, people over age 50, and young people under age 30 (Castelló et al. 2014). It is an innovative model with development in different sectors of the social economy, focusing on productivity as well as people. These companies are an important instrument for the implementation of active employment policies since they are autonomous companies that carry out market activities in different sectors, creating employment and offering training and insertion itineraries for people who have difficulty accessing the labor market and are at risk for social exclusion (Martínez et al. 2012).

Therefore, these companies can hire people in situations of social exclusion or unemployment and registered in the Public Employment Services who have special difficulty integrating into the labor market (Arrillaga et al. 2012). Most of these companies are involved in the service sector, such as laundries, courier services, gardening, textiles, cleaning, and recycling. The intervention model used by these companies is based on the accompaniment of people, seeing people's positive aspects rather than just their shortcomings and trust them. They also combine the processes of social incorporation and labor insertion (Castelló et al. 2014).

For insertion into the labor market, an insertion itinerary or shared work plan is used, which includes both personal goals and the insertion actions to be developed. An important part is the training actions that the user must carry out and must be

designed so that they comply with the criteria established in certificates of professionalism. To develop the itinerary, an evaluation of the employability of the person in the labor market is conducted. For this purpose, personal, professional, and psychosocial variables are considered, evaluating the person's training, work experience, attitudes toward employment, and other factors. More than 50% of these people finish the process in an insertion company and obtain a job in the ordinary labor market (Arrillaga et al. 2012). It is a highly positive result given that, before being part of the insertion company, they were people at risk of social exclusion and had low education and employability levels.

The following table compares the main important training actions developed by different institutions and entities in Ireland, Portugal, and Spain for people who are at risk of social exclusion (Table 1).

Below is a comparative analysis of the training measures implemented in Ireland, Portugal, and Spain according to the different target groups. Therefore, in relation to young people who left school prematurely, it can be observed that the different training programs developed in the three countries, namely, the Irish Youthreach program, secondary-level vocational courses in Portugal, and basic vocational training in Spain, have a similar duration of 2 years. However, the number of hours is different since the Irish program is approximately 1,575 h, while the duration is 2,000 h in Spain and 3,000 h in Portugal. Nevertheless, Ireland's Youthreach program has the advantage of offering a policy of continuous admission, while the Portuguese and Spanish models only enroll students at the beginning of the school year.

When examining the contents taught, the three programs concur on working on basic subjects such as language and mathematics that are decisive for school success. However, the Irish model also focuses on students overcoming their learning difficulties, developing self-esteem, and engaging in activities that take place in the school, which are all essential elements for the continuity of these students' education. The Youthreach faculty also strives to be friendly and understanding with the students. As stated by Marchena et al. (2015), establishing rapport between students and teachers has a positive impact on decreasing school dropouts. However, if practical training in companies is the focus, the Spanish and Portuguese programs stand out for enabling students to complete a period of internships with companies, which significantly increases these students' motivation to complete their professional studies.

Regarding the pedagogical follow-up of students who participate in these programs, Portugal establishes in its regulations that the school psychologist is a member of the pedagogical team taking charge of the whole process of teaching the students. The Irish model is characterized by developing an individual learning plan that adapts to the characteristics of the students. However, the Spanish model lacks such individual learning plans, which can negatively influence the level of academic success achieved.

Another point that is presented hereafter is a comparative analysis of the different countries mentioned in terms of unemployed adults with low levels of professional qualifications and literacy who, therefore, are at risk of social exclusion. For this

**Table 1** Comparison of training programs for adults at risk of social exclusion by country

Country	Program	Target groups	Main features
Ireland	Youthreach	Students who left school prematurely	Develop professional skills needed to access the labor market. Two phases: (1) overcome learning difficulties and develop self-esteem and (2) develop professional competencies Time period: 35 h × 45 weeks
	Community education	Educational needs of local groups	Continuity in studies Professional qualifications for access to the labor market Social cohesion
	Skills for work	Low levels of professional qualification	Increased professional qualifications
	Vocational training opportunities scheme	Unemployed people over 21 years old	Second-chance program Up to 2 years of courses at 30 h per week
	Back to Education Initiative (BTEI)	Low literacy levels and at risk of social exclusion	Part-time courses: maximum of 17 h per week Adapted to the students' individual circumstances Modular structure with an educational orientation Competencies: communication, mathematics, interpersonal and social, and ICT and professional
Portugal	Courses of recurrent education at secondary level	Uncompleted studies or searching professional promotion	Second-chance teaching modality
	Vocational courses	Students over 16 years at risk of early school leaving	Technical education Collaboration of companies, entities, and social institutions of the school area Duration: 2 years Number of students: 20–24
	EFA courses	People over 18 years of age, without adequate educational and professional qualifications	Courses corresponding to the level of basic or secondary education Network of training entities Modular training model Adjusted to the students' individual needs Competencies: citizenship and employability, language and communication, mathematics

*(continued)*

**Table 1** (continued)

Country	Program	Target groups	Main features
			<p>for life, ICT and work-based learning (WBL) training through individual plans</p> <p>Double certification: school (primary or secondary) and professional</p> <p>Technical-pedagogical team: includes personal and social mediator</p>
Spain	Basic vocational training	Students with school failure	<p>Modular structure: communication and social sciences, applied sciences, professional skills, and WBL</p> <p>Basic professional title: training for basic level prevention functions (level 1 qualification)</p>
	Training plans for unemployed workers	People at risk of social exclusion	National Repertoire of Professional Certificates: 620 certificates belonging to 26 professional families with qualification levels 1, 2, and 3
	Schools-workshop and craft houses	Unemployed people under 25 years old	<p>Theory studies, 15%; practice, 85%</p> <p>Obtain labor certification</p> <p>Duration: 2 years</p>
	Employment workshops	Unemployed people over 25 years	<p>Employment and training program</p> <p>Development of social projects, integrated into comprehensive employment plans</p> <p>Training contract</p> <p>Accreditation: validated by a certificate of professionalism</p> <p>Maximum duration: 1 year</p>
	Insertion companies	Immigrants, people over 50 years old, and other socially vulnerable individuals	<p>Training and insertion itineraries</p> <p>Contract as a worker</p> <p>Evaluation of employability</p> <p>Insertion itinerary plus training actions according to certificates of professionalism and accompaniment of people</p>

Source: prepared by the authors

purpose, the Irish training program called the Back to Education Initiative (BTEI), Portugal's EFA courses, and Spain's employment workshops and insertion companies will be analyzed.

All these training programs coincide in having a modular structure that allows the accumulation of credits, thus facilitating students' progression in their studies. Likewise, they agree on their flexibility and adaptation to the students' specific circumstances; thus, the Irish BTEI program is characterized by offering flexible options, while the EFA courses in Portugal have flexible training itineraries, and the Spanish insertion companies offer their users personalized itineraries of training and employment. However, the BTEI program offers educational guidance to its users, while the EFA courses require participants to carry out a process of recognizing previously acquired competencies. There are also differences in the workloads. While the BTEI is structured to require a maximum of 17 h per week and no more than 400 h per year, Portugal's EFA courses cannot exceed 7 h per day or 35 h per week, and Spain's employment workshops, being a mixed employment and training program, have a maximum duration of 1 year.

In relation to the contents, all these programs include competencies related to vocational areas as well as key competencies related to information, communication technology, and other related skills, but it is necessary to emphasize that Ireland's BTEI program also places special emphasis on interpersonal and social competencies. Similarly, Spain's insertion companies focus on vocational training as well as social inclusion. For this reason, these intervention models are based on the accompaniment of the people, which is an essential element when working with people who are at risk of social exclusion. In this same sense, it is noted that in Portugal's EFA courses, there is a personal and social mediator in charge of the personal and social follow-up of the students.

Finally, in relation to the precarious economic situation these people suffer, it is necessary to underline the role played by the Spanish employment workshops as opposed to the other two countries' training programs. These workshops are distinguished by the training contracts that they make with their users since, through these contract, they pay the minimum interprofessional salary to individuals who have suffered long-term unemployment. Furthermore, once the employment workshops are completed, the participating entities provide the users with the necessary technical assistance to search for employment as an employee, as well as establish their own business.

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## **Requirements and Guidance Notes for Training Programs**

Next, factors that should be taken into account by training companies in the work they carry out with people at risk of social exclusion for the training to be successful and lead to these people being able to integrate effectively into society and the field

of work will be analyzed. An important element of working with people at risk of social exclusion who have a low level of education and have experienced long periods of unemployment is getting them to participate in training activities and continue participating in them over time. It is necessary that private training providers generate a positive disposition toward the students' learning. This is achieved by highlighting the benefits of learning and that students perceive it as something important. By doing so, the student's need to know, which is one of the principles proposed by andragogy, is fulfilled (Knowles et al. 2012). If they are aware of the educational opportunities available their willingness to learn will be increased. However, teachers in these programs must also create a pleasant atmosphere in class, establishing rapport with students. Accordingly, positive results have been obtained when the training staff develops relationships with users based on trust, as well as physical, emotional, and psychological security (Hossain and Terwelp 2015). In this regard, it is necessary to highlight the role of intermediary organizations as charities and private associations to select and incorporate adults from disadvantaged backgrounds into the courses, as they tend to be more effective in this area.

Another element to be considered by the training providers is that these students need educational guidance that addresses their personal and work circumstances. They often also require support from social services. Therefore, the most effective intervention model in these cases is the accompaniment of the people that implies the need to dedicate time to talk and meet with the students to analyze each student's situation. An example is the work done by the social mediator in Portugal's EFA courses and Spain's insertion companies (Castelló et al. 2014).

It is also necessary to design activities that are adapted to the students' characteristics, especially in the beginning of the course since a negative experience could dissuade these students from participating in further learning. The training provider must design personalized study programs in a way that adapts to the students' personal and social circumstances (Roberts and Price 2013), which is done in Ireland with the BTEI (Further Education Development Unit 2012a), that are characterized by their temporal flexibility. Furthermore, if the courses are modular, students are more likely to progress. It should not be forgotten that for the design of this type of personalized study program, it is necessary to recognize previous formal and informal learning that the individual has acquired throughout his or her life. These adults' prior knowledge and experience can be a valuable resource to help advance their learning (Knowles 1990). In this regard, a process of recognizing, validating, and certifying competences is carried out in Portugal's EFA Courses (Silva 2015).

Another important factor in the design of training programs is including literacy, mathematics for life, and information and communication technologies in addition to professional training since these three areas of learning are decisive in the success of training and facilitating students' progression to other types of studies in the future. An example of this approach is Portugal's EFA courses (Ministérios da Economia e do Emprego e da Educação e Ciência 2008). However, some training programs for adults at risk of exclusion also include topics related to health and well-being, care of the environment, or citizenship in addition to the areas mentioned above (Bolly and Jonas 2015). Moreover, adult learning must be oriented toward a task or problem

because the motivation for learning is greater when adult learners perceive that what they learn will help them perform tasks or solve problems related to real-life situations (Knowles 1980).

On the other hand, a determining factor in the design of training programs for adults is the use of innovative methodologies based on the use of mobile devices, as it increases the motivation and interest of users for learning and increases their level of confidence (Munteanu et al. 2014).

Training providers must prioritize courses that provide qualifications that are accredited externally, such as the delivery of certificates of professionalism in Spain (Ministerio de Empleo y Seguridad Social 2013) by private entities, since it will improve students' employability, allowing them broader access to job opportunities and higher salaries. This also benefits the economy in general and allows students to continue studies at higher levels. It is also important that employers participate in the design of these programs; in this way, learning will be relevant to the students' lives, especially people at risk of social exclusion who have had long periods of unemployment. An example of this approach is the introduction of work-based learning (WBL) by training providers (Ministérios da Economia e do Emprego e da Educação e Ciencia 2008), which generates greater motivation among students and serves to improve their professional competencies. Therefore, training providers should work in a closely coordinated manner with employers.

Furthermore, training programs that include financing or a salary via a training contract for students, such as in Spain's employment workshops (Ministerio de Trabajo y Asuntos Sociales 2001), increase participation, especially among adults who are unemployed with scarce economic resources and usually have inadequate professional skills. It can even be necessary to provide transportation assistance for some students given the fragile economic situation in which some find themselves (Hossain and Terwelp 2015). Hence, there is a need for public institutions to provide funds, promote, and support this type of initiative by private training providers. Finally, training providers should not forget that a relevant factor is the quality of the training received by students. Therefore, it is crucial that the teaching staff is not only sufficiently qualified but also open to the possibility of further professional training.

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## Conclusions

Training companies that work with people at risk of social exclusion must consider a series of factors that ensure the success of the training and allow the targeted population to integrate into the labor market. Furthermore, private training providers must highlight learning benefits and generate a positive disposition toward learning in the users, as well as establish a conducive climate in the classroom and healthy relationships with the students based on trust. Another element to consider is the accompaniment of the people that must be done to help orient students throughout the learning process and address their personal circumstances. Designing personalized study programs that adapt to students' personal and social circumstances, offering temporary flexibility, providing a modular structure, and acknowledging

the learning acquired by the individual along his life or her path are also important. Training programs aimed at people at risk of exclusion should include training in a certain professional field, literacy, mathematics applied to daily life, and not only ICT but also content related to health and education, welfare, care of the environment, and citizenship. It must not be forgotten that motivation is a determining factor of success in learning, which is increased if innovative methodologies are used, if learning is oriented to performing tasks or solving problems related to life situations, and if training is carried out in the workplace. The need to support these users with economic benefits is often crucial since they often are unemployed people with multiple needs and scarce financial resources. Finally, training providers should not neglect the quality of the training provided, which requires sufficiently qualified teaching staff.

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# The Brazilian Vocational Education and Training “Nonsystem”: The Alliance Between Public Funding and Private Management

# 46

Elenice M. Leite

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## Abstract

This chapter reviews a text wrote in 2004, which has analyzed VET (Vocational education and training) in Brazil as a “nonsystem” composed by two segments – one “formal-visible” and the other “nonformal-invisible” – both supported by a historical alliance between public funding and private management (Leite EM, Moradillo M, Chieco NW, International handbook of education for the changing world of work; bridging academic and vocational learning. UNESCO/Unevoc – International Center for Technical and Vocational Education and Training, Bonn, 2009). This version keeps this analytical vision, but updates

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the VET market figures and highlights new VET demands driven by the social-economic agenda in the 2000s. In order to illustrate the referred public-private alliance, the chapter also presents consolidated VET cases involving different financing and management schemes. To conclude, the text outlines short- and medium-term perspectives for the VET market in a context of political-economic uncertainty, challenged by increasing demands for educated and skilled workers in a huge and diversified country.

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**Keywords**

Vocational education and training · Formal and nonformal VET market · VET financing

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## **Introduction: VET in the National Agenda**

### **A Defying and Diversified Country**

Brazil is one of the biggest world countries in terms of territory (8.5 million km<sup>2</sup>), population (207 million people, 85% in urban areas) and economy (GDP around US\$2 trillion), with a complex political-administrative organization. According to the Federal Constitution approved in 1988, the country is a presidential federal republic, comprising one Federal District, 26 States, and almost 5.6 thousand municipalities (cities), including about 40 centers with more than 500 thousand inhabitants (IBGE 2017b, c). The States and municipalities are relatively autonomous, but their actual autonomy also depends on their economic and political power.

The country is not an exception in the instable Latin American (LA) trajectory, particularly in the last decade. The Brazilian economy boomed in 2007–2010, decelerated in 2011–2013 and almost collapsed in 2014–2016. In 2 years, the GDP declined 8.2%; the unemployment rate climbed from 6.2% in 2013 last quarter to 13.7% in 2017 first quarter; 100 thousand firms closed the doors, extinguishing 3.5 million formal jobs. At the same time, the country had to face troubled majority elections (2014) and the new president's impeachment (2016), followed by an unpopular government threatened by lawsuits, as a result of an unprecedented mobilization against corruption, reaching top entrepreneurs and politicians (BBC 2017; IBGE 2017b, c; MTE 2017b; Transparency International 2017).

As other former colonies, Brazil has initially developed VET as a second-class education, targeting those who must work or did not succeed in formal studies. This vision started to change by the 1940s, when the skilled labor became a bottleneck for the urban-industrial development. Therefore, VET has gradually evolved as an entrepreneurs' strategy and a way to social mobility, strongly supported by public funding.

The 1980s have brought more complex VET demands, driven by the urgent economic modernization, the fast technological innovation, and the delicate democratic reconstruction, after 21 years of military dictatorship (1964–1985). In this context, VET has become a crucial and even mandatory component in the social-economic agenda,

involving a myriad of public and private agencies, under multiple and barely integrated governances (at federal, state, and local levels).

These escalating demands, compounded by the chronic political-economic instability, have been challenging the VET market for decades. In this context, the public-private alliance has been decisive for its resilience and performance.

## VET Demands Driven by Social Policies

Poverty is a structural and large-scale problem in Brazil, like in most of LA countries and other emerging economies. About 25% of the population (52 million) survive with less than US\$5 per day and almost two-thirds of the workforce receives less than US\$600 (two minimum wages) per month (IBGE 2017b, c).

Since the 1990s, the country is implementing vouchers programs targeting these populations. In 2004, these programs were merged in the “Bolsa Família,” coordinated by the Social Development Ministry. This program grants money transfers (R\$180 monthly = around US\$55) to poor families, which must enroll their children in health services and basic education, including training courses for people aged over 14. In 2013–2017, about 13.8 million families have received this benefit monthly (IPEA 2014; MDS 2017).

Their young and adult members have been increasingly enrolled in VET courses and microcredit programs, in order to build “exit doors” for the voucher program (IPEA 2014). Most of this demand has been supplied by national VET programs (see section “The National and Sectoral VET Plans”), often including literacy and adult education courses, whose scale is still modest in relation to the 80 million poor-educated Brazilian adults: 11.8 million of illiterate people aged 15 and over and other 66.3 million aged over 25 who have concluded only the primary school (IBGE 2017c).

## VET Demands Driven by Economic Modernization

As other emerging countries, Brazil is opening and modernizing most of economic activities since the 1980s, implying strategies and practices to cope with multiple challenges, such as:

- Technological innovation in terms of equipment, materials, processes, systems, etc.
- International and domestic agreements and regulations about labor safety, civil rights, environment preservation, and other quality issues implied in national and international certifications (“excellence/green/safety seals”).
- National/local regulations imposing “job permits” for a wide range of operational jobs, also involving training courses for broad categories such as bodyguards and escorts; professional drivers (bus, truck, taxi, motorcycle); janitors and gatekeepers; food-street vendors; caretakers; traditional fisherman.

- New business models (startups, franchising), which usually involve continuous manpower training. The startups are still incipient, but franchising is a consolidated sector in the country, encompassing 3 thousand brands (95% national), 134.2 thousand sales points, and about 1.9 million direct jobs (ABF 2017).
- High labor turnover (above 50% annually, cf. DIEESE 2017, p. 36), entailing continuous training for new jobs and activities.

Actually, these requirements have led most firms and individual entrepreneurs to develop a “VET culture,” regularly investing in formal education (from literacy to post-graduation courses), on-the-job training, and other nonformal technical events, such as workshops, seminars, conferences, visiting, and internships. These practices are largely spread in the formal sector, but often reach the informal economy by means of productive chains, public regulations and consumers’ preferences (IPEA 2006; Leite 2015b).

### Training Demands from Informal Economy

The Brazilian formal economy encompasses 8.2 million firms and 46.1 million employees (MTE 2017b), but the informal labor market is bigger: 59.8 million people, including 33 million workers not covered by social protection, 12.9 million unemployed people and 13.9 underemployed people, equivalent to 57% of the total labor force aged 14 and over (IBGE 2017b). This is a heterogeneous universe, composed by unregistered employees, freelancers, self-employers, small entrepreneurs, and often formal employees performing a second job, in order to complement the low wages.

So, the Brazilian informal economy is not limited to odd jobs or black market. Actually, it involves activities integrated to modern productive chains, such as information technology, ecology, agribusiness, culture, tourism, sports, and popular art. In this context, informal entrepreneurs and workers are continuously compelled to update processes, techniques and skills, also looking for “quality seals” and “job permits” increasingly required for many activities, even the traditional ones, such as food-street vendors, caregivers, and artisans.

The Brazilian development policies cannot ignore this huge “gray zone” where formal and informal activities are merged in production chains, driving significant VET demands. The following federal programs (APL, B+P, and MEI Law) illustrate this trend.

- The APL (Arranjo Produtivo Local) and the “B+P” (Brasil mais Produtivo) have been implemented since the 2000s under the Ministry of Industry and Commerce coordination, aiming at develop clusters of small producers, both formal and informal. Presently, there are about 680 active APLs, in 2.2 thousand cities, involving 291 thousand firms and 3.3 million direct and indirect jobs, both formal and informal, covering around 60 industrial and agribusiness branches (MDIC 2018).
- The “MEI Law” (Lei do Micro Empreendedor Individual) incentives self-employees to get a register as “individual entrepreneurs,” in order to access the public pension

and health services. In 2008–2017, almost eight million people have got this registration (SIMEI 2018), becoming potential candidates to training courses, in order to improve their self-management skills and/or get “job licenses” for regulated activities (mostly in food, beauty, cleaning, and maintenance services).

## Labor Policies Involving Mandatory VET

In 1990 (Federal Law 7988) was created the FAT (Fundo de Amparo ao Trabalhador), as a public funding for labor and development policies. Since then, most of this policies have been including VET as a mandatory component, mainly the unemployment insurance, the placement services and the lay-off programs (MTE 2017c, d – see also section “[The National and Sectoral VET Plans](#)”).

- The unemployment insurance benefits formal employees, for 3–5 months after dismissal. Since 2012, their beneficiaries must be enrolled in VET courses, while looking for a new job. In 2015, it was paid to 7.9 million people mostly registered at SINE’s (Sistema Nacional de Emprego) agencies.
- The SINE’s agencies (1.5 thousand across the country) are mainly in charge of public placement services. They may also promote training courses or refer the candidates to public VET programs (see section “[The National and Sectoral VET Plans](#)”), in order to adjust the applicants’ profile to the job’s requisites. As a matter of fact, most of them need to be trained, since only 20–25% is used to succeed in the first job interview, mainly for lack of basic skills (MTE 2017c, 2017d).
- To mitigate the recession effects, a lay-off program has been implemented since 2014 (Federal Law 13189), imposing education and training for the workers at risk of dismissal. In 2015, the program benefited 41 thousand workers; and 22 thousand in 2016, mostly in industrial sector – modest figures that seem to reflect mainly the high degree of uncertainty for most economic sectors.

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## VET in the Brazilian Education System

### The Brazilian Education System

In 1996, an Education Law (LDB – Lei de Diretrizes e Bases da Educação – Federal Law 9334) recognized the VET alternatives as part of the education system, upgrading the VET status and defining its constitutional funding sources.

The LDB has established two levels for formal education in Brazil – basic and higher (see following illustration).

- The basic level is ruled by State and Municipal Secretaries of Education. It targets children from 4–17 years old, including 14 grades of mandatory education – preschool (2 grades), primary (9), and secondary (9), together with adult education (EJA – Educação de Jovens e Adultos).

- The higher level refers to the post-secondary education, including bachelor and post-graduation courses, under the Ministry of Education (MEC) federal governance.

These two levels include three VET branches: at basic level, the nonformal and technical courses; at higher level, the technological courses.

- The nonformal VET encompasses apprenticeship courses (see section “[The New Apprenticeship Scheme](#)”) and initial/continuous training, mostly heterogeneous and flexible in terms of contents and objectives, duration, suppliers, and clients (people aged over 14). As nondegree programs, these courses are not regulated by the education authorities, do not provide recognized certificates and are not benefited by constitutional funds for education, representing a large but less visible share of the VET market (see section “[The Brazilian VET Nonsystem](#)”).
- The technical courses are long-term programs (around 1000 h, 2–3 years), which graduate medium level technicians. They are mostly post-secondary, but also offered in parallel or integrated to secondary school. Their curricula, duration, and certification are regulated mainly by the state education authorities, but there are important nets under federal administration.
- The technological courses are also long-term post-secondary programs, but equivalent to higher education (similar to the American colleges). Thus, they are ruled by the Ministry of Education, although mostly under private management (see sections “[The Brazilian VET Nonsystem](#)” and “[The Private Higher Education](#)”).

**LDB-1996: the Brazilian education system and the VET alternatives**

Levels	Courses/grades		
<b>HIGHER</b>	Post-graduate > Doctor – PhD (3–5 years), Master (2–4 years), Specialization, MBA (1–2 years)		
	Bachelor (4–6 years)	<b>Technological Education (1–3 years)</b>	
<i>Preparatory courses (optional) and/or ENEM*</i>			
<b>BASIC</b>	Secondary > 3 grades (people aged 15–17)	<b>Technical Education (1–3 years)</b>	<b>Adult education (EJA)**</b>
	Primary > 9 grades (people aged 6–14)		<b>Non-formal VET:</b> initial/continuous training/apprenticeship courses (see section <a href="#">The New Apprenticeship Scheme</a> )
	Preschool > 2 grades (people aged 4–5)		

**VET according to LDB/96**

\* ENEM (Exame Nacional do Ensino Médio) is a national test implemented in 1998 by the Ministry of Education. The test initially aimed to evaluate the secondary education, but since 2009 it has become a selection process for public universities, also adopted by many private institutions. In 2016, ENEM had 8.6 million inscriptions and 6.1 million effective participants.

\*\* EJA (Educação de Jovens e Adultos) includes literacy, primary, and secondary courses/examinations for low educated adults and young dropouts aged 15 and over (similar to the GED – Graduate Equivalency Diploma in United States of America).

Besides the LDB’s definitions, two other alternatives should be seen as VET in Brazilian context, due to its importance in terms of employability: adult education (EJA) and the higher education.



- The EJA courses offer the primary and/or secondary certificates for the young dropouts and poor-educated elders – a basic requirement for get a job, especially in the formal market: about 70% of the formal employees have completed at least this level, contrasting with only 42% of the workforce as a whole (MTE 2017b).
- The higher level, by its turn, is mostly attended by students-workers. For most of Brazilian students, working is a condition to access the higher education, which works as a passport for better jobs and higher wages, not to mention the social recognition.

## The Brazilian VET “Nonsystem”

For analytical purposes, the Brazilian VET market may be characterized as a “nonsystem” with two segments: one “formal-visible” and other “nonformal-invisible,” with several distinctive features in relation to traditional VET systems (Castro 2002; Leite et al. 2009; Leite 2017).

The “nonsystem” notion refers to a myriad of suppliers under multiple and barely integrated governances, either public or private, dispersed among federal, state, and municipal authorities (see “[Introduction: VET in the National Agenda](#)”). These suppliers are mainly vocational training institutions (VTIs), such as technical schools, colleges, universities, nondegree proprietary schools, public clerks, and military academies. Besides that, there is a significant contribution from entities focused on other business, such as labor unions, suppliers of equipment and products, franchisers, lay and religious NGOs (nongovernmental organizations), professional associations (engineering, chemicals, metallurgy, metrology, welding, accounting), and independent consultants (usually registered as “individual firms” for tax purposes).

This “nonsystem” would reach 41.2 million enrollments in 2014–2015 (Table 1) – an offer 30% higher than the figures estimated for 1999–2000 (Leite et al. 2009, p.1274). This increase reflects the significant expansion of VET demands, driven by social policies and by the “economic bubble” in the years 2007–2010. The VET’s figures must have shrunk during the recession (2014–16), but they seem to be recovering, pushed by a few positive economic indicators and the continuous demands from vulnerable groups (see sections “[Introduction: VET in the National Agenda](#)” and “[The National and Sectoral VET Plans](#)”).

The “*formal-visible*” side is estimated in one third of the VET market, encompassing the courses that provide technical, technological, bachelor and post-graduation certificates, according to the LDB definitions. Their suppliers are education institutions recognized by the Ministry and the Secretaries of Education (except for the Apprenticeship courses – see section “[The New Apprenticeship Scheme](#)”), regularly covered by the annual education census (see note in Table 1).

Most of these formal branches had a significant expansion in the 2000s, stimulated by generous public incentives, in a context of economic euphoria. The apprenticeship courses and the higher education have actually boomed, and should be pointed out as consolidated cases of the public-private alliance in the VET market (see sections “[The New Apprenticeship Scheme](#)” and “[The Private Higher Education](#)”). The medium level technical courses have also boomed (from 565 thousand enrollments in 2004 to 1.9 million in 2015), but remain mostly under public administration.

**Table 1** Brazilian VET “nonsystem” profile – 2014–2015

Branches	Enrollment (million)	Privately managed (%)	Main suppliers
<b>“Formal/visible” (2015)</b>			
Adult education (EJA)	3.4	7	Universities and colleges
Technical courses (secondary level)	1.9	45	Basic education schools
Technological and higher level courses	8.4	73	Technical schools
Apprenticeship courses	0.4	80	S System (see section “The S System”)
<b>Subtotal</b>	<b>14.1</b>	<b>54</b>	Corporate foundations/colleges
<b>“Nonformal/invisible” (2014 - estimates)</b>			
Basic and continuous VET courses for the public at large	11.5	100	S System Nondegree proprietary schools Labor unions (until 2017) <sup>a</sup> NGOs (lay and religious)
VET for formal employed people	9.8	100	S System Corporate foundations/ universities Equipment/material suppliers Franchisers Professional associations Independent consultants
Basic/continuous VET for informal workers and vulnerable groups	5.1	100	S System Labor unions NGOs
VET for public clerks (civil/military)	0.7	0	Government schools Public universities and colleges Military schools and academies
<b>Subtotal</b>	<b>27.1</b>	<b>97</b>	
<b>Total</b>	<b>41.2</b>	<b>82<sup>b</sup></b>	

Sources: Formal alternatives – INEP 2017a, 2017b; MTE 2017a; Todos pela Educação 2017. Nonformal alternatives (references for estimates): ABED 2017; Castro 2002; GIFE 2017; IPEA 2009; Leite et al. 2009; Leite 2015a, 2017

Note about the sources: the Ministry of Education is responsible by the Education Census (INEP 2017a) that reaches institutions recognized by education authorities (basic schools, colleges, and universities), i.e., the VET formal side. Other official statistics (demographic, social, and economic) are conducted by a federal foundation (IBGE – Instituto Brasileiro de Geografia e Estatística),

linked to the Ministry of Planning, but there is not a systematic survey about nonformal VET (maybe for reasons of costs and complexity). In order to estimate this segment, one must join references from specific surveys and studies

<sup>a</sup>In 2017, the labor unions lost their main funding source – the union’s tax, abolished by the new Labor Law (Federal Law 13467). Created in 1943, the union tax has stimulated the union’s multiplication in Brazil: almost 17,000 in 2017, 69% for employees and 31% for employers (IBGE 2017a). Most of them are not expected to survive without the tax union

<sup>b</sup>Estimate = 33.9 million enrollment = (14.1 million × 54%) + (27.1 million × 97%)

Only the EJA has practically stagnated in the last decade. The 3.4 million enrollments in 2016 are negligible in relation to the potential demand in the country (almost 80 million of poor-educated adults – see “[Introduction: VET in the National Agenda](#)”). The potential EJA clients seem to be discouraged by difficulties to attend the courses, which are mostly face-to-face. There are good practices in terms of distance learning for EJA since the 80s, but its expansion is limited by adults’ difficulties in dealing with self-learning and new technologies.

The “*nonformal*” side represents two thirds of the “nonsystem” supply, including initial/continuous training courses, seminars, workshops, consultancies, and all sort of events focused on the employability and business development. Promoted by countless entities, almost all (97%) under private administration, these events are mostly “*invisible*” for the education polices and for official surveys (see Table 1).

A significant part of the “nonformal” VET is concentrated in a regular supply, covering areas such as foreign languages, computers, electrician, electronics, mechanics, crafts, foods, beauty, health and personal care. Besides that, specific programs may be designed to match new labor market regulations and standards, as well as specific groups targeted by public policies (see sections “[Introduction: VET in the National Agenda](#)” and “[The National and Sectoral VET Plans](#)”). Their certificates are not recognized for educational upgrading, yet valid for getting “quality seals” or “job permits” required or valued in formal and informal economy (see “[Introduction: VET in the National Agenda](#)”).

Formal and nonformal VET are offered mostly face-to-face. Alternatives for distance learning have existed in the country for about 100 years, mainly for the nonformal courses. Currently, they are expanding fast, propelled by new technologies (personal computers, mobiles, tablets), increasingly available at home, work, and public spaces. These new media are opening new possibilities for the VET market, thanks to lower costs and greater flexibility for students and teachers, together with more attractiveness for the youngsters (ABED 2017; IBGE 2017b).

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## Public Funding and Private Management: Brazilian VET

The Brazilian VET “nonsystem” development has been supported by a historical alliance between public funding and private management. This sort of alliance is not unusual in Brazilian public policies and is often criticized for lack of transparency, poor accountability, modest results, and clients’ dissatisfaction.

The public-private alliance for the VET development is not above this sort of criticism. Nevertheless, it shows more consistent results, in terms of capacity building (infrastructure, human resources, and methodologies), high-quality services and clients' approval, not to mention the strengthening of a "training culture" in the productive sector.

This mutually beneficial partnership has been decisive for the VET market consolidation despite the chronic political-economic instability of the country. A continuous flow of funds has sustained a medium and large term perspective for the VET suppliers. The private management – encompassing planning, supervising, and execution activities – has been more flexible and sensitive to large-scale and diverse VET demands in the country.

Historically, VET in Brazil has been financed by two main public sources: the constitutional funds for formal education, which benefit EJA, technical, technological, and higher level courses; and pay-roll levies and other compulsory contributions from enterprises, which have been created by federal laws, in order to finance social and labor policies, directly benefiting the VET market.

Besides these main sources, the subsidies for higher education had a considerable expansion in the last decade (see section "[The Private Higher Education](#)"). The tax rebating schemes are less important. The main tax rebate scheme for VET in Brazil existed from 1975 to 1990; since then, several exemption mechanisms have been dismantled, for budgetary reasons. Nevertheless, there are a few alternatives that may include VET programs in cultural-social projects subsidized by tax incentives. In addition, the personal income tax rules allow small deductions related to formal VET expenses (fees, books, materials, and equipment), excluding nonformal training (more difficult to be monitored by the Federal Revenue).

In order to explain the public-private alliance peculiarities in Brazil, this section highlights consolidated and large-scale VET cases, covering different programs and funding schemes, namely: the S System and the new Apprenticeship Law, both financed by payroll levies; the national VET plans supported by compulsory social contributions; and the higher education expansion promoted by public subsidies.

## **The S System**

First, the "S System" is not a system. This expression is a popular label that has become practically "official" to designate a set of nine institutions that provide VET, social and cultural services for specific economic sectors in Brazil. Created from the early 1940s to the later 1990s, these institutions are named as "Services" (S), most of them organized in pairs, encompassing the "Apprenticeship Services" – focused on VET, and the "Social Services" – for culture and educative activities, often including nonformal training. The only exception is a consultancy Service (Sebrae) that provides technical assistance and training for small business (Table 2).

For legal purposes, the Services are independent organizations, classified as nonprofitable private entities, structured in national and state (called "regional") departments, managed by executive directories and national/regional boards. These

**Table 2** Profile of the Brazilian “S System”

Creation	Institutions	Services	2016 – VET enrollments (million)	Levies contributors <sup>a</sup>
1942	<b>Senai</b> (Serviço Nacional de Aprendizagem Industrial)	VET	2.6	<b>Industry</b> (manufacturing, construction, mining, rail transportation, utilities services)
	<b>Sesi</b> (Serviço Social da Indústria)	Social-cultural-educative <sup>b</sup>	1.1	
1946	<b>Senac</b> (Serviço Nacional de Aprendizagem Comercial)	VET	1.2	<b>Commerce</b> (gross and retail, personal and commercial services)
	<b>Sesc</b> (Serviço Social do Comércio)	Social-cultural <sup>b</sup>	0.1	
1972	<b>Sebrae</b> (Serviço Nacional de Apoio às micro e Pequenas Empresas)	Technical consultancy <sup>b</sup>	1.0	<b>Small business</b> (less than 100 employees – all sectors)
1992	<b>Senar</b> (Serviço Nacional de Aprendizagem Rural)	VET + social-cultural <sup>b</sup>	0.1	<b>Rural and agribusiness</b>
1993	<b>Senat</b> (Serviço Nacional de Aprendizagem do Transporte)	VET	0.6	<b>Ground transportation</b> (except by rail)
	<b>Sest</b> (Serviço Social do Transportes)	Social-cultural <sup>b</sup>	0.8	
1998	<b>Sescoop</b> (Serviço Nacional de Aprendizagem do Cooperativismo)	VET + social-cultural <sup>b</sup>	–	<b>Urban cooperatives</b>

Sources: SEBRAE 2017; SENAC 2017; SENAR 2017; SENAT 2017; SESC 2017; SESCOOP 2017; SESI 2017; SEST 2017

<sup>a</sup>Targeted by each service and charged by the respective payroll or sales levy. There are important economic sectors not covered by the services, such as banking, harbors, navigation, and airlines. Some of them count on compulsory contributions for VET, but are mostly under public administration (see Table 3).

<sup>b</sup>These services provides mainly social-cultural events (literature, arts, sports, health care), and often nonformal training (literacy courses and adult education). In São Paulo, the most important Brazilian State in economic terms, the bigger private system of basic education is managed by Sesi

boards include representatives of entrepreneurs, government and workers – but not in a tripartite basis (except for Senar). Although privately managed, their public funding implies annual reporting to the state or federal audit authorities.

The Services are mainly financed by the levies charged over the companies’ payroll or sales. The payroll levies were instituted in 1942 (Law Decree 4048) to finance the industrial apprenticeship courses, together with the first Apprenticeship

Service (Senai) and its social partner (Sesi). From then on, other similar Services have been organized, targeting other economic sectors (Table 2).

These levies are monthly collected by the public pension system (INSS – Instituto Nacional da Seguridade Social) and transferred to the Services by the tax revenue authorities (SRF – Secretaria da Receita Federal). In 2016, the SRF transferred levies near to R\$38 billion (almost US\$12 billion): 42% for the “S System” and 58% to other funds, mostly under public administration (Table 3). The Social Services (Sesi, Sesc, and Sest) have received the bigger share, since they count on levies 50% higher than their Apprenticeship partners (Table 3).

The levies represent around 80–90% of the Services annual budget, complemented by two additional sources: fees paid by the students and companies for training and technical assistance; and temporary contracts for national and sectoral VET plans (see section “[The National and Sectoral VET Plans](#)”). By law, only the Apprenticeship courses (see section “[The New Apprenticeship Scheme](#)”) should not be charged, but the services supply many other free programs, mainly for the unemployed people and other vulnerable groups.

**Table 3** The Brazilian “S System”: levies received in 2016

Institutions	Payroll levies charged monthly <sup>a</sup>	Levies received in 2016	
		R\$ million	%
<b>Apprenticeship services</b>			<b>29</b>
Senai <sup>b</sup>	1%	1,520	10
Senac	1%	2,571	16
Senat	1%	467	3
<b>Apprenticeship and social services</b>			<b>7</b>
Senar	0.2 to 2.5%	744	5
Sescoop	2.5%	319	2
<b>Social services</b>			<b>45</b>
Sesi	1.5%	2,176	14
Sesc	1.5%	4,643	29
Sest	1.5%	298	2
<b>Consultancy-training services</b>			
Sebrae	0.3 to 0.6%	3,157	20
<b>Total levies transferred to the “S System”</b>		<b>15,895</b>	<b>100</b>
<b>Total levies transferred in 2016<sup>c</sup></b>		<b>37,835</b>	

Source: SRF 2017

<sup>a</sup>Exceptions: Senar levy is charged over sales of rural/agribusiness companies, also counting on funds from National Agrarian Reform Institute (INCRA). The autonomous drivers linked to Sest/Senat are charged over their gross income

<sup>b</sup>Companies with more than 500 employees pay an additional levy (0.5%) that is managed by the National Department

<sup>c</sup>Including mainly the “wage salary” that finances an education fund (FNDE – see section “[The Private Higher Education](#)”), together with specific levies for the harbor, navy and aviation sectors (Navy and Aeronautics funds), which finances a traditional net of military schools and academies

The services keep a net of 2.8 thousand schools, training center, and mobile units (trucks, wagons, boats) across the country, which supply a wide range of courses, either face-to-face and distance learning: EJA, continuous education, secondary technical, higher (technological), and postgraduation (7.5 million enrollments in 2016). Historically, the System has been the only supplier for Apprenticeship courses, remaining as its main provider since 2010 (see section “[The New Apprenticeship Scheme](#)”). Furthermore, they provide technological services (lab tests, product research, and development), and business consultancy for its associates.

Historically, the Brazilian “S System” has been a model for several organizations in other LA countries, some of them still actives. But the Brazilian scheme is the most ancient, bigger and resilient in the region, not to mention that is the only that joins public funding with private management.

The Services, especially the more ancient (Senai-Sesi and Senac-Sesc) have built an image of efficiency and quality, even better in comparison to other public VET alternatives in the country. Senai is among the few Brazilian VTIs that keep a monitoring system, including the students’ follow-up (revealing an average employment rate around 70–80% for technical and technological graduates). Most of their direct clients (students, parents, workers and employers) declare themselves satisfied with their schools, courses, and teachers. Their methodologies, systems and didactic materials have been adapted or adopted by numerous VTIs in the country, and largely transferred to foreign organizations, by means of international cooperation agreements (Leite [2015b](#), [2017](#)).

Besides the general criticism involving any public-private alliance in Brazil, the S System is used to face two threatens: become a government organization or survive without the payroll levies, as a private business. Actually, these are delicate issues that affect other institutions also financed by compulsory contributions (such as the entrepreneurs’ federations/confederations in charge of the Services, not to mention the military schools).

## **The New Apprenticeship Scheme**

The Brazilian Apprenticeship course was born in 1943, together with the first Labor Law (CLT *Consolidação das Leis do Trabalho* – Decree-Law 5452). Inspired in the German dual model, it was conceived as a hybrid mechanism, combining a job contract with school-based training. The CLT has fixed compulsory “quotas” for the young apprentices (aged 14–18 years), who should be hired by the firms as formal employees, and enrolled at Senai and other similar Services created since them. By this time, the Apprenticeship courses were mostly long-term (2–3 thousand hours), including different internships’ schemes in the enterprises.

This model did well until the 1960s, survived the 1970s and almost collapsed by the 1980s, affected by the enterprises’ modernization, new agreements for youngsters’ protection, and families’ aspirations in terms of education and jobs for their children. Facing a decreasing demand, the main Apprenticeship’s suppliers – Senai and Senac – had to reduce the course’s offering.

After several studies and propositions, the Ministry of Labor (MTE) approved the “New Apprenticeship Law” in 2000 (Federal Law 10097), in order to promote decent work and reinforce youth policies. Among several innovations, the new Law has reduced the labor costs for the apprentices’ hiring, also extending their top age limit (from 18 to 24 years old). The courses and contracts have been limited to 24 months, and any institution was authorized to enter this market, formerly reserved to the S System (Leite 2015a), which kept their respective levies. Inspecting and fining mechanisms were reinforced by the MTE.

As a result, the Apprenticeship contracts rise from 57.2 thousand in 2005 to 402 thousand in 2015 (MTE 2017a). Despite the market opening, the S System remained as the main supplier (76% of enrollments/contracts, mostly at Senai and Senac), thanks to their infrastructure, know-how and public image. Anyway, new suppliers have emerged (24% of enrollments), including private and public enterprises, foundations, and NGOs – in several cases adopting or adapting the Services methodologies (Leite 2015a).

The MTE has initially considered a potential for 1.2 million of Apprenticeship contracts yearly. But the program reached at best about 400 thousand contracts in 2014–2015, decreasing to 310 thousand in 2017 (MTE 2017a). Indeed, the scheme has been affected by the decreasing of formal employment (that is not expected to recover in the short term). Likewise, it depends on the potential apprentices’ aspirations, which are clearly more interested in the technical and higher education certificates. Even so, the MTE evaluates the program positively, considering that it has opened decent job opportunities for the young people, also stimulating the apprentices to look for more education and training (Leite 2015a).

## The National and Sectoral VET Plans

In addition to the payroll levies (see section “[The S System](#)”), Brazilian laws set “social contributions” over profits and sales, charging public and private enterprises. These contributions finance a public fund (FAT – see “[Introduction: VET in the National Agenda](#)”), managed by a tripartite deliberative board (CODEFAT – Conselho Deliberativo do FAT) and administrated by the MTE.

Since the 1990s, FAT has been supporting public labor policies, encompassing economic development, job creation, placement services, unemployment insurance, micro credit for formal and informal sector, and VET programs pertinent to all these activities.

In 2015, FAT’s total budget reached R\$ 65.7 billion (about US\$21 billion), increasing to R\$72.8 billion in 2016, in spite of the economic recession (MTE 2017c). This budget covers two main expenses: loans (R\$16.5 billion in 2016) granted by the BNDES (Banco Nacional de Desenvolvimento Econômico e Social) – the main national development agency; and social benefits, such as the unemployment insurance (R\$38.4 billion) and the annual bonus for formal workers that received less than two minimum wages (R\$17.9 billion). Specific funds for VET have decreased in the last decade, due to the recession and public budget



adjustments, but training has become a crucial element in most of FAT’s expenditures, also reinforced by means of national and sectoral plans.

National VET plans have existed in Brazil since the 1970s. After FAT’s creation, these plans have been integrated to public policies, under federal, state and local governances (Table 4).

Despite their different titles and acronyms, the national VET plans share several common features, such as:

- The focus: Vulnerable groups benefited by social policies, such as poor and/or unemployed people, informal workers, ethnical minorities, immigrants and refugees.
- The contents: Short-term training, aiming at immediate productive insertion, but often including basic skills (writing, reading, calculating) and social attitudes valuable for living and working (the current Pronatec has expanded these contents, adding adult education and long-term technical courses).
- Their main suppliers: The S System and other private VTI, operating with a large degree of autonomy in order to enlarge the sectoral and territorial coverage.
- The results: At best, 30–40% of the students get a job after the courses, mostly informal. Nevertheless, 80–90% of the clients evaluate the programs positively, pointing out benefits in terms of self-esteem, information about labor market and incentives to continue studies and training (IPEA 2014).

**Table 4** Brazil – National VET Plans financed by FAT (1995–2018)

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**1995–2002 > Planfor** (Plano Nacional de Qualificação Profissional)

Coordination: Ministry of Labor

Priority public: Vulnerable groups, mainly the beneficiaries of social, labor and development programs (see “[Introduction: VET in the National Agenda](#)”)

Contents: Short term training courses (40–100 h)

Enrollments: 27.2 million (1996–2001), covering 75% of the Brazilian cities

Main VET suppliers: S System (70% of enrollments), universities and colleges, technical secondary schools, labor unions, NGOs

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**2003–18 > PNQ** (Plano Nacional de Qualificação or “Qualifica Brasil” since 2018)

Coordination: Ministry of Labor

Priority public: The same as Planfor

Contents: Short term training courses (100–140 h)

Enrollments: 1.3 million (2003–2012)

Main VET suppliers: The same as Planfor

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**2011–18 > Pronatec** (Programa Nacional de Acesso ao Ensino Técnico e Emprego)

Coordination: Ministry of Education

Priority public: The same as Planfor, with a special focus on the Bolsa Família beneficiaries (see “[Introduction: VET in the National Agenda](#)”)

Contents: FIC (initial and continuous training) = 160 h and TEC (technical courses, at secondary level) = 800 h, including alternatives of distance education and EJA (since 2016)

Enrollments: 9.4 million (2011–2015), aiming more three million (2016–18), covering 75% of the Brazilian cities

Main VET suppliers: The same as Planfor (the S system and other private VTIs have supplied 65% of TEC and 87% of FIC enrollments)

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Sources: Leite et al. 2009; Leite 2003, 2015a, 2017

Sectoral VET plans are more focused on training and recognition for specific activities in formal economy. In fact, since the 1990s, many technical and operational jobs have been regulated in Brazil, aiming at upgrade the worker's educational profile, according to new domestic and international standards. These requisites have implied massive VET and recognition programs, such as Profae/Profaps – for the health sector, and Prominp – for the oil and gas chain (Table 5). Both programs count on positive evaluations and have been active for long periods, although affected by the economic-political turbulence since 2014 (see “[Introduction: VET in the National Agenda](#)”). Nevertheless, these programs are expected to continue in the short and medium term, considering the huge demand for skilled labor in their sectors.

## The Private Higher Education

A higher education diploma is used to be a sign of social prestige in Brazilian culture. Currently, it is also a passport for better jobs and wages, as well as a basic requirement for public clerks careers: in 2015–2016, more than two million formal jobs have disappeared, but high educated workers have a positive balance

**Table 5** Brazil –Sectoral VET Plans financed by FAT (2000–2018)

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<b>2000–10 &gt; Profae</b> (Projeto de Profissionalização dos Trabalhadores da Área de Enfermagem)
Focus: Secondary education, training and recognition for low educated nurses, according to new health services' directives
Coordination: Ministry of Health
Additional funding/technical assistance: IDB - International Development Bank and PAHO – Pan American Health Organization
Enrollments: 250,000 (2000–2002)
Main VET suppliers – Around 300 entities specialized in health sector: Senac, universities and colleges, technical secondary schools, professional associations, public foundations, NGOs
<hr/>
<b>2010–18 &gt; Profaps</b> (Plano de Certificação de Técnicos Para a área de saúde)
Focus: Certification of secondary health technicians (a degree over assistant nurses), a highly demanded by public health services (in continuity to Profae)
Coordination: Ministry of Health
Goal: 700,000 certificates 2010–2018 (results not available)
Main VET suppliers: The same as Profae, but able to emit secondary technical certificates
<hr/>
<b>2006–18 &gt; Prominp/PNQP</b> (Programa de Mobilização da Indústria Nacional do Petróleo e Gás natural – Plano Nacional de Qualificação Profissional)
Focus: Training and recognition of skilled workers from operational to higher level, for gas and oil chain
Coordination: Ministry of Industry and Commerce and Petrobrás (Petróleo Brasileiro S.A.) – the biggest Brazilian oil company
Additional funding: Petrobrás
Enrollments: 99,000 in 180 courses (2006–2015), mainly focused on skilled operational workers (welders, mechanics, electricians, metallurgists, heavy equipment operators).
Main VET suppliers – Around 80 entities: Senai, universities and colleges, technical schools, professional associations (metrology, welding, metallurgy, mechanics, electricity, and electronics)

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Sources: Leite 2003, 2015b, 2017

of 142 thousand new employees (MTE 2017b). By the end of 2017, the higher education workers were less unemployed (6%) than the average labor force (13%), receiving about US\$1550 monthly – more than five times the minimum wage (IBGE 2017c).

However, as usual in most countries, colleges and universities are difficult to access, due to high competition for the public schools and high costs in the private ones.

Since the 2000s, the Brazilian education agenda has favored the higher education expansion and diversification, by means of subsidized credit, affirmative actions (quotas for minorities), and market opening for international corporations (such as Kroton and Laureate groups). Besides that, the Ministry of Education (MEC) has implemented a national evaluation process, which classifies the courses and institutions according to their students’ performance in a national test. It is not mandatory, but the institutions, mainly the private ones, stimulate their students to participate, in order to get “excellence seals” valuable for marketing and financing purposes (Leite 2017).

In 2004–2016, the number of higher level courses has increased 76%, practically doubling the enrollments (Table 6). The technological branch has boomed in terms of courses (+278%) and enrollments (+495%), for practical reasons: the courses are shorter and less expensive than bachelors; they focus on expanding areas, such as business, computers, logistics, health, environment, and ecology; their diplomas are so prestigious as any bachelor degree (except for top careers in medicine and law).

The higher education’s boom has taken place mainly in the private institutions, fueled by two public incentives: FIES (Programa de Financiamento Estudantil) – a subsidized loan program, and ProUni (Universidade para Todos) – a scholarship program.

Both programs target low-income candidates approved at the national post-secondary examination (ENEM), prioritizing undergraduates from public schools. The loans and scholarships are financed by an education fund (FNDE – Fundo Nacional para o Desenvolvimento da Educação), created in 1968 (Federal Law 5537), to finance basic and higher education policies under MEC’s coordination. The Fund’s budget reached R\$30 billion (about US\$9 billion) in 2016, including almost R\$20 billion from the education salary – a 2.5% payroll levy created in 1975, complemented by other sources, such as lottery taxes (MEC 2018a, b, c; SRF 2016).

**Table 6** Brazil 2004–2016 – Higher education courses and enrollments

Year	Courses (thousand)		Enrollments (thousand)		Enrollments in private entities (thousand)	
	Total	Technological <sup>a</sup>	Total	Technological <sup>a</sup>	Total	Technological <sup>a</sup>
2004	19.6	1.8	4,223.3	158.9	3,009	113.3
2016	34.4	6.8	8,048.7	946.2	6,058.6	789.2
<b>2016/ 2004</b>	<b>76%</b>	<b>278%</b>	<b>91%</b>	<b>495%</b>	<b>101%</b>	<b>598%</b>

Sources: INEP 2014, 2017b

<sup>a</sup>The technological courses generally last 2 years, focusing specific areas/jobs, such as business, computers, logistics (similar to the American college)

The higher education institutions themselves perform as intermediates between MEC and the candidates to these incentives, which that have benefited 40% of their students in 2016 (MEC 2018a, b, c).

- FIES was created in 2001 (Federal Law 10260), boomed in 2010–2014 (from 76,200 to 731,000 contracts), and decreased in 2015 (252,000 contracts). Since then, the program has been reviewed, announcing 310,000 loans for 2018. The loans may be paid until 14 years after the graduation, with zero or low interest rates.
- PROUNI was created in 2005 (Federal Law 11096), granting tax exemptions for private institutions that offer full or partial scholarships (complemented by FIES) to their students. Until 2015, Prouni has benefited almost 1.9 million students, mostly with full scholarships. Although decelerating since 2016, the Program promises 243 thousand scholarships for the 2018's first semester, mostly partial.

Although decelerating since the last recession, both Programs have revealed the potential for the higher education market in Brazil, where only 14% of people aged 25 and over have concluded this level (IBGE 2017b). Interested in this potential, the bigger education corporations are creating their own credit mechanisms, exploring partnerships with private financial institutions (Pravaler 2018).

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## Conclusions: Challenging Perspectives

For analytical purposes, one may say that the Brazilian VET market has been consolidated as a “nonsystem,” encompassing a mix of formal and nonformal alternatives, mostly “invisible” for the education policies and official statistics.

Presently, this “nonsystem” encompasses traditional VTIs (schools, universities, academies) and a myriad of public and private entities not exclusively focused on education and training (NGOs, unions, suppliers, councils, associations, and consultants). They provide a wide range of events that should be seen as VET in Brazil, as far as required or valuable for employability: literacy courses, adult education, on-the-job training, apprenticeship courses, technical and higher education, workshops, seminars, internships, and consultancies.

A mutually beneficial alliance between public financing (from payroll levies and other compulsory contributions) and private managing (involving planning, supervision, and execution) has been decisive for the Brazilian VET “nonsystem” consolidation since the 1940s. This sort of alliance is not uncommon in Brazilian public policies and is usually criticized for lack of transparency, poor accountability, and frustrating results.

Although not immune to this sort of criticism, the alliance that supports the VET “nonsystem” presents more consistent achievements, in terms of capacity building (infrastructure, human resources, and methodologies), quality services, and a positive perception from most of its clients, even better in comparison to most public services in Brazil.

These results reflect, by one side, a considerable and continuous flow of funds that have sustained a medium and large term perspective for the VET development. On the other side, the private management practices – more flexible and focused on the market needs – have been able to meet large-scale and diversified VET demands.

The country has several consolidated VET cases based on this alliance: the so-called “S System,” composed by nine independent institutions that have been delivering VET services since the 1940s; the new Apprenticeship scheme implemented since the 2000s, focused on decent work opportunities for young people; the national/sectoral VET plans targeting vulnerable people or strategic sectors since the 1990s; the higher education expansion based on subsidies for private institutions, in the last decade. Despite of their results and resilience, these cases also reveal that the Brazilian VET “nonsystem” has much to do in terms of transparency and accountability.

Prospects are difficult in Brazil, given the chronic political-economic uncertainty. Anyway, one may expect that the public-private alliance concerning VET and other policies must be in the short- and medium-term national agenda.

The forecasts for the Brazilian economy are cautious (WB 2018). The inflation seems to be under control, the interests’ rates have declined and the investment may grow, providing that the government succeeds in structural reforms and public debt control. Incentives, subsidies, and other nonreturning spends are expected to decrease, also requiring better focus and more transparency. The employment rate may rise, but slowly and mainly in the informal sector, thus affecting compulsory contributions and levies charged on sales and formal labor.

The payroll levies can also be impacted by the new labor law which was approved in 2017. This law is supposed to increase the labor market’s flexibility, and promote direct agreements between employers and workers. From an optimistic view, the new rules may reduce the red tape and labor costs, stimulating the formal employee’ expansion; from a pessimistic look, wages, and other labor conditions could deteriorate, increasing turnover and labor informality.

In any scenario, the Brazilian VET “nonsystem” must be prepared for continuous demands of skills and competences, driven by multiple and combined forces, namely: a more flexible and dynamic labor market; companies and citizens’ pressures for better services and urban infrastructure (education, health, transportation, housing, energy, clean water, and sewerage systems); international agreements and domestic regulations concerning environment, civil rights, and decent labor; social policies concerning poverty and inequality; education goals defined by the National Education Plan (PNE) 2014–2024.

Actually, the PNE defines multiple challenges for the education system, which may directly impact most of VET alternatives: universalize basic education, including secondary level; eliminate adult illiteracy; expand adult, technical, and higher education. There are also ambitious goals in terms of efficiency and quality, implying new technologies and skilled human resources in the educational sector, mainly teachers and managers (Observatório do PNE 2017).

A new national curriculum for the secondary school is supposed to be implemented until 2024 (Law 13415/17), including basic vocational contents, which could imply specific demands for the VET market. Its main goal is to make the secondary level more attractive to the students, reducing dropout rates and enlarging their professional development perspectives.

In a context of scarce funding sources, all these demands shall require the VET market to be more efficient and focused. New technologies, including distance education, are expected to expand, favored by their flexibility, lower costs, and attractiveness for younger students and workers. Transparency laws and citizens' pressures may result in better accountability, including systematic monitoring and evaluation of all VET branches, including the less visible ones.

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## Abstract

This chapter explores the development and practice of e-learning in the workplace. Despite the rapid growth of the e-learning industry and the claims of “e-learning evangelists,” there remains serious doubt over the effectiveness, impact and take up of technology for learning, especially in the workplace. That there has been only a limited take up in the use of technology for learning in companies, particularly in Small and Medium Enterprises (SMEs) is an issue of concern to policy makers and planners. This chapter examines research into e-learning in the workplace, as a prelude to exploring the issue of the take up of

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technology for learning, including in SMEs. It suggests that the major issue has been an approach to the development of technologies for learning founded on technological determinism and this fails to consider the nature of learning in the workplace. It suggests the use of technology for learning in the workplace requires the development of new pedagogic approaches. Such approaches are illustrated with examples drawn from recent large-scale European research and development projects.

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**Keywords**

E-learning · Pedagogic · Workbased learning · Skills and knowledge

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## **E-Learning: A Cost-Effective and Flexible Solution for Learning for the New Skills Required of the “Knowledge Economy”?**

This chapter explores the development and practice of e-learning in the workplace. E-learning is understood here as “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski and Molenda 2010). In recent years, the term “technology-enhanced learning” (TEL) has tended to be more prevalent. In this chapter, both terms are used interchangeably. Similarly, the term “in the workplace” requires some clarification. While once largely limited to the offices and factories of companies and organizations, the use of information and communication technology has led to the development of the distributed workplace and increasingly allows employees to work from home. It is therefore becoming appropriate to define the workplace as any setting in which an employee is performing work duties, even if this location is his or her home (Sloep 2011).

The narrative promoting the use of e-learning in the workplace varies a little but in general is based around changing technologies, new knowledge and skills, and lifelong learning. Later in this chapter, I will explore some of the more problematic issues in such a narrative but first will exercise the main arguments.

Educators today, it is said, are tasked with developing lifelong learners who can survive and thrive in a global knowledge economy – learners who have the capability to effectively and creatively apply skills and competencies to new situations in an ever-changing, complex world (The World Bank 2003; Kuit and Fell 2010).

In part, this is due to the rapid pace of change in the world of work meaning that both the nature and content of jobs are changing fast. For example, it is claimed that the effect of Artificial Intelligence (AI) and robotics in the workplace means that many jobs, if they are not completely replaced by robots, will be very different (Hart 2018). With the rapid growth in the availability of information and data, there is a concern that knowledge and skills now have a short shelf-life. At the same time, individuals are living longer, so the traditional “job for life” model has disappeared. In fact, a MIT Sloan Management report (2017), entitled “The corporate implications of longer life,” suggests that the flexible nature of the modern workforce will likely see a 15-year-old today navigating a portfolio of 17 jobs in 5 different industries.

These changes are leading to new demands for skills and knowledge. A study of pay rates in the USA found increasing demand for cognitive as well as non-cognitive skills and that digital intensive industries especially reward workers having relatively higher levels of self-organization and advanced numeracy skills (Grundke et al. 2018). They also found that “bundles of skills are particularly important: workers endowed with a high level of numeracy skills receive an additional wage premium, if they also show high levels of self-organisation or managing and communication skills.”

But changing skills demands are not limited to digital industries: research has shown growing demand for new and higher levels of skills in traditional manual occupations in the construction sector (Attwell et al. 2013).

With this background, e-learning is proposed as a cost-effective and flexible solution for not only replacing traditional face to face training but to scaling up access to learning for the new skills required of the “knowledge economy.” E-learning can provide flexible learning options for employees and allow them to up-skill more rapidly (Guiney 2015). E-learning in the workplace can decrease the costs of up-skilling a workforce through reducing travel and employee time away from work. E-learning is particularly useful for a geographically dispersed workforce because it can deliver a consistent training experience (ibid.).

It is also argued that e-learning is increasingly valued by employees. A survey of approximately 4000 professionals globally by LinkedIn (2018) “with the goal of providing a holistic view of modern workplace learning” found that 58% of employees prefer opportunities to learn at their own pace and 49% prefer to learn at the point of need. This experience can only be achieved by online learning solutions, says LinkedIn.

Guiney (2015) says: “From an employee perspective, e-learning can provide flexible learning options and also allow them to more rapidly up-skill. Simulations and virtual reality environments are being used to provide more relevant, authentic workplace learning. E-learning can offer more customised training. E-learning also allows employees to revisit challenging aspects of the course more readily. Some firms are starting to introduce systems, technologies, and processes that embed training and learning within employees’ daily work flows.”

## The E-Learning Industry

The increasing use of e-learning in the workplace is reflected in the growth in the market for e-learning technologies. The size of the e-learning market was estimated to be over USD 165 billion in 2015 and is likely to grow by 5% between 2016 and 2023, exceeding USD 240 billion (Docebo 2015), although these figures include colleges and schools as well as workplace learning. The corporate sector has been viewed as a potential fast growth area. According to a market study released by Technavio (2018), the size of the global corporate e-learning market is predicted to reach an approximate amount of USD 31 billion in revenue by the end of 2020. Technavio’s analysts say changing business needs and technology improvements

have encouraged the adoption of e-learning solutions at the expense of traditional teaching methods.

In 2018, stock market listed educational technology provider, Blackboard, had a market cap of USD 1.3 billion. In 2015, LinkedIn announced the USD 1.5 billion acquisition of online education company Lynda.com (Recode 2015). Lynda.com provides video courses to paying subscribers hoping to learn online, with tutorials on a wide range of business subjects from Web design to 3-D animation. Other e-learning companies such as Coursera and Codecademy have attracted substantial investment.

## The Limited Impact of E-Learning in Companies

Yet, despite the claims of “e-learning evangelists,” the exhortations of economic organizations, and the hype of the e-learning industry, there remains serious doubt over the effectiveness, impact, and take-up of technology for learning, especially in the workplace. As Dirk Van Damme (2014) asks: “Why have ICT and the internet – which has profoundly changed production and distribution in so many sectors and improved productivity – not had the same impact on education so far.”

UK’s Chartered Institute of Personnel and Development (CIPD) ran an annual Learning and Development survey report from 1998 to 2015 which examined current practices and trends within learning and development. The 2013 survey showed that only 15% of the organizations which replied to their questionnaire considered e-learning to be one of the most effective learning methods available to them. However, this belief in e-learning effectiveness had grown from 7% in their 2009 survey (CIPD 2013).

The CIPD’s 2013 survey showed that face-to-face training was considered much more effective than virtual training, with 48% favoring in-house development programs and 39% preferring coaching by line managers (CIPD 2013). The survey also showed that 91% of organizations taking part believed that e-learning was most effective when combined with other learning methods, with 72% stating that TEL should not be regarded as a substitute for face-to-face training.

A study by Mwangi (2014) investigating the adoption and use of e-learning at the workplace revealed that 55% of the respondents to a large-scale questionnaire were of the view that workplace e-learning applications fail to meet the needs of learners, hence not motivating employees to learn, while 45% disagreed. Regarding people interaction, 76% of the respondents said that they felt that e-learning cuts the social and cultural interaction of people, while 81% did not agree that e-learning should be replaced by human instructors.

Regarding factors mostly influencing the adoption of e-learning in workplaces, the findings showed that 53% of the employees interviewed attributed the lack of interactivity as the single-most important factor to overcome learner resistance to workplace e-learning.

It appears that there is little change since these reports were undertaken. In the seventh Annual Survey of Workplace Learning (involving over 5000 companies),

Jane Hart (2018) has found little value attached to e-learning. Daily work experiences (i.e., doing the day job) and knowledge sharing within teams were most valued, with manager feedback and guidance not far below. The most valued ways of learning also include Web search, Web resources, and professional networks and communities.

In June 2018, David Hopkins, tweeting from the LTFS conference, said “How do you deliver training/learning . . . online or F2F? More hands in audience for the latter, is that indicative of tech used for learning, in online/digital environments?”

## E-Learning in Small and Medium Enterprises

That there has been only a limited take-up in the use of technology for learning in companies, particularly in small and medium enterprises (SMEs), is an issue of concern to policy makers and planners (Attwell 2007).

Large organizations are more likely to adopt e-learning than SMEs because they have better infrastructure and systems and can more readily achieve economies of scale and return on investment (Guiney 2015). Guiney suggests SMEs can form collaborative networks to share knowledge, resources, and expertise to overcome the cost and relevance barriers they face when implementing e-learning.

Admiraal and Lockhorst’s (2009) survey of over 400 small and medium enterprise (SME) owner-managers across 7 European countries and subsequent interviews with owner-managers and employees from more than a quarter of these also showed a predominantly negative attitude toward technology and learning.

A critical review of the way in which information technologies are used for workplace learning (Kraiger 2008) concluded that most solutions are targeted toward a learning model based on the ideas of direct instruction based on a traditional business training model with modules, lectures, and seminars transferred from face-to-face interactions to onscreen interactions, but retaining the standard tutor/student relationship and the reliance on formal and to some extent standardized course material and curricula.

However, research suggests that in SMEs much learning takes place in the workplace and, through work processes, is multiepisodic, is often informal, is problem based, and takes place on a just-in-time basis (Hart 2011). Rather than a reliance on formal or designated trainers, much training and learning involves the passing on of skills and knowledge from skilled workers (Attwell and Baumgartl 2008). In other words, learning is highly individualized and heavily integrated with contextual work practices. While this form of delivery (learning from individual experience) is highly effective for the individual and has been shown to be intrinsically motivating by both the need to solve problems and by personal interest (Attwell 2007; Hague and Logan 2009), it does not scale very well: if individual experiences are not further taken up in systematic organizational learning practices, learning remains costly, fragmented, and unsystematic.

In this introduction to the chapter, I have looked at some of the discourses surrounding the use of technology for learning in the workplace. In the next section,

I will examine issues in research in this area. The third section will return to the issue of the take-up of technology for learning, including in SMEs. I will go on to suggest that the major issue has been an approach to the development of technologies for learning has been founded on technological determinism and this fails to take into account the nature of learning in the workplace. The use of technology for learning in the workplace requires the development of new pedagogic approaches. I will illustrate such approaches with examples drawn from recent large-scale European research and development projects.

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## Researching E-Learning in the Workplace

Technology-enhanced workplace learning is an under-researched field and according to Peter Sloep (2011) “a comprehensive understanding of its potentials and pitfalls requires significant research efforts.” He goes on to say: “The lack of sound research findings follows both from the speed with which new technologies become available, thus leaving researchers always in pursuit of the latest and the newest, but it also follows from the relative novelty of the field.”

Indeed, in a special issue of the *British Journal of Educational Technology* (BJET) devoted to technology-enhanced learning in the workplace, Short and Greener (2014) reported that a content analysis of the journal, looking at editorials, refereed articles, and colloquia in 31 issues of the publication between January 2000 and November 2005, found of 374 items, only 3% were from “colleges, industry and the ‘learning and skills sector’” (Latchem 2006). Yet despite this it took a further 8 years for a special edition to be published!

Most research in e-learning is focused on the use of technology for learning in school and higher education institutions and in distance education. What research there is on employing technologies for workplace learning has often concentrated on larger enterprises where higher setup costs (like the need to model learning and working domains) as well as costs of operation and maintenance are more easily and earlier outweighed by the corresponding benefits. This contrasts with the situation in SMEs. Also, by addressing highly computer-based workplaces, past learning technology research has started out by picking the low-hanging fruits. In many SMEs, however, and particularly in those from more traditional sectors, much of the work and learning is happening in physical contexts.

Research has tended to focus also on the use of particular technologies for learning or on case studies in particular companies or industries.

There are good reasons to explain this dearth of broader research in e-learning in the workplace. Firstly, it is a very broad field. Evidence would suggest a very varied pattern of take-up in different sectors and occupations (Attwell 2007) and also within sectors. Even within sectors seen as slow to adopt the use of e-learning, there will be examples of innovative and effective use. More problematic would seem to be the generalization and mainstreaming of examples of effective practice.

Secondly, the practice of e-learning in the workplace requires a multidisciplinary and boundary-crossing approach from a research perspective. Prime among these

perhaps is the boundary between formal and informal learning. There are also boundaries between initial and continuing VET, between practice and knowledge, and between developers and learning professionals.

As Kunzmann and Schmidt (2006) have pointed out, in a perspective focusing on the individual, technology-enhanced workplace learning has emerged as an approach bundling classical e-learning with knowledge management techniques for holistic workplace learning support covering both formal and informal learning and focused on learning activities integrated into work processes, merging e-learning, knowledge management, and performance support.

Complex also is the relation between changing practices in training and human resource development, to a large extent driven by changing technologies, and the emergence of new technologies with the potential to support workplace learning. Any study of vocational and workplace learning has also to account for the duality of learning about technology and learning through technology.

Attempts have been made to explain the developing use of e-learning in the workplace through time-based phases. Peter Sloep (2011) identifies four different phases of “Perspectives on learning in the workplace” (based on Kluijtmans 2010): the human relations movement until 1970, professionalizing organizational training and learning from 1970 to 1990, human resource development from 1990 to 2000, and lifetime employability from 2000 onward. He looks at how technologies supported each of these “movement.” In a short history of workplace learning, Jane Hart (2018) says the work of the learning and development departments has evolved and moved through a number of five identifiable stages: classroom training, e-learning, blended learning, social learning, and modern workplace learning.

Other analyses have been based on the potential affordances of different technologies for learning (see, e.g., Istance and Theisens 2013). At a simple level, such analyses have looked at the differences between applications which support synchronous and asynchronous communication. Others have attempted to divide between those technologies designed for education and learning and those designed for communication and knowledge exchange and applications which support both formal and informal learning. An issue in developing such taxonomic tables is that while e-learning has been associated with the use of learning management systems, the use of social software is being widely used for learning purposes. Taxonomies tend to become rapidly outdated, in part due to technological change and in part due to changing ideas about e-learning. Technologies such as augmented reality and learning analytics based on data analyses and machine learning are impacting on e-learning in enterprises. There is increasing interest in personalized learning as a way to promote e-learning in SMEs.

There may be differences between the use of technology in initial vocational education and training (IVET), continuing vocational education and training (CVET), and school-based vocational education and training, although it is difficult to generalize. Obviously, there will be differences when organizations have a primary purpose in providing education and training and thus a greater awareness of the role of technology in supporting learning. But differences may be also due to the need to

provide greater scaffolding and support to apprentices and students in IVET and, for example, an expectation of greater learner autonomy in CVET.

It has been suggested that there is a need to reexamine the use of technology for learning not from a technical perspective but from a social and pedagogic viewpoint (Van Damme 2014). Twenty-first-century learning, he says, requires a focus on more innovative skills development and pedagogies. Yet the term “twenty-first-century learning” lacks real content. A more analytical approach is to look at the different boundaries which shape the teaching and learning process in companies. This includes the relationship of technology, learning, and innovation. Researchers from both human resource development and from innovation theory have failed to make the critical link between situated learning and social innovation (Deitmer and Attwell 2000). By treating innovation as a technologically determined process and by treating learning as a largely technical and individual matter, learning is rarely seen as integral to the process of innovation, and new forms of knowledge production become abstracted from social forms of interaction and practice within the workplace and broader community. As Guile and Young (2001) have cogently argued: “the problem with individualist conceptualisations of learning is that they neglect the extent to which learning is first and foremost a human activity and therefore, about social relationships and people participating in different types of community.”

In the next section, I look at barriers and issues in the development of the use of e-learning at the workplace, before examining in more detail the nature of workplace learning.

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## **Barriers and Issues in the Development of the Use of E-Learning at the Workplace**

There has been considerable analysis as to why the take-up of e-learning in the workplace has been slower than expected. Here we will provide only a brief overview, before looking in more depth at the nature of workplace learning and new pedagogic approaches to e-learning in the workplace. In some ways, it may not be an issue about e-learning as such, but about workplace learning overall. With the expansion of workplace learning as a result of the growing impact of technology, the main approach was in classroom-based settings away from the actual workplace (Sloep 2011), but even at the end of the twentieth century, there was growing concern about the effectiveness of classroom-based training because of the absence of convincing evidence for its actual contribution to employee’s on-the-job performance (Baldwin and Ford 1988; Latham and Crandall 1991). The introduction of technology has tended to follow existing learning and teaching approaches, regardless of the particular technology implemented – learning management systems, video, mobile devices, social networking tools, wikis, weblogs, simulations/virtual reality, CD-ROMs, and DVDs – reflected in terms like the electronic classroom and the online meeting room. While there are a wide range of initiatives and examples of e-learning in the workplace, ranging from the



founding of organizational virtual universities to building virtual reality training suites for simulation activity, many of these examples, as elsewhere in online learning, simply transpose conventional practices to a new online space (Littlejohn and Pegler 2014).

Information and communication technologies for learning have been dominated by virtual learning environments which assume a formal and structured curriculum, with educational attainment recognized as a proxy for learning (Attwell 2016). While in some occupations and subjects, such as computer programming or language learning, learning activities may be predominantly cognitive, practice-based occupations, including in healthcare and construction, do not render so easily to this approach. At best technologies have been used for augmenting the teaching and learning process and providing enhanced access to resources.

Attwell (2007) found a variety of reasons for the lack of take-up of technology for learning in small and medium enterprises. One has been the lack of infrastructure and another a lack of awareness of the potential of such technologies, particularly by SME managers. Trainers may not be confident with new technologies, and there may be a lack of digital learning materials for occupational learning. In reality, most technologies are used in existing educational settings.

Guiney (2014) says the main barriers to implementing e-learning in the workplace are:

- High up-front costs that include new and/or upgraded systems, training the trainers, and developing interactive and/or personalized content
- Employee resistance to e-learning
- Organizations not having an appropriate learning culture in place
- Lack of management support
- Adopting technologies and systems that are difficult to use and access, are unreliable, and/or lack technical support
- Employees and trainers lacking the skills and capabilities to teach and learn in e-learning environments
- Irrelevance to real-time work tasks and not integrated with business processes

Where e-learning is implemented, Guiney says, “it is most often as part of a blended approach where it supplements traditional delivery. Blended learning can contribute to significant gains in learner achievement. E-learning is most commonly used by firms to meet their compliance requirements, for business inductions, and information and communication technology (ICT) training.”

There may also be a tension between individual and organizational learning. While research and development for e-learning has been focused on students in formal learning environments, companies are both concerned in the value proposition, learning, and knowledge of the organization, while at the same time the organizational learning environment is conditioned by the external environment (Serrat 2017). In this environment the “organizational context, inter- and intra-organizational relationships, and organizational knowledge interact” (ibid.). Wang (2011) considers that current technology-enhanced learning programs fail to systematically align the

learning with the organization's goals and the individual's needs, which could hamper both organizational and personal growth.

Most of the learning processes are formal, and the potential of informal learning and user-generated content is not being exploited (Werkle et al. 2013). The paradigm change of content toward the expert as author is not yet turned into practice in companies.

It should also be noted that learners in the workplace are a very heterogeneous target group with big age differences, different educational backgrounds and previous knowledge, job roles, learning requirements, learning preferences, and learning goals (Scheffel et al. 2013). Further, the learners in workplace environments have primarily to fulfil their job role, and learning is mostly to support them in doing so (ibid.). With the pressure of high workloads in many working environments, it is difficult for workers to find the time to participate in online learning, even with the support of management (Schmidt and Kunzmann 2016). Learners at the workplace need to be supported systematically, not only with new e-learning solutions but also with their development goals, their working and learning conditions in general, and their work-life balance (Scheffel et al. 2013).

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## Technology and the Nature of Work-Based Learning

Much of the literature on e-learning at work seems to ascribe e-learning at work to the provision of direct alternatives to traditional training packages, in other words to attempt to move training onto an online platform (Wang 2011). All too often, Wang says, the resulting focus on technology rather than learner's needs results in low-quality, badly designed training that does not achieve its goals. By seeking to mimic the face-to-face learning experience online, we create problems of accessibility, of pedagogy, and of learner engagement.

Critics of e-learning development have pointed to a technocentric approach which they say has dominated the design, development, and introduction of technology for learning (see, e.g., Papert 1990; Brennen 2014). Brennen says "learning' is focused on learning about the tool/technology or the effects of the tool/technology itself, rather than learning with or through the technology." Technology-enhanced learning initiatives tend to be based upon a traditional business training model transferred from face-to-face interactions to onscreen interactions but retaining the standard trainer/learner relationship and a reliance on formal and, to some extent, standardized course material and curricula.

The attempts to replicate face-to-face training and learning experience online have led to a focus on explicit and formal learning. However much of the learning in the workplace is implicit and tacit and occurs in informal contexts. According to Cross (2003), nearly 80% of what people learn at work comes from flexible and self-regulated informal learning activities. The term informal learning is somewhat problematic but can be defined as describing learning without formally organized content and learning that occurs outside of formally organized settings (Sefton-Green 2004).

People learn through observing other behavior, attitudes, and the outcomes of these behaviors. “Most human behaviour is learned observationally through modelling from observing others, one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action” (Bandura 1977). Facilitation is seen as playing a key role in structuring learning and identity transformation activities and supporting networking in personal networks, teams, and organizational networks, as well as cross-organizational dialogue (EmployID or brown).

Furthermore, much of the learning in the workplace is related to practice and vocational and occupational competence, rather than the cognitive knowledge associated with the “knowledge economy.” Research around social practice has largely remained the preserve of social science with different approaches based on structuralism, phenomenology, and intersubjectivism among others.

In his paper on theories of social practice, Reckwitz (2002) draws attention to the idea of a “practice” (Praktik) as a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, “things” and their use, a background knowledge in the form of understanding, know-how, states of emotion, and motivational knowledge. A practice represents a pattern which can be filled out by a multitude of single and often unique actions reproducing the practice and the single individual – as a bodily and mental agent – and then acts as the “carrier” (Träger) of a practice and, in fact, of many different practices which need not be coordinated with one another. “Thus, she or he is not only a carrier of patterns of bodily behaviour, but also of certain routinized ways of understanding, knowing how and desiring” (ibid.).

In this understanding knowledge is more complex than “knowing that.” It embraces ways of understanding, knowing how, and ways of wanting and of feeling that are linked to each other within a practice.

In seeking to support e-learning in the workplace, a vital prerequisite is understanding the nature of the social practices within the workplace, both through observable patterns of individual practice and through developing an overall pattern language. This includes the use of objects. Objects are necessary components of many practices – just as indispensable as bodily and mental activities (Reckwitz 2002). Carrying out a practice very often means using particular things in a certain way. Electronic media itself is an object which can mold social practices and enable and limit certain bodily and mental activities, certain knowledge, and understanding as elements of practices (Kittler 1985; Gumbrecht 1988). One approach to choosing ways to develop particular objects is to focus on what Onstenk (1997) defines as core problems: the problems and dilemmas that are central to the practice of an occupation that have significance both for individual and organizational performance.

If understanding the nature of social practices and patterns is a necessary step to developing e-learning applications, it is not in itself sufficient. Further understanding is needed of how learning, particularly informal learning, takes place in the workplace and how knowledge is shared and developed.

Michael Eraut (2000) points out that “much uncoded cultural knowledge is acquired informally through participation in social activities; and much is often so

‘taken for granted’ that people are unaware of its influence on their behaviour. This phenomenon is much broader in scope than the implicit learning normally associated with the concept of socialisation. In addition to the cultural practices and discourses of different professions and their specialities, one has to consider the cultural knowledge that permeates the beliefs and behaviours of their co-workers, their clients and the general public.”

Eraut (2000) attempts to codify different elements of practice:

1. Assessing clients and/or situations (sometimes briefly, sometimes involving a long process of investigation) and continuing to monitor them
2. Deciding what, if any, action to take, both immediately and over a longer period (either individually or as a leader or member of a team)
3. Pursuing an agreed course of action, modifying, consulting, and reassessing as and when necessary
4. Metacognitive monitoring of oneself, people needing attention, and the general progress of the case, problem, project, or situation

He also draws attention to the importance of what he calls mediating objects and points out that while some artifacts are used mainly during learning processes, most artifacts used for working are also used for learning. Such artifacts play an important role in structuring work and sharing information and in mediating group learning about clients or projects in progress.

Among the informal learning processes that Eraut lists are participation in group processes, consultations, problem-solving, trying things out, and working with clients. Working alongside others is important in allowing “people to observe and listen to others at work and to participate in activities; and hence to learn some new practices and new perspectives, to become aware of different kinds of knowledge and expertise, and to gain some sense of other people’s tacit knowledge.”

Tackling challenging tasks and roles requires on-the-job learning and, if well-supported and successful, leads to increased motivation and confidence.

According to de Laat and Schreurs (2013), informal learning in the workplace is often described as observing how others do things, asking questions, trial and error, sharing stories with others, and casual conversation (Marsick and Watkins 1990). Boud and Hager (2012) argue that learning is a normal part of working and professional development should be placed in a social context where professionals work and learn together, changing and innovating both their professional practice and their professional identity.

Laat and Schreurs (2013) argues that we need to find a new balance between formal and informal learning and provide opportunities for what Fuller and Unwin (2003) call expansive – as opposed to restrictive – learning through developing an organizational culture that values and supports learning and, by so doing, opens doors to various opportunities for professional development. Informal professional development through engagement in social learning spaces can enable participation, construction, and “becoming” (Laat and Schreurs 2013).

E-learning can support informal learning in the workplace in two critical ways. Firstly, it can codify tacit or informal information and knowledge and make this available to the organization and its external stakeholders. This also improves organizational knowledge management. Secondly, e-learning makes it easier for employees to form networks with others in the organization and/or externally to share information and knowledge to assist with their daily work or up-skilling.

Tynjälä et al. (2014) say technology can support workplace learning by serving as mediating tools – “tools that help a student either 1) make connections between theory and practice or 2) to reflect on their experiences.”

The transfer of technology skills and the potential for success in design of online technology skills transfer programs is highly dependent upon the social factor. Spitler (2005) found that social interaction has a significant role in technology learning in the workplace with respect to how employees learn to use and become proficient in utilization of technology in their work setting.

The possibilities for learning in the workplace depend strongly on three factors: job characteristics, information environment, and social working environment, respectively (ibid.).

The content and complexity of a job determine to a large extent the learning opportunities within a work setting, including the different types of tasks included in a job, sufficient autonomy for employees to perform their job tasks, and opportunities to be regularly engaged in dealing with unknown problems. Social interaction requires opportunities to build and maintain contacts with significant others, including participation in communities of practice. Access to information including manuals and factsheets is important, but so too is access to information about the expertise of other staff in an organization. The social working environment determines possibilities to learn from more experienced colleagues or colleagues with particular expertise. It also can enable learning and the development of knowledge from participation in projects and the opportunities for experimentation.

The key to designing successful e-learning in the workplace lays not so much in the particular technology used, but in providing opportunities for learning which understand and build on the nature of practice in the workplace and provide opportunities for the social development and exchange of knowledge and practices. This in turn requires a move away from the tendency to replicate traditional course and work-based training, rather designing, developing, and implementing technologies that support new approaches to pedagogy in the social practice of work and in work practices and the development and sharing of both explicit and implicit knowledge.

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## **Pedagogical Approaches to Work-Based Learning**

Although space prohibits a comprehensive discussion of new and emergent pedagogic approaches which can support e-learning in the workplace, I look here at the pedagogic approaches of four recent projects funded by the European Research Framework programs addressing learning in the workplace: Learning Layers,

EmployID, Mature, and ROLE. Significant is that all are multinational, all seek to link research and practice, and all are large-scale projects. The projects are based in different sectors with different sized companies. All eschewed more traditional approaches to the use of technology for learning such as learning management systems and virtual learning environments. Most importantly, each of the projects addressed different boundaries through developing different pedagogical approaches to learning. These include informal learning, knowledge development and maturing, identity transformation, support for reflection, facilitation and social learning, the appropriation of technology for learning, and the relation between personal and organizational learning as well as the training and personal development of teachers and trainers.

## The EmployID Project

The EmployID project addressed the fundamental transformations in the world of work through working with European Public Employment Services (PES). Technological developments such as digitization and automation are leading companies to reshape their value creation processes and guide their employees to new job roles, creating an uncertain outlook. But employees (including managers) rarely embrace and shape change but are more driven by it.

The ability to utilize modern technologies and methods is just the surface. Overcoming resistance to change, stressful conflicts, and lack of openness are major roadblocks, resulting in the need to look at a deeper level of learning. Employees need to rethink their job roles, the relationship to others, and what good work means to them. Also, leaders need to take new approaches to match the new responsibilities.

This indicates the importance of the professional identity of individuals and occupational groups. Employees are often not given spaces to engage in conversations and transform their identity, consider emotional aspects of their work, acquire skills for moving from a problem focus to a solution focus, and help each other in their learning process (Fig. 1).

Thinking about identity development at work (Brown and Bimrose 2015, 2018) led to the idea that learning at work can be effectively supported if it is understood that such learning can be represented as a process of identity development, a process of development in four interrelated domains (relational development, cognitive development, practical development, and emotional development), and taking place within particular structures and contexts which are rich in learning and development opportunities (Brown and Bimrose 2018). Such an approach could also be linked to the processes of career construction, deconstruction, reconstruction, and co-construction through language and interpersonal processes (Savickas 2013). This theory regards everyday experiences as representing building blocks from which narratives about careers are constructed. Career constructionist practice addresses explicit reflection and career processes with career conversations being facilitated by skilled practitioners.

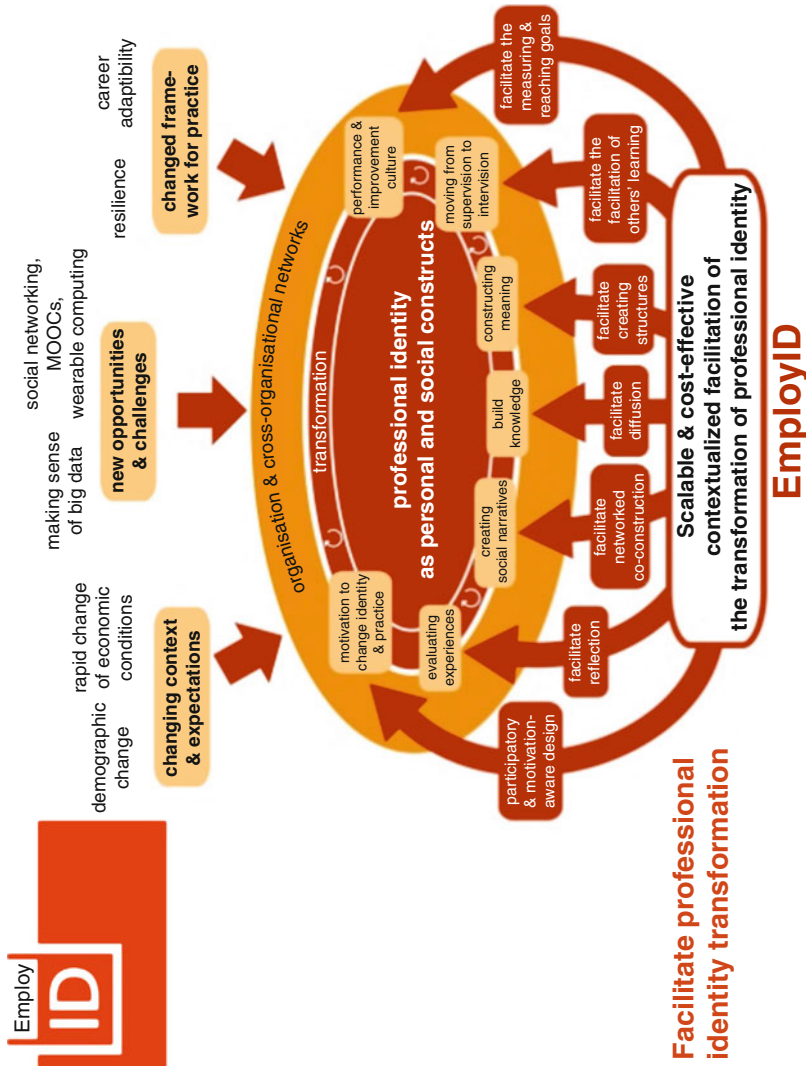


Fig. 1 Professional identity transformation



Therefore, while career practitioners support their clients' career conversations, conversations about their own careers and identities could be driven by similar processes that are facilitated in different ways. For the EmployID project, one key question was: Can ICT tools create spaces to drive processes of learning, facilitation, and reflection in support of identity development and career construction?

ICT has for some time been able to provide spaces for peer interaction (e.g., discussion forums, massive open online courses (MOOCs)), but a continuing problem has been that the potential of these spaces has often not been realized by turning these into places where much active collaboration actually occurs. In such settings "space" describes structural arrangements that might constrain and enable certain forms of interaction, while "place" denotes the ways in which settings acquire recognizable and persistent social meaning in the course of interaction. Space was seen as the opportunity, while place represented the social practices underpinning the (understood) reality. As Dourish (2006) has argued, both elements should be seen as critical aspects that interact. What is clear, however, is that if ICT tools are to become places for learning and reflection in support of identity development and career construction, then facilitation should play a major role.

Among other initiatives, the EmployID project, through processes of co-design with staff from public employment services, has developed social learning programs and communities of practice.

ICT applications were developed to support practitioners with online reflection, coaching, and the use of labor market information (LMI) in their practice. These included blended learning programs and an international MOOC, facilitating the use of, for example, peer coaching, reflection, and innovative uses of LMI as a means to generate practitioner commitment.

The blended learning program evaluations (EmployID 2017) highlighted evidence of individual development, such as increased digital capabilities, a deeper understanding of coaching processes and how to use LMI in practice, and transformed attitudes to learning that amounted to a changed culture supportive of resourceful learners. Learners had actively engaged in experience exchange and collaborative discussion during the programs. This collaborative approach carried over to their subsequent work activities, as demonstrated by a statistically significant rise of collaborative reflection activities (EmployID 2017).

The collaborative learning activities around the changing world of work also significantly changed the learners' experience of collaborative learning, helping to solve problems, reflect about their own learning, and understand their role in the organization and how to reach organizational and individual goals.

In order to support counsellors in their professional identity transformation, and to support their need for an improved means of communication, the EmployID project developed a community of practice approach. This involved the development of a reflective community platform offering various features to users in order to focus on learning while contributing. The platform has now been adopted by public



employment services in three countries, with a fourth platform for managers from across European PES being planned.

The evaluation highlighted the importance of ownership of community spaces and the time taken for such community spaces to “emerge.” It also pointed to the importance of active moderation in stimulated exchange and learning.

## **The Learning Layers Project**

The Learning Layers project aimed to scale up informal learning in SME clusters through the use of technologies to create meaningful learning opportunities and thereby improve sustained competitiveness of individuals, SMEs, and the clusters as a whole.

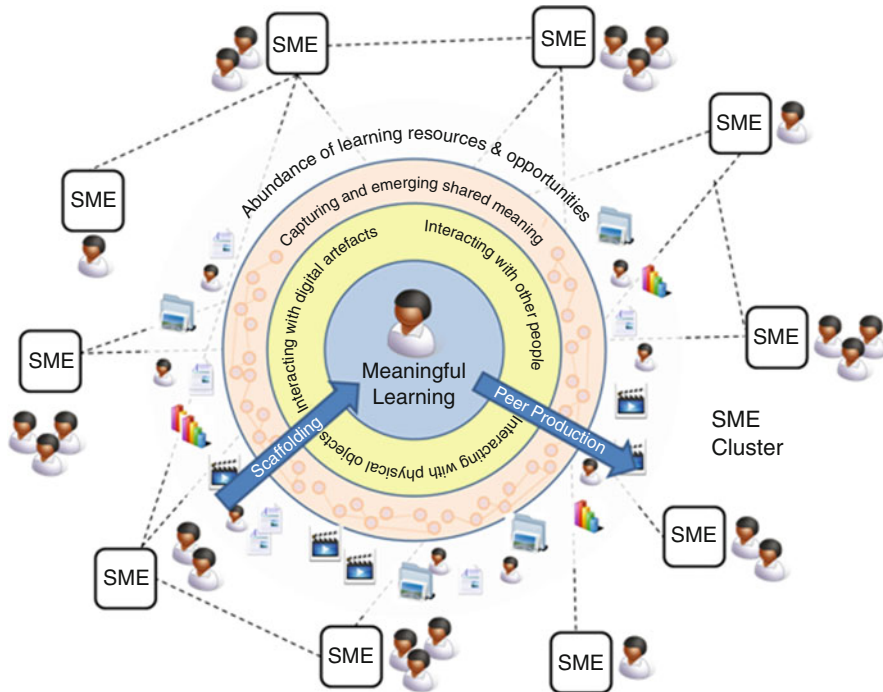
This entailed investigating informal learning practices, especially those of SMEs in more traditional sectors, and on those practices taking place in physical workplaces and across organizational boundaries and the development of a set of learning technologies that unlock peer production in networked SME settings and scaffold individuals for meaningful learning. Driven by the main types of informal learning interactions – people, digital, and physical artifacts – the project focused on three types of technologies to support informal learning:

- Technologies to scaffold interpersonal help seeking in a networked enterprise context
- Technologies to create, remix, and share dynamic, up-to-date, and high-quality learning content in a cost-effective way within and across organizational boundaries
- Technologies that capture and mediate meaningful informal learning in work processes and practices in physical contexts using physical artifacts

In informal and workplace learning, a dynamic interplay takes place between learning in different contexts. Individuals learn in a self-directed manner. At the same time, they participate in collaborative informal learning environments as they are members of groups and communities, organizations, and cross-organizational networks (Fig. 2).

The Learning Layers project worked with two sectors which were seen as having relatively low levels of use of e-learning for workplace learning: the healthcare and construction sectors. For working with apprentices in the construction sector, the project developed a flexible, mobile platform, Learning Toolbox, for contextual on-the-job learning, bridging formal and informal learning contexts.

Teachers and trainers can create their own learning materials using different media and share these with others through a tile store. Users are able to interact with each other and to develop a portfolio of their work, including photographs and video using mobile devices. For apprentices, the mobile app links learning in the training center, in the vocational school, and in the workplace.



**Fig. 2** Scaling informal learning

## The ROLE Project

The Responsive Open Learning Environments (ROLE) project developed and piloted technology centered around the concept of self-regulated learning that creates responsible and thinking learners able to plan their learning process, search for the resources independently, and learn and then reflect on their learning process and progress. The main objective was to support teachers in developing open Personal Learning Environments (PLEs) for their students.

The ROLE project developed a Personal Learning Management System which is an open, social-based LMS combining the functionalities of an LMS and a Personal Learning Environment and allowing users to construct their virtual learning environment according to their learning history, goals, and preferences.

One pilot was for employees of Festo, a German engineering company, where it was piloted through their Virtual Academy (Scheffel et al. 2013). Festo wished to improve their existing learning systems to support:

- Openness and adaptivity
- Communication with other learners
- Facilitation of collaboration and peer-assisted learning
- Collaborative and individual work
- The sharing of best practice

One aim for the work was to understand how widely a corporate learning environment can be opened up, especially given system restrictions and concerns over data security. It was recognized that the job role of the learner has to be in the focus of all learning processes involving and understanding of learning processes that take place during daily work and after work.

Self-regulated learning was seen as comprising an essential aspect of the PLE, as it enables learners to become “metacognitively, motivationally, and behaviourally active participants in their own learning process” (Zimmerman 1989).

The ROLE developed the Psycho-Pedagogical Integration Model (PPIM) (Fruhmann et al. 2010). This model identifies four main steps:

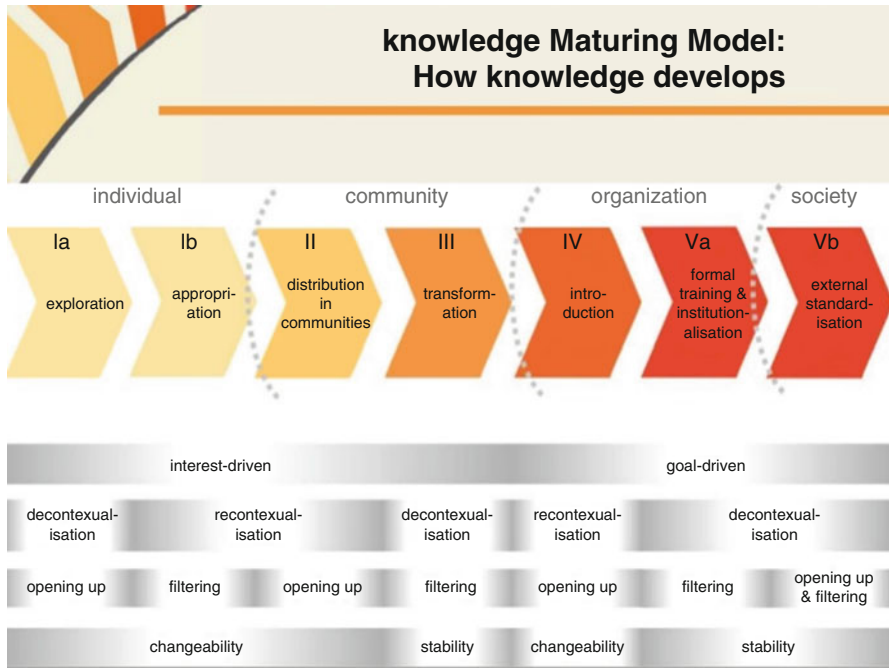
1. Plan: Including the definition of the learning strategy, learning goals, actions to be taken to achieve these goals, as well as preferences in the sense of tools and types of content that will be used.
2. Search: At this step the learner searches for learning resources and tools within the learning environment and outside of it. Here, the user may get recommendations from tutors and peers but also use recommendation systems to find appropriate resources.
3. Learn: Learning includes studying of the selected tools and materials, attaining skills, training and testing, as well as assessment by tutors and self-assessment.
4. Reflect: This phase implies gathering feedback from different sources and self-evaluation, as well as reflection on the learning process and achievements in order to evaluate the usefulness of the learning strategy and particular actions and their correction if needed (Scheffel et al. 2014).

Different widgets were developed to support each stage of the learning process. The LearningTube widget became an essential part of the Virtual Academy, allowing access to videos but more importantly allowing Festo employees to themselves contribute video content. The key to the success of the video tutorials was seen as didactic simplification through visual representation. Wherever one previously had to describe a subject in words, written or verbally, or complex product drawings had to be created, it is simple to visualize information using moving, narrated images.

## **The MatureIP Project**

The MatureIP project explored the idea of knowledge maturing, based on the assumption that learning is an inherently social and collaborative activity in which individual learning processes are interdependent and dynamically interlinked with each other: the output of one learning process is input to the next. Seen from a distance, it is possible to observe a knowledge flow across different interlinked, individual learning processes. Knowledge becomes less contextualized, more explicitly linked, and easier to communicate; in short, it matures.

Knowledge maturing is defined as the goal-oriented development of collective knowledge or better as goal-oriented learning on a collective level where goal-oriented describes knowledge maturing as a process with a direction. The goal can



**Fig. 3** Knowledge maturing model

be an individual goal (e.g., to deepen understanding in an area out of curiosity), a team goal (e.g., to grasp known errors with respect to a product that the team works on), or an organizational goal (e.g., refine an organization’s core competency). Goals typically change over time and get aligned in social processes, resulting in a direction as a (mostly a posteriori) interpretation (Fig. 3).

The collective level can refer to different levels of granularity, e.g., a team, an organization, or a community. Knowledge maturing is not the result of an individual’s activity, but of an interconnected series of activities of interacting individuals, frequently also within different collectives.

Knowledge is understood as both cognitive structures bound to individuals’ minds (becoming manifest in their behavior) and as an abstraction of the knowledge of individuals in a collective.

Tools for supporting knowledge maturing support individuals in their activities that contribute to knowledge maturing. The variety of workplace activities often makes it difficult to judge where support is most needed. Knowledge Maturing Activities represent a proven selection and categorization of activities that can form the basis for diagnosing which elements of work practices are not well supported and which are more critical than others.

On a more detailed level, the characteristics of Knowledge Maturing Activities change in various phases requiring different forms of IT support. In general, present ICT and e-learning applications lack support for individuals to reflect on and refine

work practices and processes, to find people with particular knowledge or expertise, and to assess, verify, and rate information. These correspond to different strands of workplace knowledge: knowledge how to do something (process), knowledge about others (people), and knowledge in artifacts (content).

The MatureIP project has developed tools for supporting these social processes of learning and knowledge development and sharing.

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## **Conclusions: Developing E-Learning for the Workplace**

First, I would want to acknowledge the limitations of this study. E-learning in the workplace is a very broad area, albeit one which is under-researched. Even though the e-learning industry is a global concern, the examples given from Europe exclude developments from other parts of the world. More seriously, the general nature of this chapter precludes examination of practices in different economic sectors and different occupations, which may differ greatly. I have also not looked in any detail at the differences between initial vocational education and training (IVET), continuing VET (CVET), and school-based VET.

Central to my argument is that despite the promise of e-learning to extend and deepen workplace learning, it has yet to deliver on such promise, particularly within small and medium enterprises. The e-learning industry has adopted a technocentric approach to the design and development of e-learning applications and the use of technology to largely replicate existing face-to-face training practices. Technology-driven transformations are changing the world of work and the content and practice within occupations. This leads not only to the need for retraining of workers but to the need for lifelong learning which in turn requires new approaches to vocational education and training and human resource development.

Thus, there is a need to reexamine the use of technology for learning not from a technical perspective but from a social and pedagogic viewpoint (Van Damme 2014) in order to support learning in the workplace.

Design for e-learning in the workplace has to consider both the nature of work practices and the workplace environment. This includes the development of skills and competences, the use of tools and objects, and knowledge development and maturing.

E-learning applications in the workplace also have to take account of both individual and organizational learning processes. Learning and the application of knowledge within the workplace are inherently social activities. E-learning applications need to recognize and build on such social processes and in particular to support the facilitation of learning.

Technology can be used to embed learning in workplace practices, developing and supporting social processes for skills development and knowledge sharing. The emergence of new technologies such as augmented reality, mobile learning, and machine learning can enhance such a development. Brown and Bimrose (2018) have pointed to the need for structures and contexts rich in learning and development

opportunities that can support relational development, cognitive development, practical development, and emotional development.

As is shown in the examples from international projects in the last section, there are new and innovative approaches to pedagogy, capable of building on new and emergent technologies. However, there are doubts as to how sustainable and scalable these projects are. As research projects, their focus is not the development of e-learning applications as such, but the development and dissemination of new knowledge. Yet, if new pedagogies and approaches to teaching and learning are not embodied in e-learning applications resulting from innovations, there is a reliance on the e-learning industry to build on the lessons of such research. Despite the rapid growth of the industry, it must be doubted whether it has the capacity, expertise, and motivation for such innovation.

One approach to overcoming these barriers is to relocate e-learning development within the broader scope of innovation and regional development. At the same time, if e-learning is to be integrated with workplace practice, it will require support for not only recognized trainers but for all those who facilitate learning in the workplace. It will also require recognition that time spent learning is an integral part of improving working practice and encourage the development of personal learning networks.

I have also drawn attention to the issues faced in researching e-learning in the workplace. There is an urgent need for broader understandings of the context and process of learning and links to the work process. There is also a need for research in design processes on how to develop applications to support learning and knowledge development in the workplace.

Such research requires the emergence of a research and development community, capable of working across disciplinary boundaries.

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**Part V**

**Vocational Learning**

***Karen Evans and Natasha Kersh***



Karen Evans

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## Abstract

Fresh perspectives on vocational learning require new vantage points – vantage points from which we can view enduring questions and challenges from a different direction or in a changing light. Fresh perspectives can reveal hidden aspects or address long-standing issues in ways that question currently dominant assumptions. They make the case for developing educated attributes throughout the life course; for establishing polyvalent or permeable institutional pathways for vocational learning and achievement, in sustainable ways; for developing knowledgeable and creative practitioners; and for recognizing, opening up, and connecting learning-conducive working spaces. The perspectives on vocational learning explored in this chapter are exemplified in contributions to the 2018 Handbook of Vocational Education and Training: Developments in the Changing World of Work (McGrath et al. 2018); and all have been supported to some degree by research inquiries involving new empirical encounters. The discussion does not make claims for comprehensive coverage but rather aims to stimulate extended dialogue connecting fresh ideas and new evidence from diverse cultures, new policy directions, and changing practice environments.

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**Keywords**

Learning · Life course · Learning spaces · Social shaping · Adult learning · Workplace learning · Vocational teachers · Knowledgeable practitioners

Vocational learning is being reshaped and revolutionized by three main forces. First, the emergence of new technologies permits new ways of learning and contributes to the reshaping of work as digitization and automation gather pace. New learning technologies are influencing the ways in which people participate in existing formal learning programs and through individual accessing of online resources. Second, new workplace occupations and technologies have emerged with new knowledge and skill requirements. These undermine old boundaries between vocational and academic learning and between advanced and non-advanced programs. They stress stronger affective and cognitive skills than has previously been the case for much vocational provision, with profound implications for the demands placed upon vocational learners and workers. Third, the rise of new disciplinary perspectives, from spatial analyses of cultural geographers to the evidence of neuroscientists, is generating major new insights for all forms of learning.

To develop fresh perspectives, it is often necessary to leave the heavily trodden pathways and find new vantage points. New vantage points are found in some unexpected places: in neglected issues, in gaps in the research and practice literature, and in ways of looking at the matter offered by authors who have their roots in substantially different political-economic scenarios that are underrepresented in the English language literature. In considering vocational learning, it is important to counter tendencies to “learnerism,” which limit rather than expand our field of view in approaching questions of learning. Learnerism is the term that has been applied to the increasing tendency for learning to be separated from questions of content and context, to be equated with an individual process undertaken by doers of learning, that is held to be unquestionably worthwhile and good: “learning in itself” (Holmes 2004). The contemporary “turn to learning” in the educational sciences does not adopt a single definition of learning, but rather acknowledges the range of the meanings that learning holds and conveys, according to the framework adopted: institutional frameworks of education and training, the codes and tenets of disciplines such as cognitive psychology and the sociology of education, the concepts of work organization and political-economy frame vocational learning, and the questions we consider worthy of investigation. When we strive, through research and inquiry, to learn more about vocational learning, the process itself, after Wittgenstein (1953: 308), commits each inquirer to a particular way of looking at and understanding the matter.

The “turn to learning” can be viewed according to the changing relationships between the social organization of learning and the learning individual. The interplay between these perspectives can be understood in terms of the interplay between the social worlds and lifeworlds (Evans 2012), illuminated by an historically informed understanding of how processes of social “shaping” take place over time. The implications for vocational learning and vocational pedagogy of an appreciation of social shaping are revisited, updated, and reframed for contemporary times by

Heidegger and Petersen (2018). Challenges to economic and technological determinism have, since the 1980s, emphasized the scope for shaping not just the uses of new technologies but also their development and implementation. While the effects of technological advances are frequently presented as inevitable consequences, Heidegger and Petersen show how analyses based on the unfolding of technology miss the significance of cultural factors. Analyses of the shaping of work and technology have shown how the “social sites of shaping technology” (Rauner et al. 1988) range from the workplace through the individual lifeworld up to the sites for scientific knowledge production, political interest groups, and the state. Mutual learning is important for social shaping of work, working organization, and also technology, for reasonable compromises to be achieved. The argument is that vocational education and training (VET) should open up spaces for such procedures and processes. The development of educated attributes is essential to this argument. For Heidegger and Petersen (2018), this entails personality development and the continuing development of participatory capabilities in adult life; for DeJaeghere (2018), it entails the development of critical capabilities necessary for sustainable livelihoods and well-being.

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## Vocational Learning Through the Life Course

Fresh perspectives move beyond preoccupations with initial VET and young people’s transitions to keep in view the system-world, the lifeworld, and the multiple forms of learning that reflexively shape occupational and personal development biographies. These forms extend from pre-VET to post-initial VET to continuing professional development, workplace learning, and vocational learning in later adult life.

Most research on learning in and for VET has concentrated on young people and initial VET, but increasingly, in aging societies where the duration of working life is extending, older workers are coming into view. Little is known about their vocational learning and what motivates them to continue learning in and through work. Migliore (2018) focuses her attention on vocational learning in later life, in considering older workers and ways in which motivation to learn is conceptualized in different disciplinary perspectives and schools of thought. She develops the idea that motivation to learn emerges in the relationship between work and the engagement that the older workers develop with their work. Aging is understood as coevolution between experiences and self which occurs through involvement and participation in activities, including the activities of an extended working life. This approach has salience throughout the life course and for the development of more critical perspectives on lifelong learning. For Kersh and Huegler (2018), links between lifelong learning and VET are significant for rethinking how young adults can be supported in realizing better opportunities. They explore how different discourses of LLL and adult education can influence strategies and approaches for young people positioned as vulnerable in the contexts of labor market and societal changes, as governments strive to prevent groups from becoming socially and economically detached in

market economies by maximizing involvement in the labor force throughout the life course. Kersh and Huegler emphasize that engaging vulnerable young adults in VET alone is insufficient to facilitate their social inclusion. Approaches to vocational learning that embrace a holistic lifelong learning perspective and address the pertinence of factors such as race, gender, and disability in life course development have a greater potential to impact on longer-term economic and social participation.

Contributions to debates about what vocational learning means in the contexts of societal shifts and changing labor market dynamics are instructive in revealing emergent priorities in societies that are working strategically to reshape their systems. For example, Dobrydina et al. (2018) take up the theme of the importance of educated attributes in the context of informatization of society in Russia, emphasizing the ability to act independently in a highly automated information society. Li and Yuan (2018) also focus on the intersections of the ideas of lifelong learning with VET which are central to China's stated strategic intentions to make education more diversified, flexible, and open. This modernization process involves promotion of coordinated development and the achievement of cohesion through communication and correspondences between "all kinds of educations at all levels." For China, creating an "overpass" for talent cultivation is a key aim in development of vocational learning within an enhanced VET system, sharing with Western counterparts a policy objective of increasing the attractiveness of vocational education and training but finding different means for influencing public perceptions of the status of VET and a positive societal image of its participants and their capabilities (Nokelainen et al. 2018).

The development of educated attributes through vocational learning increasingly embraces the concept of creativity development. Barabasch (2018) connects the innovation processes that are essential for companies' survival under conditions of global competition with the need for greater emphasis on creativity development in the workforce. Exploring what it means to support creativity development through vocational education and the workplace, Barabasch proposes adjustments that can be made to pedagogical practices to incorporate creativity support and assessment, showing how, for example, art as a stimulator in creativity development can be integrated into vocational learning processes. Significantly, these types of approaches to creativity development within the field of VET are shown to require deep domain-specific knowledge.

Fresh perspectives entail a recognition that the vocational learning that takes place through the vocational classroom, the workplace, or practice setting is driven not only by specific skills or competence requirements but also by workers striving to become knowledgeable about what they do, through activities, performing roles, and engaging in social practices. These processes are central to the longer-term development of professional identities. They take place partly within VET programs and continue after program completion, as the graduates take up positions that enable or require further workplace-based learning.

All transitions in working life involve substantial new vocational learning. In some cases, the transition is itself structured by the employer or profession, for example, firm-based "training contracts" offer periods of recognized practice-based

training; preceptorships structure the post-qualification stages of development for some public service professionals; and in commercial firms, various forms of internship or graduate training schemes often fulfill this function. How vocational learning is experienced in these transitions derives in large part from the process of negotiation of fields of practice, as different forms of knowledge developed within and beyond the initial vocational program are put to work in new and changing contexts. Vocational learning continues post-qualification as new entrants become more deeply involved in workplace practices and experience working in teams and across boundaries within the social relations of the workplace. These ideas have themselves developed in the context of research which has yielded fresh ways of thinking about the ways in which different forms of knowledge are put to work, offering new insights into how both VET students and newly qualified workers can be supported in their development as knowledgeable practitioners (Evans 2015, 2017).

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## Developing Knowledgeable and Creative Practitioners

Fresh perspectives that include *how* people become knowledgeable and develop creative capabilities require new conceptualizations of the relationship between vocational knowledge and practice. Hordern (2018) argues that greater attention needs to be paid to the differentiation between specialized and nonspecialized aspects of vocational knowledge. Hordern explores how vocational practice can be understood in terms of the specialization of underpinning knowledge and the extent to which that knowledge is made explicit in workplace curricula. A contrasting but complementary approach to knowledge recontextualization in students' vocational learning by Gustavsson and Persson-Thunqvist (2018) focuses attention on the enabling conditions for putting knowledge to work, contributing deeper insights into the school-related and workplace-related conditions that enable students' vocational learning during workplace-based learning within vocational education. The discussion of the nature of full participation in occupational practices and the potential for learning from all aspects of workplace activity connects in new ways to the shaping principle. Arguments for opening up of the spaces of vocational learning to enable participants to realize the possibilities of full participation are further supported by Zepke (2018) in a new analysis of how peer-facilitated learning and active citizenship processes are shown to support TVET learners' success. Furthermore, the concept of "capabilities" is increasingly adopted and critically developed by researchers and developers to highlight the potential for VET to promote participatory practices and future-oriented perspectives in an array of contexts, a tendency illustrated by DeJaeghere 2018 in her postcolonial exposition of the significance of critical capabilities in entrepreneurship education in South Africa.

These perspectives raise fundamental further questions about the role of vocational teachers, and their vocational learning. Loo (2018) offers a theoretical framework for understanding the micro-workings of vocational practitioners, a wider perspective of knowledge, and the use of examples of vocational areas to illustrate the practitioners' activities. For vocational teachers, their pedagogic training should

include an understanding of the relevant recontextualization processes and an appreciation of what constitutes “knowledgeable practice” and “practice architectures” both in their vocational field and in the teaching dimension of their occupational profile. They also need to keep in view changing demands on occupational know-how in continuously developing their roles.

One example of contemporary significance is offered by Teräs (2018), who identifies the importance for teachers of developing their transcultural competences in working with students with different linguistic and cultural backgrounds. Broad’s (2018) analysis also takes further our understanding of how vocational teachers develop as knowledgeable practitioners. The pedagogical approaches used by vocational teachers to capture new techniques, technology, and knowledge are developed through shared practice in workplaces. This is an example of the socially situated knowledge that, according to Heidegger and Petersen (2018), all workers should appreciate is theirs to use in shaping how things are done. Broad (2018) argues that this is both a challenging and a problematic endeavor as teachers are situated in contexts removed from where vocational knowledge is developed. In addition, the nature of vocational knowledge itself requires continuous recontextualization of new techniques and innovations from workplaces to teaching environments. Vocational teachers overcome these challenges by utilizing professional development activities to capture new techniques, technologies, and knowledge. How they self-determine and self-regulate the activities they engage with (Panadero et al. 2018) resonates again with the experiences of their students and with the independence of thought combined with mutual learning advocated by the shaping approaches introduced earlier.

Changing conceptions of vocational learning thus challenge the ways in which the development of vocational teachers is approached. They also pose significant challenges to systems as well as practices.

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## **Rethinking Vocational Learning Priorities in Contexts of Systemic Change**

Vocational learning is embedded in national systems, and most is known, at an international level, about the German system of initial VET. The English language research literature tends to be dominated by discussions of various manifestations of the dual system together with variants and alternatives in countries such as the Netherlands, Denmark, Sweden, Switzerland, and the UK. Examples both from within and beyond Europe often focus on the demands that the dual system makes on infrastructure (Maurer 2018) and, crucially, the preparation and training of suitably qualified teachers. The latter challenge is exemplified by Wiemann’s (2018) account of the demand for methodologically and technically well-qualified trainers to improve in-company training in Mexico. At the same time, German perspectives on the structures that are needed to support vocational learning are opening up in new ways, particularly at advanced levels.

Authors who are able to discuss, from direct experience, the ways in which vocational learning is being reformulated in systems that are undergoing



transformations or whose operation is based on paradigmatic differences can offer fresh insights. Characterizing the dynamics of developments in Eastern Europe has been described by Védier (2018) as a particular challenge for comparativists, as analyses move away from the convergence/divergence continuum toward recognition of the hybrid nature of reforms in post-communist scenarios. Laczik and Farkas (2018) writing about developments in Hungary show how attempts to replicate aspects of the German dual system are playing out under resurgent centralizing tendencies in this post-communist society, creating challenges for young people faced with new pathways for vocational learning and realization of their goals. The German model has strongly influenced Hungarian policies, but in a way that has to be understood in terms of the historical tendencies of an early return to a more democratic and liberal system in the post-communist transition period, reliant upon broad-based education, later overtaken by a privileging of the position and demands of economic players in VET. Employers are key players in VET and these players are assigned considerable responsibilities. It is yet to be seen whether they can fulfill expectations and make VET a more viable and hence popular option for young people.

Innovation and digitization pose the challenging question of how education and training professionals can keep abreast of the skills and areas of expertise that are required to develop new kinds of professionals; indeed the whole question of how these new professions should be constituted and regulated is open for debate. The information society, in the Russian context, is fueling demands for a refocusing of the whole system of education and vocational training, led by the adoption of an approach centered on new standards and qualifications (Dobrydina et al. 2018). Vocational learning in this setting is regenerated in the creation of VET working plans and work programs based on new technologies of education. The informatization of the society can be viewed as one of the shaping influences in Russia as it interacts with the education system in its role to equip students with the key competencies of future specialists. This condition is recognized as “informatization of education,” with modern information and communication technologies seen as both a goal and a facilitator of vocational learning in VET, opening up new learning opportunities and contributing to the development of future-oriented capabilities. Information communication and technology (ICT) is also a critical component in technical and vocational education and training (TVET) in India, potentially enabling improvements in inclusivity and quality, as well as standardized skill development according to Balakrishnan et al. (2018). The extent to which skill development in India takes place beyond formal contexts, in non-formal, open, and distance learning settings, places ICT at the heart of reforms to TVET delivery practices.

The expansion of higher vocational education is becoming a global phenomenon, as a concomitant of efforts to increase the attractiveness of VET and to raise its status in the eyes of users and the wider public. These developments have to be understood in context. The interaction between higher education and vocational education, with the aim of promoting higher vocational learning, is a theme for major economies across both Europe and Asia, from Germany to China. In Germany, vocational education and training already has a relatively high status. Tertiary expansion in

Germany is challenging the system with questions of how “permeable” pathways to work can become. As Schröder and Dehnbostel (2018) argue, shifts in workplace learning as well as additional demographic, labor market, and higher education policy developments have led to the adoption of two nationally recognized pathways toward permeability between vocational and tertiary education. One solution for the enhancement of vocational learning is to acknowledge and award competence-based vocational education based on educational standards. This approach connects with developments in countries engaged in more fundamental restructuring of their systems, such as the Russian Federation, as new professions demand new standards and VET content. For China, Li and Yuan (2018) also highlight the priority of expansion of vocational learning at the higher, tertiary level and the search for permeability in the operation of their systems, emphasizing the distinctive characteristics of the Chinese mode while exploring what can be learned from the international scene.

The implementation of new vocational programs, particularly at the post-secondary level, is dominated by considerations of the organizational arrangements for work-based elements. Technical issues that accompany credit and quality assurance frameworks are intertwined with continuing debates about the scope, nature, and assessment of learning outcomes (Coates 2018). Higher vocational programs that incorporate substantial elements of work-based learning bring disciplinary, work-based, and practice-based knowledge together in ways that present curriculum and pedagogic challenges for lecturers and workplace mentors. As Loo (2018) and Hordern (2018) both reflect in different ways, discipline-based knowledge has a different logic from practice-based and work-based knowledge. The former develops through codified rules that can be used to select and combine theories and concepts into modules. In contrast, practice-based learning involves a good deal of procedural knowledge, some highly codified according to rules and systems (e.g., legal) others less codified, and work-based learning involves getting to grips with forms of work process knowledge. In the case of discipline-based knowledge, learners have been expected to “apply” it to practice. In the case of work-based knowledge, learners are often assessed in accordance with competence-based criteria (that are themselves heavily contested) as program designers struggle to articulate the relationship between discipline-based, practice-based, and work-based knowledge. Participants in vocational learning often take a considerable time on graduation to think and feel their ways into using their knowledge at work.

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## Opening Up the Social Spaces for Vocational Learning

The turn to learning, in addressing these problems, does not equate to preeminence of the individualism of “learnerism.” The turn to learning has been accompanied by greater recognition of the role that spatial analysis can play in understanding the scope and dimensions of education (Brooks et al. 2012). There is a variety of ways in which spaces for decision-making about VET and for new forms of vocational learning can be opened up. Firstly, the learning space can be perceived as a physical space where learning is taking place such as a classroom or any other form of

teaching space. Secondly, the learning space can refer to a space where learning occurs as participants learn from each other's activities and experiences and from the work process itself. Workplace spaces have strong significance for vocational learning, at the points where the two human processes of learning and working intersect, with a blurring of the boundaries between the two. Thirdly, the expansion of digital technologies has resulted in the development and growth of virtual learning spaces that ultimately change the boundaries of learning spaces making them more flexible and mobile. Finally, the learning space can be perceived as a combination or overlap of a range of components, such as physical space, learning contexts and environments, formal/informal learning, and virtual learning. All of these spaces are subject to the political, regulatory, and cultural frameworks that are key elements of the social shaping processes that have to be kept in view. More generally, contemporary economic, political, and educational developments are associated with a blurring of the boundaries between the spaces in which learning, work, and leisure occur.

It is possible to identify four types of learning space that are highly relevant to vocational learning. The learner's immediate setting, such as a course or classroom or workplace, can be interpreted as a microsystem, building upon Bronfenbrenner's ecological models (2005). Other concurrent contexts in a person's life such as parallel courses, family, and arenas in which learners interact with other peers and professionals who crucially affect the learners' personal worlds (Hodgson and Spours 2009) are considered to be part of the mesosystem. The exosystem refers to the formal and informal social structures that influence the learner's immediate environment, for example, institutional policies and procedures, the regulatory environment, and work cultures. Finally, the macrosystem relates to the overarching institutional, economic, and political structures and also cultural values, such as those privileging or affording higher status to abstract knowledge over practical knowledge, which influence actions in the person's immediate microsystem and mesosystem.

In line with shaping principles, Heidegger and Petersen (2018) argue that contestation occurs in each of these systems and creates spaces for thinking about which things can be done differently. At all levels of the workforce, people interested in shaping their work practices, environments, and life experiences need to understand the ways in which their knowledge is socially shared so that they can make use of it in shaping processes. This is a challenge for vocational learning that applies equally for vocational teachers.

The analysis by Broad (2018) represents the voice of vocational teachers, showing how some activities are perceived by teachers to be valuable and why some hold little value, according to the relational value of the activities engaged with and how relevant they are to the day-to-day practices of the individual teacher. The hidden nature of the pedagogy that teachers use is also illuminated, showing how teacher agency, relational networks, and hidden pedagogical practices are important determinants of space for vocational learning. Furthermore, Teräs's exploration (2018) of intercultural spaces in the cultural diversities of VET demonstrates the significance of a relational approach that recognizes leaving one cultural environment and moving into another as a cultural learning process. This learning process involves

transition and transformation both on the individual and collective levels. For both teachers and learners, intercultural experiences have to extend into the building of authentic relationships with people of different backgrounds. Intercultural learning processes take time and require supportive spaces for learning in which individuals and communities can enact new knowledge, skills, and competences.

The collective and social dimensions of work-related and vocational learning have important resonances for social shaping, opening up new perspectives on motivations to learn. Enlarging the view of motivational factors to include activities and their strategies leads to consideration of vocational learning as a collective and social issue and an issue that is actively connected to needs for new business models. Migliore (2018), for example, argues that older workers' conceptions of working and learning depend on the development of the professional activities in which they are and were involved, and she considers whether and how the activities succeed in getting older workers engaged. In this analysis, working activities offer workers the meanings and senses either to feel engaged or resistant to getting involved.

Four themes of significance in vocational learning have recurred in this consideration of fresh perspectives: fostering of educated attributes, throughout the life course; establishing polyvalent or permeable institutional pathways for vocational learning and achievement, in sustainable ways; developing knowledgeable practitioners; and recognizing, opening up, and connecting learning-conducive working spaces. The fresh insights into enduring themes in vocational learning have all been elaborated or supported to some degree by new empirical encounters in a diverse array of contexts. Most of these empirical encounters rely partially or wholly on qualitative data that are subject to interpretations in relation to the salient bodies of knowledge introduced by the authors. The methodological perspectives offered by Guenther and Falk (2018) provide an important stimulus to research in recognizing the often understated strengths of qualitative research in building, iteratively and incrementally, some "normative truths" about vocational learning while at the same time continuously recontextualizing and revising provisional principles in the shifts and turns of diverse cultures, new policy directions, and changing practice environments.

Fresh perspectives continuously offer views that challenge some of the dominant conceptions and assumptions of mainstream discourse on vocational learning. Other perspectives coexist and have renewed power to explain and persuade. The challenge for educators is to know where they stand in the debates introduced by the authors and how to engage in dialogic approaches while keeping the integrity of the frameworks within they are operating.

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# Shaping Occupational Biography and Working Conditions: A Pedagogical Principle in Different VET Systems

# 49

Gerald Heidegger and Wiebke Petersen

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## Abstract

The “shaping principle” in VET – in contrast to the still widespread “adaptation approach” – strengthens the education dimension, in the sense of fostering personality development, within VET and work processes. Instead of only

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following the rules, the issue is to “shape” them by participating in decisions about how things could, should, and will be done. Historically, the shaping principle originated in the context of endeavors toward humanization of work during the 1970s, mainly in countries with a strong tradition of workers’ participation. A new idea for “Bildung” arose within VET, related to organization and content of work and later also toward social shaping of technology, that is shaping – by the skilled workers – not only the application or use but also the implementation and even the development of technology. The issue of shaping workers’ own occupational biography subsequently came into the focus, where supporting people in decisions regarding their occupational biography is the task of processes of vocational orientation. This applies both for young people in the context of VET and for adults. The chapter adopts a perspective of international comparison, in this case a European perspective. The dependency of possibilities and opportunities for shaping in “systems of gainful employment/occupation” is described, with reference to five systems, moreover orientations of VET, and the factors promoting and hindering shaping. Accordingly, weak VET structures and strong educational orientations of VET promote shaping the own occupational biography. Weak formal rights of participation hinder shaping working conditions and work, whereas the neo-corporatist system promotes it particularly well.

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**Keywords**

Shaping principle · International comparison · Systems of gainful employment/occupation · Occupational biography · Working conditions · VET and codetermination · Humanization of work

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**Introduction**

The title “Shaping the own occupational biography and working conditions” already refers implicitly to a principle that is in fact immanent to “vocational education and training” (VET) because this concept itself is related to two terms that can be seen to be in dialectical opposition to each other: education and training. In an exigent definition, education aims not only at subject knowledge but through and beyond that at fostering the development of personality in a comprehensive sense. This is expressed in a pronounced way through the German concept “Bildung.” On the other hand, training is often understood as preparation for rather simple jobs where one has to follow the rule without much understanding. In fact, however, these two factors are not only in (partial) opposition, but they also presuppose each other. For education and, for that matter, Bildung are, in the long run, not really meaningful without “competences to act” which are at least to a considerable part gained through vocational training. Similarly, training, even for simple jobs, must always contain knowledge and, beyond that, more or less also abilities founded in successful personality development which are, again partly, gained through vocational education. In this way a dialectical opposition can be stated (Heidegger 2005).



Although the concept of VET comprises always both aspects, education and training, this combination can differ in various countries or VET cultures. This is explained and elucidated by the theory of the “system of gainful employment/occupation” which, as described below, implies the subsystems employment, work organization, VET, and social welfare regime (Petersen 2013, 2016).

The interlocking of training and education can be strengthened by intensifying the aspect of education within the training itself through fostering the self-reliance at the workplace by stimulating independent thinking (Heidegger 1991). That is, the center the focus is no longer only on following the rules but rather to “shape” them partly independently, that is to participate in decisions about how things could, should, and will be done. This is called the “shaping principle” in VET. It is in contrast to the “adaptation approach” to VET where one tries to enable people to adapt as well as possible to predetermined demands. Shaping can be directed, as said in the heading, toward the own occupational biography and the working conditions and work. The English expression “shaping” was created for use in this context (typical: MacKenzie and Wajcman 1985) in parallel to the German term “Gestaltung” that gained particular influence because of the tradition of social partnership in Germany. A similar meaning has the term “participatory design” which, however, is used more for shaping of technology and less for shaping of social items.

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## Foundations of the Shaping Approach: Historical Roots

For the field relevant for VET, the concept “shaping” appeared explicitly and saliently in connection to efforts toward humanization of work, starting in the 1970s. This endeavor was (and still is) particularly prominent in countries with a strong tradition of workers’ participation leading partly to co-management or formal codetermination, examples being the Nordic countries, the Netherlands, Switzerland, Austria, and Germany. But in parallel to activities within the framework of the social partnership, critical elucidation (“Aufklärung”) of the workers was foregrounded in the labor movement, particularly in the context of union-provided further education for workers, where materials were used which had been informed by the influential book *Sociological imagination and exemplary learning* (translation by the authors, Negt 1968, 1997, 2016). That work, however, in its title already prefigures important aspects of orienting oneself toward shaping. Imagination is important for conceiving alternatives to the prevalent circumstances in company and society. For that “sociological” (critical) understandings of societal influences are necessary which are frequently overlooked in the concrete reality of work and which manifest themselves often in questions of power. Finally exemplary learning should help to go beyond abstract analyses and to contrive change that can be really attained. In Germany, the “Works (Council) Constitution Act” (official translation) from 1972 obligated the management to “shape” the working conditions according to trusted ergonomic findings which lead to corresponding research (Pöhler 1979) and to the action program “Research for Humanization of Work Life” (translation by the authors, Oehlke 2001, p. 81), sponsored by the State.

This research should combine the conventional top-down approach with participatory research which particularly asked for the necessary shaping qualifications of workers in order to support – partly collective – (co-)shaping (“Mitgestaltung,” Fricke et al. 1982). In their expert opinion “Work and Technology as a Task of Political Shaping” (translation by the authors, Fricke et al. 1985), the political dimension was accentuated, and it was emphasized that content and organization of work are connected to technology – particularly in the industry for tangible goods but more and more also in activity fields of businessmen/women and even nowadays in the supply of personal services.

During the 1980s, the shaping approach became important for the field of vocational pedagogy and was introduced in the area of VET research notably by Rauner (1986, 1988) – see also Heidegger (1978) who proposed for education in science and technology an orientation toward “Kompetenzen zu verändernder Praxis” (competences for activities for change).

The new “Idea for Bildung” was to mean an orientation toward “inspiring capability/competence for shaping work and technology.” Shaping orientation as an interdisciplinary approach for research became important also in fields like planning/design of VET, vocational didactics and “Shaping the own occupational biography” (Hendrich 2002, p. 92 ff.; Kaufhold 2009).

These activities were in the first instance related to organization and content of work and particularly VET for shaping these items. But they were also already oriented toward social shaping of technology – or shaping of technology compatible with social demands.

In this context, the statement of Rosenbrock (1984) “Developing Technology – Shaping is Possible” (translation by the authors) became important. On the basis of case studies, he provided evidence that already in the past there were situations of branching of the technological development where it would have been possible to exert influence toward social shaping of technology and with that to humanization of work life (Kuby 1980; Noble 1979).

Appropriately later the R&D program “Innovative Shaping of Work – Future of Work” (Oehlke 2001, translation by the authors), funded by the State, has been implemented.

Regarding technology, until the 1980s, the dominant view was that the effects of technological change must be seen as a consequence of economic and technological determinism. Now however more attention was paid to the possibilities of shaping not only the application or use but also the implementation and even the development of technology (Rauner 1986; Fischer 2001, p. 46 ff).

In particular the influence of cultural factors was discovered (Gerds 1988). Research about shaping of work and technology – notably by the skilled workers – was expanded beyond the direct reference to the workplace. Rauner (1986, p. 137 ff.) developed a matrix of “Fields of Shaping Technology” where “sectors of technology and their applications” are intersected with “social sites of shaping technology” (translation by the authors). The latter range from the workplace through the individual lifeworld up to sciences, political interest groups, and the State.

At every site, the individual person adopts a special perspective where these perspectives can be inconsistent with one another for the single individual as well as for social groups. In this way, it becomes necessary to instigate comprehensive procedures of mutual understanding – such as those analyzed by Habermas (1981) in the book *The Theory of Communicative Action* (usual translation) – for social shaping of work, working organization, and also technology that can lead to a reasonable compromise. The argument is that VET should open up spaces for such procedures and processes.

A decisive role played also the debate about ecology and preserving the environment whose influence had strongly risen. A functionally informed dialogue of ordinary laypersons about technological development was demanded (Senghaas-Knobloch 2001, p. 75). Debates on the “Ethics of technology” (Zimmerli 1998) gained particular significance (Grundwald 2013) and have special salience today for developments such as climate change and digitalization, which demand nowadays determined shaping activities, on all levels, workplace, company, and society.

The approach toward shaping of work and technology – or of its participatory design – was (and is) connected to international discussions and intentions prominently represented by Mackenzie and Wajcman (1985), Cooley (1987), and Rauner et al. (1988). Especially the international comparisons of “industrial cultures” showed different conditions for shaping (Ruth 1995).

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## Shaping the Own Occupational Biography

This is, on the one hand, based on interests and competences; on the other hand it must be seen in relation to labor market opportunities.

The influence on the occupational biography refers to the path which is taken after middle school, at the instant when it is no longer mainly controlled by parents and school teachers within the specific societal conditions. The question has to be answered which occupation/vocation one would aim at and the level on which one would like to pursue these plans. On this it is dependent which branch of the school system one would and should – if possible – continue the studies or if one would enter an apprenticeship or go directly to work in gainful employment. To support people in these decisions is the task of processes of vocational orientation, which is implemented, dependent on the VET and school culture, in various institutional settings, in general or vocational school, employment agency or labor office, or other institutions.

But nowadays the idea of lifelong learning has gained strength which means that in principle vocational orientation has become important for the whole life course. That is, later, after having entered the adult workforce, the issue is still to choose between different options, like going to a different workstation or to strive for promotion and to relate that to individual interests in private life, that is to define the respective form of work-life balance for oneself. Other possibilities to be considered are going back to formal VET (see the respective issue of the journal IJRVET 2017) or to supplement it through studies in higher education, maybe even

in a new field, taking for that possibly a sabbatical or staying (maybe part time) at home for possibly a longer period, for work and life in the family.

This decision-making process is influenced by many factors based on personal experiences in work environments, family life, and leisure time. Certainly there is often guidance by labor market agencies and other institutions in place and also usually informal counseling by friends and relatives. To prepare young people for these decisions in VET, innovative pedagogical and didactic models are still to be developed. Here in particular approaches from the area of social pedagogy are relevant.

Up until now, the decision-making process is frequently still rather accidental; it lacks more in-depth information. On the one hand, this refers to information on future job opportunities where the role of relevant guidance institutions should be strengthened. On the other hand, the individual should be supported in appreciating his or her experiences, skills, and motivations more clearly. For this, a more systematic manner of recognizing these factors could and should be employed particularly (but not solely) for adults that is called “validation of non-formal and informal learning” (“ValNIL”) and which has become one out of four priorities of the VET policies of the European Union. Besides that, ValNIL can support not only a more distinct identification of aspirations but also of the self-efficacy beliefs which may hinder somebody to aspire to further steps in one’s career.

In this way the labor agencies, which often are responsible for that, become additionally relevant for vocational orientation although their activities are rather disparate in the different European countries. The provision of “ValNIL” shows different forms in various European countries which have been investigated by Petersen (2016, p. 101 et seq.). In any case to promote shaping, the own occupational biography means to explicitly support people in recognizing the various possibilities and opportunities and to relate them to their experiences, abilities, aspirations, and dreams.

However shaping one’s own occupational biography is not self-sufficient but dependent on exterior conditions and caught in a crossfire of influences. The very important dependency on school success itself contingent upon societal factors like income or sociocultural traditions of the family that cannot be influenced directly by the individual was already mentioned. Furthermore, the opportunities for gainful employment depend heavily on the national and regional conditions of the economy. Here differences in the amount of unemployment are of utmost importance, but also qualitative factors like the distribution of the various sectors of the economy are obviously also significant for the chances to enter a vocation/occupation one aspires at. Factors promoting shaping like cultural acceptance for change of company and change of branch of trade, soft VET structures, VET taking into account educational potentials, are also highly important.

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## **Shaping Working Conditions and Work**

Historically, shaping working conditions and work was the origin of developing the shaping approach, being in contrast to adaptation to the demands of a given task within the scope of a given job. These demands can be rather challenging, and

therefore the competences necessary for adaptation can be sometimes quite exigent. The difference to the shaping competences – although only gradual – consists in an explicit emphasis on autonomous thinking, planning, and evaluating. And the content of “VET for shaping” puts the possibility and necessity of designing something new in the foreground. It presents explicitly different solutions for a problem that often has to be discovered as such for a start and for which then decisions have to be made which one might be the best fitting – or to detect possible new solutions. This means that before or at least in parallel to the shaping activities – through thinking and doing – a critical evaluation of the situation (see Negt 1968 above) which the shaping is aimed at is necessary. This critique is in turn dependent on shaping ideas if it should not stay in pure negativity.

During the 1980s of the last century, the idea of shaping was developed notably by German and British scientists who sought close connections to workers in industry, particularly to the shop stewards or “Vertrauensleute” and their representatives in the shop stewards committee or “Betriebsrat” who had already commenced shaping activities. These workers’ representatives stayed the decisive people for any shaping activities also later. Influential were the scientists Mike Cooley (1987) and Engeström (1987) with his emphasis on reformulation and renewal of knowledge and competences. Furthermore in the German metal workers’ trade union in the course of computerization, a fear arose that the qualification requirements would be diminished through transfer of planning activities to the work preparation department for writing the adequate program which the skilled workers had only to see to let the machine tool execute it, resulting in a deskilling and downgrading of jobs. This leads to a movement for “human centred CIM systems” (Rauner et al. 1988). These ideas are very relevant nowadays in view of the next wave of computerization or digitalization like in Germany the tripartite (employers, unions, State) initiative “industry 4.0” (Plattform Industrie 4.0 2015) and the concomitant initiative “Berufsbildung (VET) 4.0” (BMBF, BIBB 2018).

Shaping can be stimulated by societal, (work) group, and individual interests. Criteria for a “felicitous” solution are often thought to be:

- Useful for the relevant group: colleagues, employees, but also personal groups like family
- Useful for society
- Under artistic aspects: creative power

In the context of the UNESCO Global Action Program “Education for Sustainable Development” for the German branch, a “concept of competence for shaping” (Programm Transfer 21 2008, 2018), useful or even necessary for shaping also at the workplace, was developed, encompassing competences like to be able to:

- Build new cosmopolitan and interdisciplinary perspectives
- Be forward-looking
- Recognize and ponder risks and dangers
- Autonomously as well as collectively plan, decide, and take action
- Consider conflicts of aims

- Reflect about one's own guiding principles and those of others
- Use ideas about (social) justice for deciding about activities  
(Abbreviated and translated by the authors)

Shaping working conditions and work may well often start with the simplest although still very important issues: physical working conditions like coldness or heat in the factory, also sound office furniture, things that are often dealt with by work councils or shop stewards.

Then the work organization is at issue, including shaping the diversity at the workplace. Traditionally, planning the work organization is the task of the work preparation department or of the supervisor in the respective department. Of course, already since about 30 years, a discussion about participative operations or production scheduling is under way and certainly some change has happened, trying to implement worker participation, also via involvement of workers' representatives. The degree of implementation varies from branch of trade or industry sector to another and – particularly important for the theme of this chapter – from country to country or production culture to another (Ruth 1995).

The task of initial VET (IVET) and continuing or further VET (CVET) is then to encourage young and older people – to develop the competences useful for participating in these endeavors of planning and redesigning the work organization regarding the own workplace. This represents the shaping approach with respect to work organization. It appears that VET courses that contain “alternance” (Lattard 1999) between workplace and vocational school or college should be particularly appropriate for putting the shaping approach into effect because a close connection to practice is favorable.

Shaping (the own) work can also aim at the content of the work, that is, the concrete tasks and the work processes. This in turn encompasses different forms of concrete work as well as taking part in shaping the production technology, particularly participating in redesigning of human-machine interfaces like shop-floor programming of digitally programmed machine tools. Obviously it is difficult to implement worker participation in this field because it means real power sharing between management and workforce. But also the actual abilities of the workers are sometimes not sufficient. Participating in shaping presupposes shaping competences that represent a task for VET.

The main area where these shaping processes are relevant is the development of production technology, presenting new knowledge and skill requirements that should not be taken for granted but should be seen as a challenge for shaping. Shaping the work could or even should also encompass the results, the products. Here too shaping can happen primarily via the influence of the trade unions and the workers' councils. Therefore the neo-corporatist (cf. Lehmbruch 1982) system of gainful employment/occupation again is particularly well suited for supporting these shaping processes because it is characterized through cooperation of representatives of employers and employees.

## Shaping as a Pedagogical Principle in VET

Shaping is predominantly based on the interests of people in improving their living conditions, particularly at the workplace which is of special interest for VET, but also in all aspects of life: personal and family life and life in the (also wider) community.

However, often these interests are not clearly formulated. Rather people have to become aware of these interests more and more, a process in which they should be supported and encouraged – for the sphere of work the appropriate place is VET, IVET, and also CVET including ValNIL.

CVET which is important for shaping at the workplace can be carried through by interested people either in parallel to gainful employment or while taking a sabbatical leave, sometimes supported by the employer, sometimes by the labour agency, but often self-supported – where differences exist internationally. An important aim in the course of shaping activities is that the employers should provide adequate time for further studies.

The required competences for shaping can be attained through formal learning (VET), “nonformal” learning (often CVET), and – particularly important – through informal learning that can eventually lead to “ValNIL,” first of all in its first two modes, that is emotional esteem and social appreciation (Petersen 2016, pp. 136–148).

The term “nonformal learning,” especially according to Björnåvold (2000), designates self-controlled learning processes within the framework of formal learning structures, that is learning in the process of working, specifically during VET courses realizing alternance, carried through nowadays – although often not as a rule – in many European countries.

Informal learning for shaping happens mostly accidentally – by chance – and incidentally – according to the opportunities given at a time. In this context, one should realize that there exist three perspectives on learning, in addition to the one related to instruction theory, that are particularly significant for learning for shaping:

- Perspective of (pragmatic) learning by doing (“knowing-in-action”) (Schön 1983; Nielsen and Tanggaard-Pedersen 2011, p. 569)
- Perspective of learning as a social process (especially according to Lave and Wenger 1991)
- The constructivist perspective (from Piaget (1976) onward until today)

Informal learning relates predominantly to forms of knowledge which are different from universal, logically structured knowledge which is the basis of formal learning. Rather learning from experience is at stake which is founded in actions and which cannot, to a great part, be described exactly (cf. Dreyfus and Dreyfus 1987; Neuweg 1999; Schön 1983). This “knowing-in-action” is related to “bodily knowing” (Nielsen and Tanggaard-Pedersen 2011, p. 568) and “tacit knowledge” and “tacit knowing” (loc. cit. p. 568, cf. Polanyi 1966; Eraut 2000). For learning in



an apprenticeship or in other forms of alternance, it is considered to be highly relevant.

It is typical for informal learning for shaping to take place in working groups, analyzed by Lave and Wenger (loc. cit.) as “communities of practice” with the main aspects – in addition to the important “doing” – of learning, meaning, and identity, which are supposed to be present everywhere in working life as well as, although in different form, in family life and also often in leisure activities. To take part in such a community means, however, more than just working together, at the workplace mostly under the supervision of a superior. The conceptions “situated learning” and “legitimate peripheral participation” should be deemed central elements of the idea of learning as a social process (Lave and Wenger 1991), notably for shaping. It means, put in a slightly simplified version, that working and, particularly by that, learning for shaping is situated in the specific circumstances and not of a general nature.

It denotes that one moves in the community from the periphery to the center, so that one gets more influence (competence meaning responsibility) on how to fulfill the tasks and communicate about it and about the tasks themselves and to participate in shaping the co-operation and the tasks and also to motivate others to join in.

All learning is according to Piaget (1976) a combination of assimilation and accommodation. In this process not only plays the influence of the outer world a decisive part but even more so the *construction* of new cognitive schemes. This constructing activity of learning is usually not adequately taken into account and may lead to a higher appreciation of informal learning, as proposed by Björnåvold (2000, p. 24).

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## **“System of Gainful Employment/Occupation” as an Analytical Instrument**

### **General Approach**

The starting point of the international comparison of the preconditions for carrying through shaping activities is the observation that in the European Union the VET systems are disparate (Fischer et al. 2004) and that nearly no processes of harmonization are to be observed. In contrast to the developments in Higher Education, the “Copenhagen Declaration” on VET (Eqavet 2018) formulates only a closer cooperation between the countries as the aim of European VET policies (cf. Refernet Germany 2015), although via the European Qualifications Framework (EQF) and the approach toward the European Credit System for Vocational Education and Training (ECVET) there exist at least impulses toward the comparability of learning outcomes and their certification.

For the systematic European comparison, the so-called regulative principles are defined, which are related to the societal field/system of gainful employment/occupation and represent the thesis that the working and living situation in a respective country is determined by fundamental principles (Petersen 2016,



p. 181). They have developed in history and frame the structures in the different subsystems or “societal fields” (Bourdieu 1987). One should note that some authors (Heikkinen 2004, p. 35) doubt whether such comparisons are possible and meaningful. The reason is that these comparisons are thought to hold an oversimplification of the situation in a concrete country and don’t respect the history of events in an adequate manner.

In addition, one should recall the opposition of “system” and “life world” (Habermas 1981). The societal regulative principles for the employment/occupational system incorporate the life world only marginally. The relative independent interactions of cultural preconditions with the determinants of a system are represented in explicit fashion merely to some extent which means that characteristics of a society to be described in terms of social psychology are not the focus.

The theoretical model developed for the transnational comparison is based on an analysis of phenomena called “Erwerbstätigkeitssysteme” (“systems of gainful employment/occupation”), constructs – rather basically – adjusted from the “employment models” by Bosch and Lehndorff (2007). This model that was developed from the problem area of “ValNIL” (Petersen 2016) was generalized for the international comparison of VET at large and will be transferred now to the analysis of preconditions for shaping activities.

The regulative principles themselves are subjected to processes of continuing transformation which are to be analyzed through the dialectical relation of, on the one hand, (economic) “(neo)liberalism” versus “European social model” and, on the other hand, structural “modernism” (in the social-historical meaning) versus “post-modern” flexibility and openness to varying developments. They are called regulative principles related mainly to gainful employment/occupation and have grown out of a respective historical tradition. As an extension (and alteration) of the work of Greinert (1995), they are called “tradition,” “market,” “bureaucracy” (according to Greinert), and, newly worked out by Petersen (2013), “neo-corporatism” (cf. Lehmbruch 1982) and “social welfare.” It is obvious that nowadays these regulative principles are operative within the economic system of capitalism (Hall and Soskice 2001).

They define the “working” of the national systems – or fields according to Bourdieu (1992) – of gainful employment/occupation, sometimes also called “occupational systems.” In extension (and alteration) of the work of Bosch and Lehndorff (2007) and Lehndorff (2009), these systems are supposed to be composed of four subsystems which are defined to be the systems of work, employment, VET, and social welfare. Each of these subsystems is influenced by a predominant regulative principle that leads to a matrix of four times five, that is 20 elements which can be used to analyze real countries.

As representatives of the five differently regulated systems of gainful employment/occupation, five countries have been scrutinized: Portugal, traditional system of gainful employment; the UK, market-oriented system; France, bureaucratic system; Germany, neo-corporatist system; and Sweden, social welfare system (Petersen 2016, pp. 287–303). This approach means having an overall occupational system with one regulative principle and subsystems with sometimes diverging regulative

principles that allows to design a flexible analytical instrument, as stated by Arnold et al. (2015, p. 131) with respect to Petersen (2013).

### **Five Kinds of VET Systems as Subsystems of Five Types of Systems of Gainful Employment/Occupation**

For the five types of systems of gainful employment/occupation, five kinds of VET systems can be detected/defined as different subsystems in which possible shaping activities would be embedded. For concrete countries, “combination models” can be described where at least two regulative principles are effective, like in alternance systems the training company (most often regulated by market principles) and the vocational school or college, run often by State agencies, that is then regulated by the regulative principle of “bureaucracy.” Apprenticeship systems are historically based on the situation in the middle ages and include therefore also the principle of tradition. In all countries with an alternance VET branch, there exist also school branches and often VET courses in Higher Education institutions, resulting in mixed systems. It becomes apparent that the analysis, in spite of its clear structure, does not lead to a “terrible oversimplification” but presents many variations, especially for the international comparison.

The question of how much it is promising to undertake shaping activities is to a great degree contingent on the respective system, not only the VET system (sometimes as a part of the general education system, sometimes more separate) but the systems of work, employment, and social welfare too. For the analysis, one has to take into account the work hierarchy (work system) that is common in the respective country and also the labor market (employment system) as well as the conditions for social welfare (welfare system) for possibilities of financial support in case of leave of absence or even a sabbatical for taking a course for acquiring additional shaping competences.

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### **The Dependency of Possibilities and Opportunities for Shaping on the System of Gainful Employment/Occupation**

The theory of systems of gainful employment/occupation will now be used for a *systematic* distinction of the possibilities and opportunities for shaping within these systems. The main new perspective relative to the state of the art is represented by a *systematic* answer to the question which are the supportive and hindering functions of the different systems, specifically the VET systems.

It has furthermore to be taken into account that there are individual dispositions and characteristics that are relevant for the ways in which individual learners cope with their opportunities to shape their working conditions.

## Dependency on Types of “Biographical Occupation Orientation”

For that, reference is made to the distinction of three types of “biographical occupation orientations” determined by Gericke (2017):

Type I: strategic use of qualification offers which leads to a holistic perception of occupation

Type II: defining and accepting limits of one’s one scope of duties and expertise, which results in a limited perception of the own occupation

Type III: passionate professional practice

It appears to be obvious that Type I and Type III support shaping, whereas Type II rather hinders it because the identification with the professional practice is rather weak. This could apply also for shaping the own occupational biography as the interest in the own career path might be fairly low. It is reasonable to assume that the three biographical occupation orientations should exist in all five systems. However, because of the existence of market forces for VET (like in the UK) on the one hand and the neo-corporatist embedment of VET (like in Germany) on the other, one would expect that Type I is stronger in a neo-corporatist system, whereas Type II should be more prevalent in a market-driven system. In a traditional system (like in Portugal), Type II might be relatively strong because the self-reliance in the occupation (profession/vocation) is not so much supported by the still not always quite systematic VET provisions. In bureaucratic systems (like in France), Type I may be rather strong as the VET provision supports identification with the profession although the “real work life” is underrepresented in the dominant school provision of VET. This may hinder the development of specific shaping competences (“pragmatic learning,” cf. above) and also the motivation for shaping as the identification with the real, concrete performance in the job might be fragile. In the system of social welfare (like in Sweden), again Type I may be prevalent for reasons similar to these in the bureaucratic system, but shaping the own occupational biography is in principle better supported through provisions of the welfare state.

## Tables Sketching the Influence of the Systems of Gainful Employment/Occupation on Shaping

### Shaping the Own Occupational Biography: Promoting Factors

*Simplified thesis:* The more rigid the VET structure, the less shaping of own occupational biography is facilitated for the short term. But in the long run, the neo-corporatist system of gainful employment/occupation may also support shaping. See Table 1.

Shaping the own occupational biography is supported informally in cases where there are weak VET-structures, and it is a task of and a demand for the individual to

**Table 1** Shaping the own occupational biography – promoting factors

System of gainful employment/ occupation	Traditional	Market oriented	Bureaucratic	Neo-corporatist	Social welfare
Promoting factors	Strong	Strong	Strong	Weak (short term), rather strong in the long run	Strong
	Weak VET structures demand...	Weak, multiple VET-structures demand...	Educationally dominated VET system promotes...	Strong VET structures are in the short term a limiting factor for ...	School-based VET system stressing educational aspects promotes ...

...shaping the own occupational biography

learn and work toward an own occupational perspective. Moreover systems of gainful employment/occupation which provide school-based VET systems also promote the aspect of shaping of the own occupational biography through stressing educational aspects such as personal interests, work-life-family balance and personal occupational aims.

Furthermore, the influence of the social welfare system, its structure, and intensity of benefits that support occupational learning, orientation, and change is an important factor that promotes the shaping of own occupational biography.

In contrast, formally strong VET structures may in fact initially limit the shaping of the own occupational biography. The frame given through the specific concepts of “Berufe” (vocations) and “Beruflichkeit” (vocationalism) in Germany – as an example – paves the way for promotion without stimulating own planning. But the emphasis on fully acknowledged nationwide certificates (“Berufsabschluss”) effectuates a rather clear system of formal CVET for vocational promotion (“Aufstiegsfortbildung”).

**Shaping Working Conditions and Work: Promoting Factors**

*Simplified thesis:* The more holistic the VET structure, the merrier shaping of working conditions is supported. See Table 2.

Focusing on the vocational learners influence on work and working conditions during their occupational career, the assumption is that holistic VET structures support the shaping of work and working conditions stronger than either market-driven or school-based VET structures. This is facilitated by the fact that holistic VET structures in general combine and parallelize practice and theory, vocational knowledge, general subjects, and personal development and involve different institutions in IVET at the same time.

**Table 2** Shaping working conditions and work – promoting factors

System of gainful employment/ occupation	Traditional	Market oriented	Bureaucratic	Neo-corporatist	Social welfare
Promoting factors	Uncertain	Rather weak	Established	(Very) strong	Strong
	Small enterprises => strong personal relations may support. . .	Weak formal rights for employees' participation/ representation hinder. . .	Defined employees' representation, educational aspects in school based VET support. . .	Often strong employees' participation, also for apprentices, supports. . .	Strong educational aspects in school based VET; clearly defined rights for employees' representation support. . .
	BUT often strong hierarchy, weak workers' participation may hinder. . .	BUT experience in real company work processes may support. . .	BUT little introduction of young people into real company work processes may hinder. . .	BUT traditional hierarchical structures in small enterprises may hinder. . .	BUT little introduction of young people into real company work processes may hinder. . .

. . .shaping working conditions and work

In a traditional system of gainful employment/occupation, there are no formal opportunities for shaping work or working conditions as the rights of employees are still rather often uncertain and sometimes not clearly acknowledged on a legal basis. The ways in how far an individual worker or learner can influence his work or working conditions are connected to the social recognition of the employee at the specific workplace and to personal characteristics and the position of the individual worker.

In market-driven systems of gainful employment/occupation, VET structures are generally vague, occupational profiles are variable, and therefore the trade unions do not show a deliberate branch-specific differentiation which would enable them to claim opportunities for shaping work or working conditions in a specific branch. In general, employee representation in the company codetermination is weak.

A bureaucratic system of gainful employment/occupation – including a school-based VET system and clearly defined employees' rights within the work and employment system – shows established structures for employee's shaping of work and working conditions. Employees' representation and participation are clearly defined according to the company's size, and employee's rights with regard to access and financing of CVET are legally defined. Furthermore a school-based VET system supports the idea of shaping through emphasizing employees' rights in the curricula. But in fact the commitment of the unions for shaping is reduced by the relative weakness of neo-corporatist thinking.

A neo-corporatist system of gainful employment/occupation represents specifically strong promoting factors for shaping working conditions and work which gives reason to describe it in more detail.

In a neo-corporatist system of gainful employment/occupation and particularly a VET system which is characterized through codetermination of employers' organizations and trade unions under an only weak supervision of the State (Petersen 2016, p. 192, 274 et seqq.), the latter "corporations" have various opportunities for shaping work conditions and work. The organizational structures in each company and the general relative strength of the trade unions promote negotiations about the organization of work processes and division of work. The codetermination within each company – apart from the very small ones – is legally institutionalized. Employees elect their representatives who are supported and trained for their codetermination tasks by the trade unions. Their representative tasks are part of their job profile. The inclusion of the works' council on several structural levels of a company – with union representatives in bigger companies on the supervisory board – promotes the shaping of work and working conditions in various ways. Additionally the share of the trade unions within the VET system has to be highlighted. It is – together with the employers' organizations – traditionally their responsibility to identify the need for a new VET profile including updated training rules ("Ausbildungsordnungen") and to discuss the content especially of the practical part of it. The specific dual structure of the VET system in Germany includes young apprentices in the real work process on an early stage, while they are also part-time pupils in the "Berufsschule" which provides theoretical background with regard to the vocation through different "Lernfelder" that are taken not from subject structures but from exemplary work situations. In addition, their study comprises also topics of general education.

In social welfare-oriented systems of gainful employment/occupation, shaping of working conditions and work is promoted through the strong educational focus in the school-based VET system. In this the clearly defined rights for employee participation and representation within the companies are an important subject in the curricula. Employees' participation and representation are guaranteed by specific committees on company level. Employee representatives have to be included in company boards if the company has more than 25 employees. Furthermore the developed system of welfare contains specific programs for supporting CVET advantageous for shaping. But due to their lack of practical experience with real work processes, young people are in principle not well prepared for a pragmatic influence on their working conditions and their work. As the school-based VET system only offers placements within the phase of IVET, the individual trainee always remains within his trainee status which generally promotes a less strong and responsible relation to the work tasks and working conditions in comparison to an apprenticeship.

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## Conclusions

The shaping principle which has been developed about 40 years ago in the context of humanization of work and which constituted a new educational principle for VET is gaining new relevance because of the digitalization of work which may influence all kinds of work, in the factory, in the office, in the repair shop, and in the studio, but also care work in the hospital and even in the retirement home. The consequences of that, particularly in view of the uncertainties of the pace of its development, are still not clear. Rather – according to the shaping principle – the way how the digitalization is used should be shaped, not only by the employers and top engineers but also by the workers directly involved. Following the tradition of the waves of automation during the 1960s/1970s and of computerization during the 1990s/2000s, the new wave of digitalization presents a stimulus to intensify shaping activities not only in society and economy at large but also at the workplace. Opportunities for that are dependent on the economic sector which should be systematically investigated in future work, and they are specifically contingent on the preconditions of the various countries which have been analyzed by means of the analytical instrument “system of gainful employment/occupation” including “regulative principles.”

These possibilities and opportunities for shaping are rather different in these countries or systems. It appears that for shaping the own occupational biography in the short term, not so stringent VET systems are favorable because they leave much open, similarly school systems because they have a strong inclination toward general education. In contrast neo-corporatist systems prescribe rather much in the beginning of the career but they build a good foundation for advancement through CVET. For shaping working conditions and work, weak formal rights of participation are less favorable, whereas the neo-corporatist system with its inbuilt strong regulations of participation promotes it particularly well.

The results of these deliberations are, however, still tentative. On the one hand, it appears that the critique of a systematic comparative analysis is in the first instance partly justifiable because it turns out that a lot of different interdependent factors are influencing the respective situation. One should, however, take into account that to abstain from it would one leave without guidance for looking at the concrete countries which is obviously inappropriate. On the other hand, the empirical basis is still rather small which should be an incentive to carry through a fairly extensive research project, in the framework of the EU or the OECD.

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# Students' Vocational Learning: Enabling Conditions for Putting Knowledge to Work **50**

Maria Gustavsson and Daniel Persson Thunqvist

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## Abstract

The purpose of this chapter is to contribute knowledge about school-related and workplace-related conditions that enable students' vocational learning during workplace-based learning within vocational education. The research underpinning the chapter draws on evidence from a research project on students' vocational learning in the industrial vocational education program at six different Swedish upper secondary schools. The theoretical concept of recontextualization contributes to uncovering the dynamic conditions that enable students' vocational learning as they bring knowledge from the school context to the workplace context and back in vocational education programs. The argument is that both

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school- and workplace-related conditions must support putting knowledge to work in the workplace context. The ways in which different types of knowledge are put to use form the basis for examining how school-related and work-related conditions can support students in their vocational learning. The students' ways of making sense of workplace-based learning as an extension of their educational program and of putting knowledge to work in the workplace are connected with their identity formation processes. Students use different learning strategies to bridge school-based and workplace-based knowledge that support changes in the workplace. The implications of this study are discussed in terms of potential changes in practices for vocational learning in the context of vocational education.

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**Keywords**

Vocational education · Workplace-based learning · Vocational students · Recontextualization

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## Introduction

This chapter contributes to contemporary research on vocational learning and the long-standing challenges of integrating school-based and workplace-based learning in vocational education. Vocational education and young adults' school-to-work transition constitute a well-established research field. However, knowledge gaps remain, and many questions are still unanswered within the field. There is emerging research regarding the nature of vocational learning for students who alternate between school-based and workplace-based learning and thus move between different learning contexts, in developing relevant vocational learning within vocational education programs (Endedijk and Bronkhorst 2014). This overriding international trend is widely reflected in the development of vocational education and the requirements from both educational institutions and the work life to better integrate theoretical and work-specific knowledge into vocational education (Littke and Thang 2015).

In Swedish upper secondary school vocational education, there has been a renewed interest in workplace-based learning and apprenticeship in an attempt to counteract the dual problem of high youth unemployment and shortages of skilled labor and to strengthen young people's direct access to the labor market (Persson Thunqvist 2015). Similar discussions and policy trends have been highlighted in several other countries as well, for instance, Finland (Virolainen and Persson Thunqvist 2017), the UK (Fuller and Unwin 2009), and Canada (Lehmann et al. 2014). In addition to preparing students for specific qualifications and occupations, vocational education must also promote lifelong learning and ensure further career development in the case of structural transformation (e.g., geographical redistribution of work, the closing of industries). Demands to bridge the gaps between education and work have also been fueled by globalization, digitalization, and new work organizations (Lauder et al. 2006).

Learning in formal educational institutions and workplace settings is often viewed as different processes with separate structures (Billett 2011), and school- and workplace-based forms of learning have different rationales that may affect students' vocational learning and create different conditions for their learning (Schaap et al. 2012). A vocational education program that alternates between school-based and workplace-based learning implies a holistic view of vocational education that integrates theoretical knowledge with work-based knowledge and goes beyond a theory–practice dichotomy (Evans et al. 2010). However, as such integration does not come easily in practice, it remains significant to deepen the understanding of conditions that enable or constrain students' learning within vocational education programs in which students go back and forth between school-based and workplace-based learning. Understanding of how such vocational education programs can be developed both for and by the students and of the conditions that enable (or constrain) vocational learning in the workplace context must be advanced (Guile and Evans 2010).

The purpose of this chapter is to contribute knowledge about school-related and workplace-related conditions that enable students' vocational learning during workplace-based learning (in the workplace context) within vocational education. The chapter draws on evidence from a research project on vocational learning based on interviews with 44 students (33 boys and 11 girls) enrolled in the industrial vocational education program at six different Swedish upper secondary schools. The research evidence is used to illustrate school-related and workplace-related conditions that enabled the students' vocational learning in vocational education. The contribution of this chapter lies in its input into the ongoing discussion of the challenges of relating different forms of knowledge and learning in vocational education, including the long-standing, seemingly intractable problems of interconnecting theory and practice in vocational education.

The chapter has four sections. The following section provides a brief contextual description of the current state of the vocational education system in Sweden, particularly vocational education in upper secondary school. The subsequent section introduces the theoretical framework, which is inspired by Evans et al.'s (2010) theoretical model that is used to analyze students' vocational learning in vocational education programs in which students alternate between school and work. This model offers an alternative way of analyzing students' vocational learning in which the underpinning assumption is that all knowledge has a context that includes traditions, norms, and practices and that knowledge learned in the school context can be recontextualized, that is, put to use in the workplace context. Our argument is that learning conditions must also support putting knowledge to work in the workplace context. In the following section, school- and work-related conditions for vocational learning are discussed, and some examples from research are provided. The ways in which different knowledge is put to use form a basis for examining how school-related and work-related conditions can support students in their vocational learning. Finally, some conclusions are presented.

## The Current State of Vocational Education in Sweden

A brief description of the current state of vocational education in Sweden is provided to establish the context of the Swedish vocational education system. Since the early 1970s, initial vocational education has been an integral part of a state-governed upper secondary school system that targets almost all 16- to 19-year-olds. At present (since 2011), there are 18 national programs, 12 of which are vocationally oriented. All vocational education programs last for 3 years and comprise a mix of school-based education and workplace-based learning. Upper secondary schools are responsible for providing apprenticeship as a complementary track along with school-based vocational programs. Goals and syllabi for these two pathways are formally the same, but students in apprenticeship education spend at least half of their time at one or more workplaces. All programs lead to a vocational exam administered by the school (Swedish Agency of Education 2017).

In addition, all vocational education programs formally provide basic eligibility for higher education. All students in upper secondary school are required to pass mandatory core courses (e.g., mathematics, Swedish, English) at a level that is sufficient for entry into higher education. This also makes it possible for vocational students to shift between programs if they find that they have made the wrong educational choice. The vocational education programs typically start with a broad introductory year. During the second and third years, the educational system provides more specialized vocational courses and workplace-based training within vocational fields such as industry work, construction work, auto mechanics, health care, and business and administration (Persson Thunqvist 2015).

In comparative research on different vocational education systems in industrialized countries, Sweden is often discussed within the framework of a “Nordic egalitarian model of education” (Dobbins and Busemeyer 2014). The model is characterized by publicly funded comprehensive school systems guided by the principles of equity, democratic participation, and welfare (Antikainen 2006). Historical comparisons (Michelsen and Stenstrom 2018) of the postwar Nordic vocational education systems reveal how the strong political force of the Social Democratic Party has struggled to reduce the distance between general education and vocational education and to promote equal access for further studies for all young people, irrespective of their social backgrounds. However, the national policy strategies for improving the quality of vocational education in relation to general education differ among the Nordic countries. For example, the school-based systems in Sweden and Finland are generally distinguished by attempts to integrate vocational education and general education, while those in Denmark have been characterized by attempts to modernize the apprenticeship system and thus protect the specific nature of vocational training (Persson Thunqvist and Jørgensen 2015). In the Nordic context, the Swedish vocational education system is the most clear-cut example of the Nordic model of education in terms of the role and function of vocational education. Hence, it represents a kind of natural experiment regarding the challenge of integrating general and vocational education to provide access to both skilled employment and further studies (Jørgensen et al. 2017).

However, in practice, such integration has remained a challenge for policy-makers and educational scholars in the past decades. Since 1994, all vocational education programs have been organized to provide better general education and basic eligibility for higher education. A trade-off, however, was that the direct links between upper secondary school vocational education and work life weakened, and transitions from school to work become complicated in several vocational fields (Olofsson and Persson Thunqvist 2014). In the new millennium, vocational education has been subject to renewed reforms to manage this challenge. By bringing educators and representatives of the work life together, political efforts have aimed to develop frameworks for cooperation between schools and workplaces at the central and local levels (Persson Thunqvist 2015). The initiators of the most recent school reform, in 2011, emphasized the importance of conducting workplace-based learning at a learning site that is equivalent to school (SOU 2008). At the same time, according to the educational goals, general education, vocational education, and workplace-based learning should be integrated to form a whole (Swedish Agency of Education 2013). A main challenge for school organizations and social partners is to jointly implement the intended curriculum in practice. In addition, the student perspective regarding this challenge is important to consider. However, vocational students' workplace-based learning within Swedish upper secondary school is largely under-researched (Ferm et al. 2017).

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## Vocational Learning: Alternating Between School and Work

The theoretical framework presented in this section is inspired by a theoretical model developed by Evans et al. (2010) to analyze students' vocational learning in vocational education programs in which students alternate between the school and work contexts. The model is based on the theoretical assumptions of situated learning (Lave and Wenger 1991; Fuller and Unwin 2009). From a situated learning perspective, learning is social and is defined as a process of participation in and between communities of practice where interaction in activities, mutual engagement, and a joint repertoire (e.g., methods and routines) are important elements for developing vocational knowledge and future vocational identities (Wenger 1998). The concepts of community of practice and legitimate peripheral participation have been developed to describe apprentice learning and identity formation in analyses of the social and pedagogical processes involved when a "newcomer" becomes an "old-timer" in the practice of a shared activity (Lave and Wenger 1991). Although Lave and Wenger's seminal work does not particularly focus on the role of the school-based part of vocational education in the newcomer's learning process, the situated learning approach to vocational learning has been applied and further developed in research regarding how conditions for modern forms of apprenticeship are shaped by student participation, formal educational contexts, and the institutional arrangement of workplace-based learning (Fuller and Unwin 2003). The concept of expansive and restrictive learning environments has been developed to identify conditions that enable and constrain different types of workplace learning, adaptive and

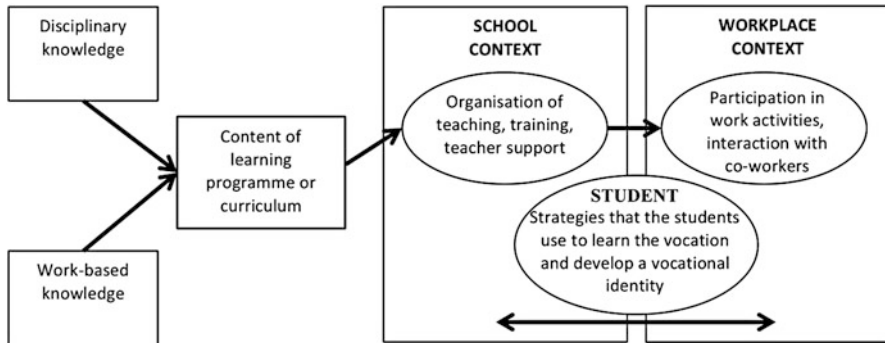
expansive learning (Ellström 2006; Fuller and Unwin 2004), and different approaches to apprenticeship (Fuller and Unwin 2003). An expansive approach to apprenticeship is associated with expansive learning (Engeström 2001); that is, learning that is closely related to the transformation of vocational education and the conditions for students' vocational learning may depend on the degree to which school- and workplace-based knowledge is integrated into vocational education. In contrast, the restrictive approach is associated with the adaptive learning of vocational knowledge.

The model of Evans et al. (2010) offers an alternative way to analyze the interplay between school-based and workplace-based learning and how different forms of knowledge are recontextualized by students as they use knowledge and move between learning contexts at school and in the workplace. All vocational knowledge that a student learns is thus dependent on the context, i.e., whether learning occurs at school or in the workplace. Context is often understood as settings or places, but Evans et al. (2010, pp. 246) extend the use of the term to include the “schools of thought,” traditions and norms of practice, and life experience in which different kinds of knowledge are generated. This dynamic account of context is comparable with theoretical developments in other disciplinary fields, such as dialogic and interaction research regarding communication, cognition, and discourse (Goodwin 2000; Linell 1998), in which the notion of “recontextualization” is fundamental. While recontextualization was originally a text-based notion (e.g., implicated in the work of Bakhtin 1981) referring to the dynamic transformation of something from one discourse to another (Linell 1998, pp. 154–155), in this chapter, the notion will be assigned broader applicability in vocational education.

In the context of Swedish vocational education, the notion of recontextualization has been used in studies demonstrating the hybrid nature of project-based vocational programs organized in close collaboration with head teachers, vocational teachers, students, and professionals (Linell and Persson Thunqvist 2003; Persson Thunqvist and Axelsson 2011). In such complex learning environments, where different knowledge traditions are simultaneously at play, it can be relevant to discuss contextual configurations (Goffman 1974; Goodwin 2000) and elements from different contexts (e.g., school and work life) that are updated and reappropriated on a moment-to-moment basis in teaching and learning. In Goffman's terms, recontextualization usually amounts to reframing. When knowledge or traditions of knowledge are relocated from one context to another, they are subject to change, requiring new ways of seeing things and responding to them (Goffman 1974). Under these circumstances, knowledge is also sometimes subject to textual changes (e.g., changes in the educational curriculum), such as simplification, condensation, elaboration, and refocusing (Bernstein 1990). Bernstein (1990, pp. 59–61) used the term recontextualization in the discussion of the reproduction of educational discourse.

In this chapter, a slightly modified version of the model by Evans et al. (2010) is applied as an analytical framework (Fig. 1). Vocational students are required to progressively use and relocate knowledge from the school to the workplace context and back to learn their vocations. The application of school-based and work-based knowledge provides students with resources for dealing with problems in the workplace (Guile 2012).





**Fig. 1** Theoretical model for analyzing vocational learning in vocational education programs in which students alternate between school-based and workplace-based learning. (Adapted from Evans et al. 2010, pp. 247)

The model illustrates that disciplinary and work-based knowledge shapes the vocational programs' curricula and thus influences the courses and knowledge that students require to enter a specific vocation. Vocational education programs are struggling with the pedagogical challenge of meeting the requirements of both school and work life when designing programs that integrate disciplinary and work-based knowledge (Evans and Guile 2012) and that provide students with a meaningful, whole vocational learning (Littke and Thång 2015). In the school context, students encounter contextualized "real-life" cases that are used to prepare them for their new vocation. Vocational teachers have a key role in vocational students' learning; they give students access to relevant vocational experiences and function as intermediaries between school and work life (Persson Thunqvist and Axelsson 2012) by contributing to the school's formal goals and informal expectations (Billett 2011).

A conventional assumption in previous research is that the workplace as a learning environment is highly important for students' vocational learning. However, merely being present in a workplace is not adequate to allow students to apply the knowledge gained in the school context to the workplace context. When students enter the workplace, vocational learning is not restricted to training in specific skills; it also entails knowledge about activities, roles, and social practices and to vocational identity formation (Evans and Guile 2012). Opportunities to participate in workplace activities and interactions depend on both the learning environment provided to the students (i.e., good or poor conditions for vocational learning) and how the school-based and workplace-based parts of a vocational program are organized (Fuller and Unwin 2003).

Another central aspect of the model illustrates the importance of recognizing what the students themselves do to integrate knowledge gained from school and their workplace-based learning to meet their own learning needs. The school and workplace contexts shape and guide the students' learning of a vocation, but they emphasize different requirements for the vocation and what students need to learn

to meet those requirements. In a sense, students are boundary crossers because they alternate between school and workplaces (Akkerman and Bakker 2012). Students develop and use different strategies to integrate the knowledge they gain from the different contexts, and some strategies, such as asking questions and identifying role models from whom they learn the new vocation, are prompted by the individual student's prior experiences and personal characteristics (Ferm et al. 2017). As Evans et al. (2011) argue, the learner's recontextualization occurs through self-chosen strategies that entail understanding the demands of the chosen vocation and, above all, the learner's motivation to join it. For students, the challenge is to form a personal strategy that makes use of both school-based and workplace-based knowledge to gain the knowledge, skills, and insights they need to learn, develop a vocational identity, and meet the demands of their chosen vocation.

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## Conditions for Vocational Learning

This section presents an empirical study of students' vocational learning based on qualitative interviews with 44 students (33 boys and 11 girls) enrolled in a vocational (industrial) education program at six different Swedish upper secondary schools. Due to the large amount of data and the space limitations of the chapter, the findings are portrayed relatively briefly, focusing on key features of the school- and workplace-related conditions that enabled the students' vocational learning and the ways the students themselves shaped their learning conditions to put their knowledge to use in their workplaces.

### School-Related Conditions for Vocational Learning in the Workplace

Several school-related conditions served as a bridge for preparing the students' entrance to the workplace and could later support their learning in workplace settings. For the students, it was important to receive as much preparation as possible at school before beginning their workplace-based learning. Student readiness is an important condition related to their ability to make informed decisions about a chosen vocation and engage effectively in vocational education toward a career for which they are suited (Billett 2011).

In school workshops, the students encountered content and work methods involving contextualized "real-life" cases that prepared them for the vocation as an industrial worker. The important condition in these authentic situations was that the students were permitted to make mistakes and had opportunities to reattempt tasks. Like the students in Berner's inquiry (2010), the students in this study perceived the school environment as a safe and inclusive place to learn from mistakes. In contrast to classroom teaching, school workshop training was characterized by intense interaction between the students and experienced vocational teachers, tools, and machines. Gradually, the students were given more challenging tasks with the support of the vocational teachers. This support from vocational teachers was a

crucial condition for the students' learning. The teachers were key people who provided the students with access to vocational experiences and served as intermediaries between school and work life (Persson Thunqvist and Axelsson 2012). The students recognized the vocational teachers as role models who helped the students with instructions for handling different specific tasks, such as welding and sheet metalworking or CNC (computer numerical control) machining and turning. The vocational teachers often translated the informal requirements of the vocation to the students. The vocational teachers' knowledge was recontextualized in their teaching and training; that is, it was visible in the teachers' pedagogical assumptions regarding the vocational qualifications the students had to acquire informally and the formal curriculum goals that they should achieve (cf "pedagogic recontextualization"; Evans et al. 2011).

Knowledge gained in the school context was, as the students said, a "springboard" for continuing to learn the vocation in the workplace. It seemed crucial for the students to have a minimum base of "correct" vocational knowledge to feel capable of handling certain work tasks and to face emerging problems when they entered the workplace. In some schools, the students had the opportunity to learn specific work tasks that required licensed skills, such as welding and forklift driving, and occupational safety certification. Obtaining a certification demonstrating that they had the necessary skills was a significant condition for gaining knowledge that could immediately be put to work in the workplace.

Additionally, local school regulations and the curricula for the vocational educational program created mutually interacting conditions that, in turn, framed the students' vocational learning in terms of establishing the learning goals and learning activities that they should achieve in the school. As noted by Billett (2011), even though students have similar curriculum pathways for learning in vocational program, their learning is regulated by the local school context. Some students described practical barriers in the organization between subject-based courses and workplace-based learning, which affected their access to learning opportunities both at school and in the workplace. The subject-based courses simply did not fit schematically into the workplace-based learning placement period. For instance, students who aspired to apply for university studies had difficulty qualifying because preparatory courses, such as mathematics and English, conflicted with the students' workplace-based learning. Vocational students who meet the requirements for both theoretical and vocational subjects receive a so-called double diploma, which is necessary to continue to higher education in the Swedish school system.

The students complained that the content of the preparatory courses had no or a limited connection to the industrial work. For example, the courses lacked industry-theoretical knowledge, such as tool names in English (as many companies had English-speaking co-workers and customers). These insufficiencies indicate that vocational education should prepare students in broader competencies, particularly as workplaces are becoming more diversified and production systems and work methods in the industrial sector more specialized (Olofsson and Persson Thunqvist 2018).

Conditions related to the organization of the school- and workplace-based parts of a vocational program can also be partly attributed to generic learning differences

between school and work contexts in that the former follows the logics of education and the latter the logics of work (Akkerman and Bruining 2016). To overcome organizational differences and meet the students' learning needs, the vocational teacher at the school usually followed up in planned meetings with the workplace supervisor and the student, in which time was set aside for reflection and discussion of the students' work experiences and personal development. In these three-part meetings, the focus was not only on the students' vocational learning but also on building strong collaborative relationships with the company. These meetings were a necessary condition that functioned as an organizational bridge between the school and the company. Therefore, the students understood the school would get a bad reputation if they misbehaved during their workplace-based learning.

### **Workplace-Related Conditions for Vocational Learning**

The workplace environment was highly important for the students' vocational learning because it allowed them to gain specific industrial "know-how" during workplace-based learning. Opportunities to participate in workplace activities and to interact with supervisors and experienced co-workers depended on whether the workplace learning environment provided good or poor conditions for learning and developing vocational skills (Fuller and Unwin 2003) in the companies. Each student had a formal supervisor. Previous research has shown that a formal supervisor in the workplace is crucial for students' learning; furthermore, in the Swedish context, students are required to have formal supervision during workplace-based learning. Nevertheless, the support that the supervisors provided varied. Some supervisors offered substantive learning support, while others did not provide the support that the students expected to receive in the workplace. In case of unsupportive supervisors, co-workers were committed to providing the students with access to different forms of guided learning, such as coaching, peer support, answering questions, and providing practice opportunities as part of everyday work (Billett 2000). Experienced and skilled co-workers with good teaching abilities were particularly appreciated as they could create valuable learning opportunities by demonstrating and explaining how and why production routines and work tasks were organized in a certain way. Opportunities to participate actively in different work activities and interactions with experienced co-workers were paramount for allowing the students to learn the skills necessary for their chosen vocation and to develop a vocational identity (Evans et al. 2010). The students stated that the co-workers provided a trustworthy progression of the knowledge, skills, and insights they needed to learn to meet the demands of the vocation and to proceed from simple to more demanding task as their capacities increased. However, the co-workers did not expect the student to be fully trained.

Some students had the freedom to choose what task they wanted to do and with whom, which gave them highly appreciated insight into the vocation's various duties and the production process at the company. In contrast, other students had more limited opportunities due to a restricted learning environment in the welding box;

they performed a single welding task of putting together two pieces. However, a necessary condition was that the students were permitted to participate regardless of the nature of the task. A few companies had difficulties due to reduced production and staff cutbacks, which in turn were reflected in the students' poor learning opportunities (Fuller and Unwin 2004). As seen, the workplaces could not provide a uniform practice, and there were very diverse conditions related to access to work activities for learning the vocation.

The workplaces' experience with having apprentices also proved to be an important social condition for how the students' learning progressed and gradually gained acceptance as members of work communities in the workplace. In this regard, the size of the company was a significant condition. Large workplaces could offer the students more specialized tasks, while some small workplaces could offer more diverse tasks (cf Billett 2011).

The geographical locality also mattered. In Swedish towns where large or middle-sized industrial companies are established internationally, the companies usually also play a significant role in securing employment for community members and contribute to economic development in the localities. It is also in the interest of the company to maintain a good local reputation to recruit and attract committed vocational students from upper secondary schools. This implies that it is not only specific workplace settings that attract students but also the prestige and career opportunities associated with certain companies. In addition, companies that had established a long-standing cooperation with the schools seemed to facilitate a wider range of work activities for students to experience. Such beneficial conditions also appeared to provide what Wenger (1998) has called "breaks in routines," that is, chances for students to discuss and reflect upon their experiences with work and production routines. In cases of smooth collaboration between the company and school, work-related conditions for learning and school-organized pedagogical methods could reinforce each other to promote such reflexive learning practices and potentially widen the students' learning horizons.

### **Individual-Related Conditions for Vocational Learning in the Workplace**

In addition to school- and work-related conditions for vocational learning, individual students shaped their learning conditions as they moved from the school to the workplace. What the students themselves did to bridge school-based and workplace-based knowledge was important for creating learning conditions that could satisfy their own learning needs in the workplace. A prerequisite individual condition, however, was that the students were inclined to work in the industrial sector and had the right attitude toward a vocation as an industrial worker. The students understood the employers valued their suitability and fitness for the vocation (cf Billett 2011), and social skills were often regarded as more important than industrial and technical skills (Nielsen and Tanggaard Pedersen 2011). The ways in which different types of knowledge were put to use by the students formed a basis

for examining how school- and work-related conditions can support their learning trajectories and transitions from school to workplaces. A significant question is whether vocational students can find ways to integrate the different forms of knowledge, perspectives, and cultural traditions they may encounter in different contexts (Tuomi-Gröhn and Engeström 2003). In particular, it is very difficult for students when collaborative relationships and organizational ties between school and workplaces are weak as it may lead to discontinuities in students' vocational learning across different learning contexts (Persson Thunqvist 2015).

At the same time, whether school-based and workplace-based knowledge will be integrated depends on the students' chosen learning strategies and capacities (Ferm et al. 2017). To be accepted as a member of the work community and, presumably, achieve status despite being an apprentice required not only displaying interest but also actively positioning oneself as a resource for co-workers. The students worked as hard as their workmates and tried to catch up with the work tempo and to be alert when they were asked to perform particular tasks. Therefore, learning strategies that the students used frequently to gain deeper vocational knowledge were asking question and searching for role models that could serve as informal supervisors (Ferm et al. 2017). The students' active engagement created more learning opportunities, and the more they were accepted, the more they were trusted to perform more advanced tasks. The students' personal agency was also reflected in the way they spoke about their own individual responsibility. They accepted a great amount of individual responsibility in gaining access to work tasks, supervision, instructions, and explanations from co-workers.

Consequently, the students' active learning strategies were clearly oriented toward the workplace context and their future employment. However, work and employment were not the only sources of these students' attitudes, aspirations, and commitment to learning new things in the workplace. First, the students' learning strategies cannot be viewed in isolation from their participation in upper secondary schools. As previously mentioned, the workplace-related conditions provided opportunities for the students to apply the specific vocational skills and knowledge they learned in school-organized workshops. However, as Swedish upper secondary school vocational education is also distinguished by a relatively strong academic orientation (e.g., in subjects such as mathematics, Swedish, and social science), the students were educated to consider themselves active learners. The universal comprehensive school system generally privileges the value of democratic participation. Students' school-based situated learning has been characterized in terms of negotiated participation (Persson Thunqvist and Axelsson 2012), which refers to the ways in which students (or groups of students of similar ages) recurrently negotiate with their teachers to determine how their learning should be organized. Similar forms of negotiated participation are not expected in workplaces, where students are on their own and must adapt to new circumstances that are quite different from school. However, the students in the present study brought along their school experiences and searched for role models among their co-workers. The workplaces that received students from upper secondary schools on a regular basis seemed to transform the everyday workplace into pedagogical environment (Unwin et al. 2007). Such a

change in the everyday work environment may imply the development of workers' skills in articulating and explaining tacit knowledge regarding production work and being able to answer the students' questions.

Second, the students' social background also constitutes a relevant condition; that is, it contributes to their disposition for learning and the development of a vocational identity in workplaces (Evans et al. 2006; Evans and Kersh 2004). Additionally, several students had parents and relatives who were working in the industrial sector. In these cases, the students were familiar with the informal constituents of industrial culture in local workplaces, which is marked by a certain manner of talking and making jokes (Ferm et al. 2017). This probably eased the students' relocation of knowledge from school to the workplace and partly explains why the vocational students were keen to fit in and show their social and communication skills in "handling the jargon" in work groups. However, while such skills may enable access to workplace communities, other cultural elements, such as gender, may function as a barrier in the male-dominated industrial sector (Gustavsson and Fogelberg Ericsson 2010). Additionally, female vocational students in the industrial program have experienced such barriers (Ferm et al. 2017), but their experiences have not yet been analyzed.

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## **Changing Conditions for Vocational Learning: From the Perspective of Recontextualization**

This chapter provides insight into the school- and workplace-related conditions that enable students' vocational learning in the workplace. These conditions for vocational learning can be understood in terms of tension between the school and workplace contexts and in connection to the different logics and rationalities associated with school-based versus workplace-based knowledge (Schaap et al. 2012). Vocational students are expected to progressively use knowledge from and in different contexts (e.g., school and workplace contexts) and to relocate knowledge in relation to different purposes. The students' vocational learning was not restricted to training in specific skills; it also entailed knowledge about activities, roles, and social practices and vocational identity formation (cf. Evans and Guile 2012). Workplace-based pedagogics, such as different forms of guided learning (coaching, questioning) as part of everyday work, created conditions that supported the students' vocational learning (Billett 2000) as they engaged in progressively more demanding tasks. Despite differences between school- and workplace-based learning, both forms of learning and the conditions in the different contexts were geared toward a clearly defined vocational labor market in the industrial sector. To some extent, these different learning conditions reinforced each other. Such similarities can provide an explanation of why knowledge gained in the school context functioned as a "springboard" for continued learning in the workplace.

Nevertheless, the focus in previous educational research has mainly been on the school as a learning environment and how students are formed there. Pedagogical challenges in vocational education include how to develop and consolidate



knowledge in everyday work activities. This challenge raises questions regarding how workplace-based learning works and how educational institutions reach their goals and emphasizes that students' workplace-based learning should be visible. This mirrors a shift in the transfer concept, which was historically considered a one-way transfer of knowledge from school to work (Akkerman and Bakker 2012), and in the perspective regarding vocational knowledge and the knowledge needed in the ever-changing work life (Raelin 2008).

The theoretical concept of recontextualization directs our attention to how changes occur when different traditions of knowledge intersect (Evans et al. 2010). These intersections may create a basis for innovations that ultimately transgress existing opportunities for vocational learning. From this perspective, the implications of this study may also be discussed in terms of potential changes in practices for vocational learning in the context of vocational education.

First, the dynamic nature of vocational learning can be attributed to personal agency and linked to students' roles as *brokers* as they move between different contexts of learning. The ways in which students recontextualize – bring about and bring along knowledge from one context to another and back again (Evans et al. 2010) – may form the basis for hybrid learning practices (Linell and Persson Thunqvist 2003). In this respect, the students' learning activities are both shaped by everyday work and influenced by neighboring practices of (at least) two different kinds, which in turn challenge the conditions for vocational learning: first, through educational practices, e.g., workshops in school, which are similar in some sense, so students can relocate knowledge from school to the workplace context when putting knowledge to use, and, second, through biographical practices that are near at hand because of students' individual experiences (e.g., personal interests in technology in everyday life) or because of students' *common* experiences with vocational education for developing self-knowledge, which may promote a greater understanding of industrial work. In this sense, the students' social background also may facilitate their participation as newcomers at workplaces as they are already somewhat familiar with informal elements of the industrial culture because their parents or relatives work in the industrial sector.

Second, the presence of students in workplaces may also influence and transform practices in everyday work. Students' engagement and motivation to learn and their position as upper secondary school students impose certain expectations regarding learning and pedagogy and challenge conditions in the workplace. In interacting with students, co-workers are expected to act responsible and to function as informal supervisors. The informal culture in industrial work may therefore change in the presence of students who consistently ask questions as part of their vocational learning. Making workplace-based learning a regular feature of everyday work in companies may contribute to continuous opportunities for learning among the students' co-workers. As indicated in the analysis, the schools' preparedness to take the obligations associated with vocational students' learning differed for various reasons among companies. Some companies had made it a habit to provide workplace-based learning for vocational students. As co-workers occasionally took on the role of informal supervisors in their interactions with



students, they had to articulate tacit vocational knowledge and explain and sometimes justify work routines and procedures. In addition, co-workers introduced students to new technologies and taught them how to operate machines that are not used in school workshops. According to the students, most of the companies that participated in the study expressed mainly positive experiences with workplace learning not only in terms of securing skill provisions but also because the daily interactions between “old-timers” and students stimulated the learning environment of the workplace.

Third, and finally, conditions for vocational learning in upper secondary school vocational education programs are circumscribed by the ways in which disciplinary and work-based knowledge are being defined and recontextualized in the programs' curricula (Evans et al. 2010). The meaning of work-based knowledge, which derives its purpose from the context of employment (Evans and Guile 2012, pp. 114–115), changes when this concept is reformulated in the school curriculum within the framework of workplace-based learning in the school context. As discussed in the introduction section, the educational authorities in Sweden primarily set standards for workplace-based learning, and a strong focus is placed on the organizational arrangements and quality assurance framework for such learning. This framework is different from the nature and logics of workplace learning in everyday work. However, there are commonalities and overlaps between the concepts of workplace-based learning and workplace learning in some substantive areas (Evans et al. 2011).

The curriculum for vocational educational programs, including workplace-based learning, is partly the result of negotiations and compromises between the educational authorities and labor market organizations involved in the field of vocational education (Virolainen and Persson Thunqvist 2017). Therefore, the curriculum is also connected to the context of employment; it is based on the knowledge, skills, and methods common to an occupational group. In that sense, the national curriculum determines what a qualified worker needs to know to be considered employable in a certain field, and it is not company specific. In the Nordic context, such national regulations are historically associated with “the skilled worker concept,” in which national certificates in vocational education play an important role in distinguishing unskilled work from skilled work. However, since the labor market partners only have an advisory role in the Swedish vocational education system, the state and educational authorities take a strong stance on the formulation of the curriculum and in defining how vocational learning in workplaces should be organized and linked to school-based vocational learning and general education.

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## Conclusions

The research underpinning the present chapter has responded to challenges to improve workplace-based learning in vocational education and to relate different forms of knowledge and learning by bridging the gaps between the school context and the workplace context. At the national policy level, as demonstrated,

workplace-based learning is being recontextualized to fit a pedagogical context tailored to meet the institutional goals of vocational education. When implemented in practice within local schools and industries, it is particularly interesting to note how changed conditions for students' vocational learning emerge within the field of tension between the "education-based" version and the "employment-based" version of workplace-based learning.

The concept of recontextualization (Evans and Guile 2012) has contributed to uncovering the dynamic conditions that enable students' vocational learning as they bring knowledge from the school context to the workplace context and back. The school-related conditions prepare the students for entrance into the workplaces, while workplace-related conditions provide students with the opportunity to obtain specific industrial knowledge and to engage in interactions in the workplace. The students' ways of making sense of workplace-based learning as an extension of their educational program (curriculum) and of putting knowledge to work in the workplaces were intrinsically connected with their identity formation processes, that is, becoming skilled workers. Furthermore, the students themselves used learning strategies to bridge school-based and workplace-based knowledge, thus supporting changes in the workplace cultures. In their interactions with the students, industrial workers had to learn and develop pedagogical strategies and new identities as supervisors, instructors, and role models. The conditions for a successful connection between school-based and workplace-based learning were identified in cases where collaboration between schools and industrial companies was well-established. These examples also demonstrate the emergence of hybrid practices where industrial production sites function as supportive environments for working and learning.

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# Older Workers' Vocational Learning: Taking Activities and Personal Senses into Account **51**

Maria-Cristina Migliore

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## Abstract

In the European debate, the issue of older workers' vocational learning is framed as one of updating skills, contrasting ageism, providing access to learning, and supporting mobility, with limited attention to the issue of motivation or motives to learn when retirement is approaching. The chapter illustrates the view on older workers' motives for workplace learning in different disciplines, from psychology of work to organizational studies, to educational gerontology, and to educational sciences. Placing side by side the different disciplinary approaches highlights all the aspects of that issue and indicates that the dimension of the development of activities in which older workers are involved is neglected. The last part of the chapter focuses on a case of contextualized analysis in

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industrial activities. It presents an attempt to hold a non-dualistic approach by connecting the older workers' development to the development of the industrial enterprises in which they work. The aim is to show the importance of taking into account the activities in order to analyze the older workers' motivation to learn. Motivation is conceptualized through the cultural-historical activity theory (CHAT). This choice stems from the idea that individuals and contexts cannot be separated and that motivation to learn emerges in the relationship between work and the engagement that the older workers develop with it. Enlarging the view to include activities and their strategies leads to consideration of older workers' vocational learning as a collective and social issue, and not as solely an individual one. This perspective brings about policy implications and needs for new business models for industrial production.

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**Keywords**

Older workers · Workplace learning · Motives · Motivation · CHAT · Industrial production · Subjectivity · Policy

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## Introduction

The issue examined in this chapter is the older workers' workplace learning in all its forms such as learning on the job and continuing vocational learning, with a focus on motives for learning in later professional life. Faced with an aging workforce and an increasingly competitive global economy, the European Union promotes the older workers' (and all workers') learning to favor updated skills and innovation (European-Parliament and European-Council 2006). This institutional discourse, as other types of European discourses (Hoskins 2008), emerges through contributions from academic discourses developed in different scholarships and perspectives. However, the issue of motivation and motives for vocational learning is neglected in that institutional discourse, and learning is seen as an individual endeavor, overlooking the role of the activities in which workers are actually involved, their embedded culture, and the institutional contexts (Migliore 2013, pp. 30–35). This chapter illustrates the view on older workers' motives for workplace learning in different disciplines and – by comparing them – aims to indicate what aspects of the issue remain underinvestigated and which theoretical perspective could be adopted to make further progress in analyzing it. As an example of the theoretical perspective proposed, the chapter reports about a research on the older workers' learning in shop floors in industrial enterprises in the last section.

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## Vocational Learning, Training, and Workplace Learning

Although the chapter takes an interdisciplinary view, its main approach is from an educational perspective and from a social practice theory of learning. As it is explained in more detail later, learning is seen as an aspect of any activity. Moreover

the concept of workplace learning is preferred to that of vocational learning. Workplace learning represents the learning in, through, and for the workplace (Evans et al. 2006). The concept of workplace learning fits better than the vocational learning concept in this chapter for it gives a clearer visibility of the workplace, the space in which, through which, and for which vocational learning develops. As working and learning are viewed as interrelated, studies on motivation and motives to learn and to work are reviewed. The assumption is that when motivation to work is high, motivation for workplace learning is high too.

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## **Older Workers' Motives for Workplace Learning in Different Disciplines**

The following disciplinary domains have attended to the relationship between being older workers, working, and learning: psychology of work, educational gerontology, organizational studies, and educational science. Since the focus of this chapter is on motives to learning, studies which deal with this motivational aspect will be presented above all.

### **In the Psychology of Work**

In the psychology of work, scholars refer to the construct of motivation rather than motives. Motivation to training at work is seen as an individual characteristic (i.e., Bertolino et al. 2011, p. 252) and often defined according to the expectancy theory, developed to provide managerial indications to improve workers' performance (Vroom and Deci 1983; Truxillo and Weathers 2005). Motivation is seen as related to desiderated individual outcomes. The learning outcomes considered are limited to the prospective career (Maurer et al. 2003). However on the basis of the socio-emotional theory, there is invitation to look at other types of learning outcomes, and some studies highlight that older workers are in a different position compared to young workers with reference to time (Kanfer and Ackerman 2004; Bertolino et al. 2011): youth might perceive time as unlimited, while older people assess time as time left. This differential future time prospective brings about an exchange in evaluating what goals are relevant: from more career-focused ones to more social-affective ones, including personal satisfaction, identity, and self-concept protection (Kanfer and Ackerman 2004), building and maintaining relationships with colleagues (Beier 2008). This focus on specific preferences, values, and orientations of older workers represents the latest trend in analyzing older workers' motivation to work and learn (Kooij et al. 2011; Kanfer et al. 2013). Yet work and workplaces are conceptualized as framed by characteristics such as support from superiors and colleagues, job demands, and age bias, and these features are interpreted as sources of job attractiveness for older workers to choose to continue working longer (Kanfer et al. 2013, p. 8). What is learning is much less discussed. One can infer that learning is seen in the

cognitive-oriented literature as a training and vocational development, needing cognitive resources, motivation, individual goals, and some job characteristics.

Regarding cognitive resources, they are framed adopting a perspective developed more than 70 years ago which distinguishes between fluid and crystallized intellectual abilities (Kanfer and Ackerman 2004, p. 443). The notion of fluid intellectual abilities refers to working memory, abstract reasoning, attention, and processing of novel information and has its peak in the twenties. The crystallized intellectual abilities point out to the knowledge accumulated through education and experience and are associated with the extent of vocabulary and verbal comprehension. These crystallized are held to increase over life. According to Kanfer and Ackerman, older workers consider the effort needed to compensate the decline of the first type of cognitive decline when they evaluate job demands and performance. Their study is on work motivation. However they mention motivation for training several times: their view emerges as heavily conditioned by the model of cognitive abilities' decline, both the decline in fluid intellectual ability and crystallized intellectual ability:

Our analysis of work motivation in the context of aging suggests that the motivation for training will decline with age, as declines in cognitive ability slow learning and the time frame for development of Gc-type expertise (in which performance may be sustained with less effort) decreases. As such, we expect that motivation for the development of new expertise, whether to prevent skill obsolescence or to develop expertise in a second or third career, should be higher early in midlife, before the individual approaches retirement. (Kanfer and Ackerman 2004, p. 455)

These authors make a translation between work motivation and learning motivation based on the same theoretical assumption: in the face of cognitive decline, the relationship between effort and performance is the determinant in motivating older workers to work and learn. Goals, preferences, self-concept, and some job characteristics act as moderators in this relationship and in the relationships between effort and utility and between performance and utility. This idea of framing the analysis of the relationship between age and employee training by adopting the model of a relation moderated by a number of non-cognitive factors belongs distinctively to organizational psychology too (Van Vianen et al. 2011).

Other studies from the psychology of work on the issue of older workers' workplace learning place more emphasis on previous learning experiences and job characteristics (Warr and Birdi 1998) and leave aside the focus on cognitive decline. Peter Warr's work on age and personal development through learning activities is framed in the job characteristics theory (Oldham and Hackman 1980) and the relationship between job characteristics and well-being. In this type of study, as in that of Maurer et al. (2003, 2008), age emerges as a not significant factor in explaining development and learning activities. Other individual factors surface such as previous learning experiences and educational attainment in explaining learning participation. As in the case of the cognitive approach, learning is not explored with the theoretical conceptual tools of the educational sciences. Learning is conceptualized more in line with the human capital theory and less in line with the social theories of learning, which should fit better with workplace learning, as argued



later. Yet works of this type are relevant to the issue of older workers' motives for workplace learning as they draw the attention to the job characteristics in giving support to learning activities. However, work organization and production strategies receive a limited view.

Recent neurological and neuropsychological studies have developed a more interrelated approach to the relationship between individuals and context. The cognitive reserve theory shows how life span cognitive activities related to educational attainment and consequent patterns of cognitive activity in the socioeconomic conditions appear to bolster the brain's ability to compensate the damages produced by pathologies and aging (e.g., Stern 2007). This shift in the cognitivist approach toward analysis of how experiences shape the brain and mind is a step forward to recognize the variability of the situations and how different life contexts can shape cognitive and individual development.

### **In the Organizational Studies**

One of the first works on older workers and learning from an organizational and managerial perspective has been produced by Tikkanen (1998; Tikkanen et al. 2002), even if we can trace an interest for the issue back in the 1960s (Belbin 1965). The study of Tikkanen and colleagues was conducted in 27 SMEs in industrial, service, and office work sectors in England, Finland, and Norway, presumably at the end of the 1990s. It focused on job competence and learning at work from an organizational learning view, that is, considering the working environment as pivotal for learning. One of its main findings has been that the age dimension did not emerge as crucial and that differences in older workers' job competence and learning mainly depend on the type of sectors and job in which one is involved and the managerial attitude toward workplace learning.

The mainstream in organizational studies on older workers keeps maintaining its focus to redesign work in ways that support older workers' motivation to work (Armstrong-Stassen 2008; Sanders et al. 2011) and learning. Most recent works are developed with the aim of explaining how to retain older workers in the workplaces, postpone retirement, or support return to work after retirement. This trend – in the landscape of increasing life expectancy – is related to the concern for the sustainability of the pension schemes. These studies have the job characteristics theory as their theoretical starting point, already mentioned above, which indicates five main job features to foster internal work motivation and two individual differences, recognizing that not everybody reacts in the same way to the same working conditions. The five elements are skill variety, task identity, task significance, autonomy, and job-based feedback. The two individual features are growth need strength and job-related knowledge and skill (Oldham and Hackman 1980). What is interesting to note here is the recent emphasis on the features of the physical and social work environment, so that it is now more adequate to refer to work characteristics rather than job characteristics (Humphrey et al. 2007, p. 1333; Sanders et al. 2011, p. 134). This is an important point because it widens the view from the

jobholder to her/his working context. For example, Sanders et al. have found that social support in the workplace from managers and colleagues, interactions with customers, and complex tasks favor the older workers' work motivation (Sanders et al. 2011).

We now leave the presentation of works from the psychological and organizational perspectives to move to a field which is devoted to aging and finds its own disciplinary definition in this.

## **In the Educational Gerontology**

Although a large part of the educational gerontology literature has been theoretically underdeveloped for a long time, more recently, studies in this field have been elaborated according to critical perspectives and the life course approach (Glendenning 2000; Withnall 2006). These theoretical frameworks have given rise to questions about what age, aging, and the position of old age in the postmodern society are and the role of education in supporting old people, especially in the post-work phase of life. Even if there is not an explicit reference to the issue of motivation or motives for learning in later life, the aspects of aging highlighted by the studies in this research field are interesting for the sake of the focus here.

From a critical perspective and with reference to works of Lash and Urry (1987), Bauman (1997), Leonard (1984), and Taylor (1989), Phillipson depicts the postmodern society and its characteristic of instability, and lack of resources to support people in constructing their identity. According to the critical perspective, the task of critical educational gerontology is to highlight the role of education in supporting older people in their struggle to find a place in the postmodern society and to build their identity.

The gerontology field is traditionally defined by the concept of older age and is based on the premise that older age has a specificity compared to the younger one. The focus is on biological and psychological factors, and the emphasis is on impairment of health, cognition, and loss of perspectives. Yet since the end of the 1990s, the adoption of a life course approach has widened interests in the gerontology field to the social factors and the long-ranging effects of early experiences. In the gerontological literature, the issue of whether age can still be seen as the relevant common denominator among older people arises, when it can be seen that variability within this group is even greater than in other age groups (Settersten 2006). The adoption of the life course approach reveals that older people do not share the same economic and social circumstances in which they have grown up and lived. This raises the question of whether it is possible to generalize the findings to future cohorts of older people (Settersten 2006; Withnall 2006). However, the life course perspective is used to investigate how social and individual experiences can influence learning in later life and how older people make sense of their own learning attitude.

In critical educational gerontology, aging is seen as a socially constructed event in which the state and the economy play major roles (Glendenning and Battersby 1990). The preoccupation is about marginalization of older adults and raising their

consciousness of power and control in the construction of the aging process (Withnall and Percy 1994). From this point of view, education can play a role of empowerment and emancipation.

The humanistic perspective has been developed in Britain by Percy and in the United States by Moody. Percy points out the difficulties in generalizing about older adults as a disadvantaged group and questions the supposed superior position of educators in trying to transform the others' view. Educators could be facilitators of the older people's learning, taking into account that older people have a lifetime experience to pass to the younger generations (Withnall and Percy 1994). Moody offers a more complex picture of the accumulated experience of older people, noting that this can be either a resource or a stumbling block. This depends on the meanings people give to their past:

Our attitude toward our own past deeply affects the quality of life, whether we hold on to it too dearly or disown it too readily. (Moody 1990, p. 25)

On the basis of the poet T.S. Eliot's meditation on the meaning of time and aging, and on the call for attention to the value of the process of life review made by gerontologist and psychiatrist Robert Butler, Moody stresses that past experience needs to be questioned and reviewed to find meanings for what otherwise is only a sequence of events. He relates the life review to the conceptualization of development and learning in old age. According to Moody, each age has its own developmental task. The one for the old age is the process of life review:

It is this sense of discovery that gives the process of life review its true significance and its relationship to continuing education throughout the life cycle. If we accept this process of life review as being the major developmental task of old age, it must become the starting point for any theory of education that we might evolve. We will need to pay the closest attention to how older people use their life experience in the learning process in order to build the strengths of experience in old age. (Moody 1990, pp. 28–29)

Education can support older people in this process through integrating their life experience into the classroom. Pointing to the work of Paul Freire, Moody argues that an educational method based on a dialog and partnership between educators and older learners is needed.

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## Considerations on the Contributions So Far Illustrated

Framing the discourse on older workers' motivation to learn with cognitive and intellectual capabilities' decline, even when balanced with other increasing trends (e.g., fluid and crystallized intellectual abilities), emphasizes aging processes to the detriment of other social and cultural processes. The social and cultural processes which differentiate workers at any age create more heterogeneity in the old age than in the younger one (Kolland and Wanka 2013). When psychological and sociological approaches interact, paradoxes emerge such as the one that job performance

does not depend on age, but on experience. This seems in contrast to the idea that learning performance could decrease with age. There is the suspicion that the experimental psychometric tests in laboratory cannot take into account the workplace context and its potential of engagement and motivational effect (Schaie and Schooler 1998, p. 8). It is possible to find reference to the job characteristics but sometimes with simplistic taxonomies and thinking of workers as career-focused individuals or needing support (i.e., personnel management policies, working conditions, employer's support in favor of older workers' participation in learning activities). This implies a view of learning as an individual endeavor which has to be triggered by favored conditions. These studies tend to consider all types of workplaces to be similar (with the exception of Tikkanen and colleagues) and fail to thematize the link between learning and production strategies (Tikkanen and colleagues included). According to the view held in those studies, older workers become engaged in learning if they have support from the companies, and if training systems are more adapted to their specificity.

When job characteristics are used, the reference to the sector and the production strategy pursued are not included, with the effect of looking at workplaces as nonhistorical and nonpolitical places, neutral with respect to the industrial policies choices. Workplaces are seen through organizational dimensions and not the object of the activity as shaped by global competition and types of capitalism (Hall and Soskice 2001). In other words, what production strategy corresponds to workplaces in which jobholders, including older workers, have interactions with customers and carry out complex tasks? These latter two elements are listed by Sanders and colleagues, as favoring work motivation in older workers. These authors seem to suggest that any enterprise can implement those two work aspects. Yet, these features are more linked to certain production strategies than others, as it will appear later. This point is important for it allows to appreciate that the issue of older workers' motives to work and learn is also an issue to be considered in industrial and economic development policies.

The invitation from the educational humanist gerontology to consider the review and interpretation of the past experiences as the characteristic of growing old stresses the relevance of older workers' subjectivities. The contribution of the humanist approach is to consider older workers' subjectivities in the process of growing old. This means to investigate how older workers develop personal senses for their lifetime experiences in order to interpret their engagement with the present. While one can acknowledge the relevance of the theme of the personal sense of growing old and the role of the past in it, there emerges a fracture between the above discourse on workplace characteristics, with its potential of being linked to wider economic trends, and this latter discourse on personal and subjective side of development. Is it possible to connect these two apparent separated discourses? In some way, the neurosciences mentioned above invite an exploration of the interactions – or “intractions” in the philosophy of quantum theory, as argued by Karen Barad (2007) – between individuals and contexts.

Before dealing with this issue, contributions from social theories of learning are presented.

So far poor definitions of learning have been used, seen mainly as structured activity of teaching and learning and as investment and return from investment (e.g., Warr and Fay 2001, p. 352). So it is interesting to consider contributions from studies on older workers' motivation to learn framed in the educational perspective.

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## Perspective from the Social Theories of Learning

Educational sciences are more equipped to analyze the learning aspect of the relationship of concern here. Yet few works deal with older workers' motives for workplace learning, in particular from a participative and situated conception of learning.

Fuller and Unwin, whose work attends to the whole workforce, have briefly touched the issue of older workers' workplace learning (Fuller and Unwin 2005). They frame their study from the situated approach developed by Lave and Wenger (1991) whose work is considered to be a milestone in the literature on learning at work from a social practice perspective. Lave and Wenger point out the relevance of situated learning in the transition of newcomers to become expert workers in communities of practices. This transition occurs through legitimate peripheral participation, where appropriation of skill and knowledge takes place. Fuller and Unwin have extended and developed the situated approach to analyze workplace learning in western standard economic activities of production of goods and delivery of services. These authors propose to analyze the variety of settings through the expansive-restrictive continuum of approaches to apprenticeship programs. Expansive approaches are identified on the basis of Wenger's ideas on "work of imagination," which entails processes that open up "opportunities for learning through moving beyond a tightly bounded approach to participation . . ." (ibid., p. 412).

The attributes of the expansive approaches refer to multiple communities, sharing memories, access to qualifications, time off-the-job, individual support, favorable conditions for developing extended identity, and production of documents and tools. An expansive learning environment "entails the creation of environments that allow for substantial horizontal, cross-boundary activity, dialogue, and problem-solving" (2006, p. 43).

These authors are interested in the learning opportunities created by the job design and work organization, but at the same time, they pose the issue of the individual agency through which workers elect the extent to which they engage in those opportunities (Fuller and Unwin 2005, p. 26). They follow Billett in framing the relationship between structure and agency, but also Hodkinson & Hodkinson with Bourdieu's concepts of learning disposition and habitus (Hodkinson and Hodkinson 2003). It can be argued that these two theoretical approaches, from Billett and Hodkinson & Hodkinson, are opposed one to the other: Billett conceptualizes structure and agency as two logically separate entities, although interrelated, while the use of concepts such as the Bourdieu's habitus implies the inseparability of individuals and contexts:

It is [habitus] a means of expressing the integration of social structures and person (body and mind), as indivisible. (Hodkinson and Hodkinson 2003, p. 4)

From this idea of expansive and restrictive learning environments, Fuller and Unwin have analyzed the relationship of older workers toward learning using case studies of two firms in the United Kingdom, with contrasting approaches to workforce organizations. Company A designs and manufactures bathroom showers, thermostats, and valves, and its strategies are quality and competitiveness. Company B manufactures steel rods and bars for the construction industry and, at the time of the research, was struggling under price competition from “cheap imports.” The authors have found older workers to be generally interested in learning, especially when this aims at helping them to do their jobs better or easily and independently from the type of work organization and approaches to workforce development. However some differences emerge when the authors consider the negative attitudes toward organizational changes leading to more opportunities for learning at work (for instance, through broader definition of tasks and job rotation) in Company B. They interpret the different perceptions of the new ways of working among older workers as being related to individual dispositions and prior status (Fuller and Unwin 2005, p. 34), which in turn seem linked to features of the established organizational approach to employees development, based on specialism and seniority (*ibidem*, p. 35). Referring to the Pillay et al. study, they want also to indicate a subtler factor playing in the issue of older workers’ workplace learning: the relevance of the older workers’ conceptions of work and learning at work. They quote Pillay et al.: “They argue that recent research in epistemology and conceptions of learning indicate that ‘if workers do not consider learning as part of their conception of work then the approaches they adopt in their work practice may not include learning’” (Fuller and Unwin 2005, p. 36). These authors found that older workers hold work and learning conceptions that are not aligned with what they call “new capitalism,” that is, ways of producing based on innovative practices, creativity, organizational learning, and lifelong learning. In the light of Fuller’s and Unwin’s work, work and learning conceptions can be influenced by the organizational culture. Therefore, older workers can also benefit from a workforce development approach and work organization which support and manage new learning opportunities and conceptions of work and learning more adapt to the changing economy.

Billett warns that older workers might receive little support in the workplaces, as happens for most women and disabled workers (Billett 2006, pp. 161–162). So, he considers that it could be risky to wait for employers’ interventions and research should support the empowerment of older workers. Hence, he concludes that older workers’ “agency and capacity to be agentic (...) will become the key determinant of older workers’ capacity to maintain competence throughout working life” (*ibidem*, p. 162).

Thus Billett’s stance leads to an emphasis on individuals and their agency, while in the Fuller’s and Unwin’s approach the attention is on the workplace environment and its organizational features and practices.

These are examples of how in the educational sciences the issue of older workers’ workplace learning is framed with different approaches to the relationship between

individuals and contexts, agency, and structure. Yet, the sort of swinging between emphasis on agency or structure seems to call forth the possibility of developing a perspective able to find out how to deal with individual development and context development at the same time. In what follows, the working activity is proposed as the unit of analysis able to connect these two developments, so that they became a single development (Cole and Wertsch 1997).

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### **CHAT: A New Perspective to Investigate the Older Workers' Learning**

People need to find motives to engage in workplace learning, independently from age. In the psychological studies discussed above, motivation refers to internal motivation, that is, individual desires. In the educational studies just discussed, the authors adopt the concepts of disposition. In a CHAT (cultural-historical activity theory)-influenced perspective, the corresponding concept to explain what prompts to learn is "motive." To explain what "motive" is in that perspective requires leaving the issue of older workers' workplace learning issue for a while, to go back to the focus of this chapter equipped with a new language and view. CHAT is based on Marx's philosophy of the ontology of consciousness as developed in *The German Ideology*, with its view of the primacy of human activity in shaping individual consciousness. The Russian psychologists adopted Marx's thinking to develop a cultural and historical approach to psychology, and to search for resolutions to the principal theoretical problems encountered by behaviorism, Gestalt psychology, and psychoanalysis (Leontiev 1978, p. 2; Bakhurst 1991, p. 62). The project was started by Vygotsky, who gave great insights into the origin of individual development in little more than a decade, in the 1920s, before dying prematurely. He developed what he called cultural-historical psychology. Leontiev, one of his well-known followers, elaborated the related theory of activity. The works of these authors and other co-workers penetrated Western academic thinking slowly, due to the restrictions imposed by the Soviet regime on their diffusion. Yet from the 1970s, their ideas started to spread in America and Europe, giving rise to the development of a wide range of studies, all having their roots in the Russian school of thought founded by Vygotsky and his followers. One way of labeling this mainstream is cultural-historical activity theory (CHAT).

To understand the CHAT approach, one should keep in mind its fundamental principle: individuals' characteristics develop in the participation of collective and material activities; individuals do not hold inborn features which determine who they are. Individuals internalize language, symbolic tools, use of artifacts, the social meanings, and motives which they encounter in activities. What is internalized becomes subjectivized by the individual unique constellation of experiences and encounters in life. The externalization follows the internalization, in shaping the actions and operations carried out in activity. The continuous movements between internalizations and externalization, with the moment of the subjectivation (Stetsenko 2005), create the internal (in the subject) and external (in the world)



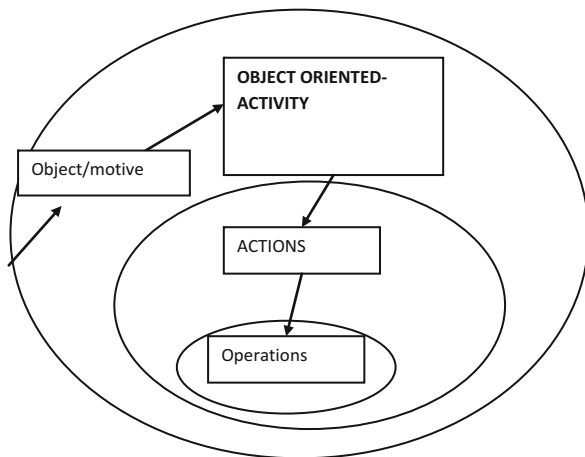
development of the activities. Hence individuals and the world can be a continuum in which it is impossible to identify what is only individual or what is only social: for instance, where the person ends and her/his inseparable mobile phone begins, if one considers that the mobile telephone stores people's and collective data so important to the contemporary way of living? In sum, a CHAT-influenced perspective suggests focusing on activities as unit of analysis.

It should be clear by now that the concept of activity plays a central role in CHAT. Activities are i) collective because they are carried out together (even when persons act alone, e.g., the others are present in their minds and imagination to comply with some duties) and ii) material through the use of cultural tools (symbols, artifacts) developed throughout the history of the earth and its species, especially the human species.

Motives arouse collective and material activities. Motives develop in the collective human enterprise to respond to culturally and historically shaped needs. Motives emerge when the culturally and historically shaped needs find the object able to relieve and fulfill the needs. For example, a collective and material activity can be producing shoes. That activity has been prompted by the need of walking more comfortably on the various surfaces on the earth, maybe when human beings began to walk long distances, in search for a better life (which can be viewed as a historical and cultural need). When that need found the "object" able to relieve it, that "object" became the "motive" of the activity. The concept of "object" refers to the ensemble of actions and operations carried out to produce – in the example – the shoes. So, the object is not the shoes. The object is what prompts the activity, is its true motive, and it generates actions and operations. For a detailed presentation, see Migliore (2013, 2015) (Fig. 1).

It is important here to focus on the motives of collective and material activities to say that, in Leontiev's view, people internalize personal senses of activities' motives from participating in activities. People organize all the personal senses of motives in

**Fig. 1** Levels and elements of activity. (Source: from Migliore (2013), p. 57 (modified))





a hierarchy, according to their life circumstances. The theory of personality outlined by Leontiev sees personality and the self as a hierarchy of motives.

To clarify, a person who learned to appreciate (verb which reveals a personal sense attached to) the motive of caring for other people might put this motive higher in his hierarchy for he also learned to love children and has now a loving family. The same person could have learned from his mother that it is important to attend to the management of the family financial and patrimonial resources, and more in general, that accounting is necessary. However, for some other social circumstances, he feels that accounting is not exciting. Therefore, his hierarchy of personal senses of motive (first "caring for others" and second "accounting") is likely to guide his job choices toward enterprises which are prompted by the motive of caring for others.

On the base of this perspective, the close connection between self and activity should be clear: the same motives prompt both. Leontiev judges this insight – the same structure of activity and consciousness – "to be one of the more important discoveries of contemporary psychological science" (quoted in Migliore 2013, p. 52).

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## Older Workers' Motives to Workplace Learning from CHAT

Going back to the issue of older workers' motives to workplace learning, this CHAT-influenced approach underlines the importance of considering the object/motive of the activity in which older workers work and their personal relation to that motive. Getting back to the above example, the older workers for whom the motive of caring for others is high in their hierarchy of motives, working in an enterprise guided by that object/motive, and carrying out actions and operations coherently related to that object/motive, should feel engaged in their workplace and be oriented to learn what they think it is necessary to carry out his job with satisfaction.

Findings from a research based on two case studies in northwest Italy (presented fully in Migliore 2013) give an example of how this theoretical perspective can support the interpretation of the relationship that older workers have with workplace learning. In coherence with the framework, the research design chose to analyze two industrial activities, characterized by contrasting features in their production strategies. The production strategy is about how to organize the labor process and the work organization to comply with the object of the activity, given the institutional and market conditions; the technological, financial, and human resources available; and the economic, social, and political cultural beliefs. Thus the production strategy is the outcome of complex interrelated factors. In the research mentioned above, one enterprise (E1) was impelled by the production strategy of mass production (its object/motive) to produce parts of machines (not further specified to cover the anonymity) for multinational companies. Around 600 workers used to work in E1. The other enterprise (E2) was prompted by the production strategy of "flexible specialization" (its object/motive) to produce parts necessary to the field service of a complex machinery. Two hundred workers were employed in E2.

Older workers (nine) in the shop floors and managers (six) were interviewed between 2007 and 2008 in E1 and E2. In the E1 the older workers (all female) were working at the assembly line, carrying out brief operations, which did not allow them to have a clear image of what was the object/motive of the enterprise. Yet, they were asking for learning more about their work, and this request appeared as a way to ask for attention and development. Their narrative of their day-by-day lives, with their responsibilities at home and their dreams, shows the connections between activities at home and at work: the housework was giving to them elements to judge (negatively) the work organization in the E1. They were feeling engaged in their work in the E1 shop floor but with frustration for the inefficiencies they believe there were in that enterprise.

In the E2 the older workers (all men) were working as turners, welders, cutting machine operators, and they knew about the production strategy of their company. They thought they had learned and developed professionally over their working lives significantly, and they did not show much interest in learning more. Their main concern was now the potential waste of all their professional knowledge developed and accumulated in their working life. These men were much more oriented to the coming retirement than the female workers in E1 and worrying about the loss of their knowledgeable workers' status.

The differences in the personal ways of attending to their jobs, tasks, and vocational learning among the older workers in case studies E1 and E2 were sharp and were clearly related to the challenges that the two examined production strategies were facing in the global competition, especially in the case of E1, as they emerged in the tasks the older workers had to perform.

The older workers in company E2 had the clear perspective of retirement and with this a feeling of personal achievement and fulfillment, because they had been engaged with an object of activity which had required the development of skills and provided personal senses. So, after some decades of work, they had achieved a feeling of satisfaction and were ready to retire, even if they would have preferred to carry on in making sense of their working life by passing on their knowledge to their younger colleagues. Most of the older workers in E1 were in a diverse life position. They still had expectations, as they had not been able to achieve what they would have liked to achieve. For this sense of frustration, mixed with expectation and hope, these older workers were willing to learn what they thought would eventually supported their professional development and the development of the activity.

This example illustrates, with reference to the particular industrial activities discussed here, how the older workers' conceptions of working and learning depended on the development of the professional activities in which they are and were involved, and how activities succeeded in getting older workers engaged. Working activities offer the meanings and senses to feel engaged or resistant to get involved, and not only conditions and opportunities for learning. This means that the relationship between workplace and learning is less direct than some other studies have suggested, so that even when the first has features not favorable to workplace learning, as in E1, workers can get involved and engaged in learning as well, despite the negative conditions of work. In this view, the subjective aspects – defined as social

in their origins – become central in explaining the choices of the older workers with respect to workplace learning and not moderators as seen in the psychology of work.

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## Discussion and Conclusions

Placing side by side different disciplinary approaches to the issue of older workers' motives toward workplace learning casts doubt on studies which focus on age by considering individual factors as context-independent. As some authors mentioned in this chapter pointed out, age is not a significant factor in interpreting the relation between being an older worker and workplace learning. Aging is a co-evolution between experiences and self which occurs through involvement and participation in activities (Migliore 2013, pp. 81–82).

Older workers may be shop floor industrial workers, as in the example above. They may be managers in enterprises of different kinds or they may be non-permanent workers engaged in freelance and contract-based work or self-employed. The availability of freelance work and contract-based specialist positions on a nonpermanent basis in the job market is often an important structural aspect guiding the work journey of the older worker (Bound et al. 2018). The different senses of self and purpose as workers and as people with particular interests and motives are reflected in the variety of ways people engage in work activities and experience learning and development.

Workplaces are generally attached to enterprises, whether micro, medium, or large in their scale of operation, that differ in their production strategies as well as their organizational culture. How work activities are integrated into production processes has been shown to be the most important occupational affordance for the learning, motives, and development of workers of all kinds, including freelance and contract-based workers (Bound et al. 2018). It is important also to recall the gender issue which surfaces and needs further investigation. In the empirical work framed with CHAT outlined above, some differences between the female and male older workers emerged as related to their activities outside their workplaces, mentioned by the older workers to explain their relation to their workplaces: the female older workers referred to housework and the male older workers talked about their hobbies. These few examples recall that the female and male activities outside the workplaces can be very different. It would be interesting to look at how far industrial activities designed mainly by men (Acher 1990; Probert 1999), who take to a much lesser degree responsibility for domestic works and caregivers than women, influence the range of possibilities for female workers.

Workforce development policies are defined implicitly by production strategies and not solely by HR departments. Scholars, practitioners, employers, stakeholders, officers, members of governments, and parliaments should consider industrial policies as a means to favor the development of workers and older workers in the aging societies, to support the kinds of production strategies that allow people to develop and flourish. Conceptualizing development as collective and material can support new ways of designing industrial and learning policies.

Even if the literature put more emphasis on the vocational learning apparently needed by older workers, one should not neglect the workplace learning and the professional knowledge developed through the older workers' working life. Recognizing older workers as knowledgeable practitioners (Evans 2015) calls for attention in two directions: to support i) the making sense of getting old of workers who have become knowledgeable in their work and ii) the transmission of the knowledge to the younger generations. Echoing Moody, this could help older workers to use their lifetime experience to further develop in order to build the strengths of the experience of becoming old, enriching the whole society.

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# Creativity Development and Vocational Learning

# 52

Antje Barabasch

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## Abstract

Under the conditions of global competition, innovations are essential for companies' survival. Creative workers who can contribute to innovations are increasingly demanded, and schools as well as training institutions need to respond to this shift in competence requirements by adjusting their pedagogical practices, including assessments, curricula, and learning environments. This chapter provides an overview about creativity research where it applies to VET. It first presents an overview of some of the main pillars of creativity research and explains the concept of creativity vice versa entrepreneurship. This is followed by providing insights into practices of creativity support and assessment that can be applied in the school context and followed by elaborations on what it means to support creativity development at the workplace. Art can be used as a stimulator

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in creativity development and is increasingly integrated into learning processes – a topic that will be briefly addressed before the chapter ends with an advocacy for more creativity development within the field of VET and elaborating on the importance of deep domain specific knowledge in all of that.

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**Keywords**

Creativity · Innovation · VET · Art-based learning

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## Introduction

In our innovation-driven societies, flexibility of the workforce has become a panacea for the economy. It entails the expectation that workers are constantly updating their skills and competencies according to labor market needs. International competition forces enterprises to find new approaches toward increasing the productive potential of their workers. One approach toward the systematic development of enterprises within the context of global competition is to rely increasingly on the creativity of all company's staff members. Therefore, training of workers becomes a continuous need and has an increasingly important role to play. Particularly relevant within vocational education and training (VET) is the acquisition of skills that support workers in seeking new solutions to workplace challenges, which means to think and act creatively. This new requirement is also reinforced by the development and introduction of new technologies, which will replace workers in some fields and will require new jobs in others. Accordingly, VET is particularly challenged to support the development of creative thinking skills and action competence, abilities that can be expected to support individuals in managing their careers successfully and advancing professionally through their creative contributions at the workplace.

The European Commission had declared the year 2009 to the “year of creativity and innovation.” For this purpose, a number of artists and scholars, among them Edward de Bono, the choreographer Anne Teresa de Keersmaeker, architect Rem Koolhaas, designer Philippe Starck, and the star cook Feran Adrià. They were the official European ambassadors who claimed that “Europe needs to boost its capacity for creativity and innovation for both social and economic reasons” (European Manifest 2009). The report provides recommendations in respect to education and training, supporting lifelong learning, reforming schools and universities, and investments in research and knowledge production. A European report (Cachia et al. 2010) states that creativity, in the educational context, should be conceptualized as a skill that schools need to foster and inhibit in students. Teachers reacted positively to the importance of creativity and innovation in education, although conventional ways of teaching related to teacher-centered methods, frontal teaching, and chalk and talk seem to prevail largely in schools within the European community. The report highlights five major areas for improvement, which are to enable more creative learning and innovative teaching by adapting curricula, pedagogies, and assessment as well as teacher training and include more ICT and digital media. Further, educational culture and leadership are addressed which need to facilitate this change.



The report draws on interviews with teachers and addresses the necessity to move toward a more creativity-supportive practice. However, teachers need to be supported with further training because they currently lack the skills and confidence for changing their teaching practice. Additionally, factors such as tight timetables, overloaded curricula, lack of support in the classroom, too many pupils per teacher, and a school culture that does not support new methods were highlighted. To what extent this is also the case for vocational schools has not been addressed and needs to be inquired.

In VET, students are confronted with workplace realities and contribute as employees to the company's income. Although they are learners who need to build up skills and competences, they are also a source of ideas that enterprises can build on when further developing their existing products or even working on radical innovations. Viewing the apprenticeship as an opportunity for all, apprentices, co-workers, VET teachers, and trainers and employers, requires a change in organizational learning cultures and to some extent work and learning practices. In this chapter the term student and apprentice is used interchangeably, while the first applies more to the school context and the second to the workplace learning part as well as overall to the legal status a student is based in.

This chapter provides an overview about creativity research where it applies to VET. It first presents an overview of some of the main pillars of creativity research and explains the concept of creativity vice versa entrepreneurship. This is followed by providing insights into practices of creativity support and assessment that can be applied in the school context and followed by elaborations on what it means to support creativity development at the workplace. Art can be used as a stimulator in creativity development and is increasingly integrated into learning processes – a topic that will be briefly addressed before the chapter ends with an advocacy for more creativity development within the field of VET.

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## **Creativity Development in VET**

### **The Pillars of Creativity Research**

Research on creativity started in the United States in the 1950s with Richard Guilford (1950), a psychologist who developed a comprehensive factor analysis model for the assessment of personality. His psychometric studies on intelligence and creativity showed that there is no causal relationship between intelligence and creativity. Creative individuals tend to create larger amounts of possible solutions, findings that lead to the development of the concept of “divergent thinking.”

Convergent and divergent thinking is needed for the creative process (Cromptley 2006). Convergent thinking is oriented toward deriving the single best (or correct) answer to a clearly defined question. Divergent thinking involves producing multiple or alternative answers from available information. It requires making unexpected combinations, recognizing links among remote associates, transforming information into unexpected forms, and the like. Guilford (1950) argued that psychologists and teachers traditionally place too much focus on convergent thinking (problem-solving

skills, logic, coherent answers, etc.) at the expense of divergent thinking (unusual, lateral thinking that involves seeking out new possibilities).

Guilford's achievement includes the development of a comprehensive factor model of the human mind and personality, which consists of 120 creativity factors. For Americans his research was at the time of utmost importance in the context of international competition and cold war. Not only was it important for the development of new competency assessments, for example, among pilots, it also was expected to help find the best talents, an urgent desire following the "Sputnik-Schock," which stands for Russia sending its first satellite into orbit. The result was a massive investment in the United States into creativity research (Krause 1996).

In the aftermath of the massive initiation of creativity research, many different disciplines started to be concerned with it, such as psychology, philosophy, cultural science, economy, sociology, neurobiology, and education. Howard Gardener, with his theory of multiple intelligences, pathed the way for the recognition of additional abilities that are beyond rational thought and rational logic. Especially the intelligences associated with the arts and sports (musical, visual-spatial, and bodily kineshetic) are highly relevant when it comes to acting creatively. Today, especially within the field of economics, the importance of creativity development has become highly prominent, which must have consequences for the ways in which not only students within higher education institutions are trained but also apprentices within VET.

While there are many research centers focusing on students and knowledge workers to develop their creative potential (Stanford D-School, Stanford Department of Management Science and Engineering, International Center for Studies in Creativity at Buffalo State University or Hasso Plattner Institute), within the field of vocational education and training, the relevance of the topic seems not to be recognized much at this stage. This book chapter follows the advocacy of Gerald Hüther (2011, 2012) and Rothauer (2016) in arguing that VET schools need to go far beyond teaching knowledge and essential life and learning skills and open up for new ways of teaching that support the creativity of students as an essential competence.

## What Is Creativity?

Creativity is the competence to create innovations (Witt 2010), and more specifically Amabile (1996, p. 33) coins it as "A product or response is creative to the extent that appropriate observers independently agree it is creative. Appropriate observers are those familiar with the domain in which the product was created or the response articulated. Thus creativity can be regarded as the quality of products or responses judged to be creative by appropriate observers, and it can also be regarded as the process by which something is produced."

Amabile (1987) developed a simple model for creativity which comprises three features: domain-relevant knowledge, technical skills, and intrinsic task motivation. To produce work that is original, she argues, individuals must also possess creativity-relevant skills, such as suspending judgment, self-discipline, perseverance, and nonconformity. Motivation is generally divided into extrinsic and intrinsic motivation,

whereas the latter is more conducive to the generation of new ideas. Although an eagerness to work diligently appears to be an essential component of high levels of creativity (Golann 1963) and although a number of introspective accounts describe creativity as marked by deep involvement in the activity at hand, these accounts also stress the importance of intellectual playfulness and freedom from external constraints (e.g., Einstein 1949).

Acting creative means to find valuable starting points for renewal bring ideas for their solution and realize them properly and with efficiency. At the core of creativity is creative thinking which resolves out of a new combination of what is already known. Creative thinking skills, however, are manifold and can comprise constructs, such as visionary thinking, diagnostic thinking, strategic thinking, thinking with ideas, judgmental thinking, contextual thinking, or tactic thinking. Also, analogical, associative, lateral, and combinatorial thinking skills have been referred to. Developing all of these thinking styles is a comprehensive task for teachers and requires a thorough revisit of curricula in order to understand to what extent these thinking styles are embedded in the training of competences in VET.

Rothauer (2016, p. 40) summarized the request for the variety of skills needed to be creative: “Considering our holistic abilities we not only need to connect analytical thinking with associative, experimental thinking, but also intuition and emotion with rationality. We need to trust sudden insights and unusual lines of thought and follow up on them, instead of only go through something systematically and analytically. Experiments of thought and the openness for untested terrain contribute in our times of constant change and less predictability to shaping the future than the attempt to continue with well-known and proven approaches.”

The creational process or “Schöpfungsprozess” involves the experimentation with ideas, their consideration, discarding, selection, rearrangement, revision, and perfecting, which has been coined as the method of “design thinking” (Plattner et al. 2009). Holm-Hadulla (2005) had summarized the process of creative thinking as it is embedded in the design thinking approach with preparation, incubation, illumination, realization, and verification. Wording differs when describing the method, and a last order should be mentioned here. Design thinking according to Rustler (2016) comprises to understand, observe, synthesize, develop ideas, prototype, and test (Rustler 2016). Especially the development of prototypes has been considered largely relevant in educational settings. Working with ones’ hands, materializing ideas, shaping and reshaping them, as well as sharing them with a group have become a common practice within the schools who prescribed themselves to the method.

Next to understanding of what creativity and the creative process mean, it is also relevant to have a common idea of how to identify creativity. According to Barron (1955) and Guilford (1950, 1957), creativity consists of two core elements. These are on the one hand newness, novelty, or originality and on the other hand appropriateness, usefulness, or meaningfulness. Judging creativity by means of standardized testing seems to be adventures if not impossible according to the large scope of these dimensions. Especially research findings on the ways in which our memories work are pertinent for understanding creative work. Among the two types of memory, declarative and non-declarative, the latter is particularly relevant when studying

creative minds. Declarative memory is closest to everyday meaning of memory; it is the capacity to recall everyday facts and events into consciousness. Declarative memory is representational and provides us with the means to model the world and to compare and contrast remembered material. Vice versa, non-declarative memory is expressed through performance rather than recollection. While this can be declared as right or wrong, non-declarative memories appear as changes in behavior and cannot be judged in terms of accuracy (Howard-Jones 2010). For the context of VET, where the majority of assessments of work performance is done qualitatively by experts, it is highly relevant to have common criteria for the assessment of behavioral changes and performance.

The terms creativity and innovation are often used interchangeably. In the following, the concept of “innovation” will be introduced and somewhat distinguished from creativity. Innovation has been defined as “the intentional introduction and application within a job, work-team, or organization that are designed to benefit that job, work-team, or organization” (West and Rickards 1999). West and Farr (1991, p. 16) understand innovation as “the intentional introduction and application within a role, group, or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit role performance, the group, the organization or the wider society. The elements need not be entirely novel or unfamiliar to members of the group, but it must involve some discernible change or challenge to the status quo.” The term “innovation” is used in many different contexts. There is the discrimination according to how new the innovation is as mentioned above: basis innovations, simple imitations, or creative imitations. In the literature appear many different types of innovation, such as incremental, semi-radical, radical, social or environmental innovation, etc. (Rustler 2016).

Research on creativity has outlined a large number of abilities and skills that contribute to being creative. Although intelligence is relevant, only in combination with phantasy, it might lead to innovations. Very important in the context of the abilities of our minds, memories, nerves, or emotions are that creativity requires knowledge. “Without knowledge phantasy cannot evolve and ideas cannot be developed, except by chance” (Witt 2010, p. 24). In order for creativity to lead to innovations, further requirements are courage, a mood for experimentation, seeking new information, appreciation of the new and of change, the ability and willingness to fool around, curiosity and openness, self-confidence, endurance, and persistence. All of these are requirements that shape personalities in particular ways – a task that VET teachers and trainers need to pursue. How to approach supporting creativity in apprentices within VET schools is part of the content in the next section. It will provide some ideas derived from the literature, and it is meant to inspire for “fooling around” with pedagogical methods and tools.

## **Preconditions for Supporting Creativity Development in VET Institutions**

The sociologist Ulrich Bröckling (2007, p. 154) summarized the challenges that all individuals face in the race for more creativity in the following way. Foremost,

creativity is something that everyone owns or disposes over – an anthropological possession. It is further something that one needs to have – a binding norm. Above and beyond, it is something that one never has enough of – an “interminable Telos” – and last, it is something that can be increased by applying various methods and exercises. It is a learnable competence. Creativity development in students starts with VET teachers becoming and acting creative. What this entails has been studied by Tanggaard (2014) who claims that creative learning pathways require to:

1. Fool around and play with things and materials at hand.
2. Dig deep into traditions as sources of inspiration
3. Learn from, manage, and survive resistance.

For teachers in VET, the topic is new, and there are many constraints that they need to overcome in order to make room for new approaches to teaching and learning. Challenges are manifold. It starts with teachers being mostly occupied with managing the required content within the given classroom time and the feeling that there is not enough room for maneuver left to support more individualized learning within experimentation. The incentive to teach students to be more creative is often missing, because many companies, which train apprentices, still do not see the value of more creative workers and therefore creative competence is not purposefully required (e.g., not listed in job advertisements). Reports of apprentices about their workplace experience indicate that throughout their training they experienced that workers are mostly concerned with managing a given task and little with seeking better ways for developing products or managing their days. Innovations or innovative ideas at the workplace even cause unrest, insecurity, and inconvenience and are therefore often not wanted or welcomed. There is the conviction that apprentices first need to learn their trade and acquire the foundational knowledge and competences for working in a chosen profession. Qualified workers often do not expect from apprentices to take part in a critical assessment of work processes and product development. Lastly, competence assessments and quality standards can be constraining when room for exploration and experimentation is needed. Both require openness for mistakes and fuzziness. When it comes to designing classroom instruction in innovative ways, teachers might face multiple issues, such as a troubled relationship to technology, a self-image as being not creative, different personal interests and aspirations about how to work, and also issues of identity (linked to their course of study, academic orientation, occupational choice, image of the profession, or area of specialization entered) (also see Perret and Perret-Clermont 2011, p. 169).

Where VET is organized in a dual nature, part time in school and part time at the workplace, the students' appreciation for work and using their growing professional skills can be met (Nielsen and Kvale 2003; Tanggaard 2006). Workshop formats where practical skills are thought can to some extent be of similar nature. By using technology, such as videotaping or video annotation, learning between the workplace and school can be bridged. Focusing on the products and services developed and enabling a critical discussion, for example, on the aesthetics of it are effective tools also for creativity development.

Focusing on the scope of action for teachers, some of the constraints above can be overcome by appropriate teacher training as well as by consulting the literature for pedagogical tools. For the different forms of training, a “framing” specific to the learning activity is needed in relation to the nature of the tasks involved (exercise, individual or collective project, development work), the type of educational support that is established, the implicit “teaching contract” that structures exchange, the individual or collective form of work, the time frame (work to be completed in a few hours or over a course of several weeks, with or without a fixed deadline), and finally the forms of educational assessment made of the completed work (Perret and Perret-Clermont 2011, p. 169).

Focusing on classroom instruction that stimulates creative thinking, Feldhusen and Treffinger (1980, p. 32) proposed ten recommendations for establishing a creative climate, which is essential for student engagement:

1. Support and reinforce unusual ideas and responses of students.
2. Use failure as positive to help students realize errors and meet acceptable standards in a supportive atmosphere.
3. Adapt to students’ interests and ideas in the classroom whenever possible.
4. Allow time for students to think about and develop their creative ideas. Not all creativity occurs immediately and spontaneously.
5. Create a climate of mutual respect and acceptance between students and between students and teachers, so that students can share, develop, and learn together and from one another as well as independently.
6. Be aware of the many facets of creativity besides arts and crafts: verbal responses and written responses both in prose and poetic style and fiction and nonfiction form. Creativity enters all curricular areas and disciplines.
7. Encourage divergent learning activities. Be a resource provider and director.
8. Listen and laugh with students. A warm, supportive atmosphere provides freedom and security in exploratory thinking.
9. Allow students to have choices and be a part of the decision-making process. Let them have a part in the control of their education and learning experiences.
10. Let everyone get involved, and demonstrate the value of involvement by supporting student ideas and solutions to problems and projects (as cited in Fasko 2000–2001, pp. 319–320).

The creation of a creativity-supportive atmosphere is the foremost condition for students to discover and work with their creative ideas. The next step for teachers is to enable students by providing a number of tools as well as knowledge and experiences.

Fasko (2000–2001, p. 321) proposes for these purposes the following actions for an inquiry-discovery learning experience:

1. Provide an initial experience to raise the interest of students in inquiring about a problem, concept, situation, or idea.
2. Provide the students with manipulative situations and materials to begin avenues of exploration.

3. Supply information sources for students' questions.
4. Provide materials and equipment that will spark and encourage student experimentation and production.
5. Provide time for students to manipulate, discuss, experiment, fail, and succeed.
6. Provide guidance, reassurance, and reinforcement for students' ideas and hypotheses.
7. Reward and encourage acceptable solution strategies.

Additional strategies are suggested in the literature:

8. Use randomness, such as when students are required to incorporate material and stimuli into their work (Ernst 1948).
9. Replicate a typical innovation process, which comprise the following elements (Witt 1996, p. 7):
  - Establish a framework for potential change.
  - Browse through information to find a starting point for an innovation.
  - Collect ideas for change and renewal.
  - Assess the ideas and select feasible ideas.
  - Concretize ideas and develop measures for their implementation.
  - Test the new product or process.
  - Introduce the new product or process.
  - Test it and improve it.

The next step after creating framework conditions and a climate as well as applying various tools and approaches is to focus on specific measures that support the generation of effective novelty (Savransky 2000):

1. Improvement (improvement or perfection of both quality and quantity of what already exists)
2. Diagnostics (search for and elimination of shortcomings in what already exists)
3. Trimming (reduction of costs associated with existing solutions)
4. Analogy (new use of known processes and systems, e.g., bionics)
5. Synthesis (generation of new mixtures of existing elements)
6. Genesis (generation of fundamentally new solutions)

In addition to:

7. Brainstorming (Osborn 1957) and brainwriting (Rohrbach 1969)
8. Divergent thinking (mental provocation and introduction of stimulus word) (Bono 1996, p. 138; Guilford 1950)
9. Inversion method
10. Morphological methods by newly constructing of elements of a complexity by mindmapping, functional analysis, and comparisons with nature (Zwicky 1971)

One of the essential preconditions for creativity is coined as “cognitive style,” which means understanding complexities and being the ability to break set during

problem-solving. The following features were identified by Amabile (1996, pp. 88–89) as relevant in this respect:

1. Taking a different perspective on the use of objects
2. Abandoning an old set of problem-solving strategies and moving into a new direction
3. Understanding complexities
4. Avoiding foreclosure of alternatives
5. Suspending judgment
6. Using wide categories in order to find relationships between diverse bits of information
7. Remembering accurately
8. Breaking out of performance scripts
9. Perceiving differently

Interpreting, conceptualizing, and applying these techniques require from teachers exercising with students and learning what and how it works best under specific didactical considerations. Ideally, the application of these approaches builds on the primary goal of teaching knowledge and skills as well as building competences as they are listed in the framework curricula of a training program. The last points to consider for teachers are assessment criteria and assessment procedures. The assessment of creativity largely remains a subjective statement; finding objective criteria to judge creativity seems to be difficult, if not impossible. This might be a reason for neglecting the development of creativity within VET curricula, because learning it cannot be easily assessed or measured.

Nevertheless, Amabile (1979) undertook the endeavor to identify criteria for what she termed the Consensual Assessment Technique with the following 16 dimensions to judge creativity:

1. Expression of meaning
2. Degree of representationalism
3. Silliness
4. Detail
5. Degree of symmetry
6. Planning evident
7. Novelty of idea
8. Balance
9. Novelty of use of material
10. Variation of shapes
11. Effort evident
12. Complexity
13. Neatness
14. Overall organization



15. Creativity

16. Technical goodness

These criteria may guide teachers in their assessment of students' creative work. The assessment should ideally be done by the students themselves in order to shape their critical judgment skills. Since assessment is essential for student learning, it should be given substantial time and attention. At the same time, the feedback needs to be given by starting with positive reinforcement first and then judgment by content variables defined at the beginning and be sensitive when it comes to the overall implementation. Similar criteria apply to creative work at the workplace, which will be addressed in the next section.

### **Framework Conditions for Unleashing the Creative Potential of Apprentices in Enterprises**

Enterprises are increasingly realizing that workers need to take over ownership and that new approaches are necessary to profit from employees' full potential. More than before, it is important that employees can act autonomously and problem oriented (Griffin et al. 2007). Creativity in this way becomes an aspect of work performance, while at the same time, it means an active form of well-being (Warr 1994). This corresponds well with Hackman and Oldham (1976) Job Characteristic Model which comprises those aspects that are relevant for workers to be satisfied at work: skill variety, task identity, task significance, autonomy, and feedback from the job.

Accordingly authoritative hierarchical management structures need to be replaced by participatory approaches with less reporting, more recognition, and trustful and fear-free cooperation among workers and apprentices. This new approach not only sets free productive potential among managers, who are traditionally largely concerned with administrative or reporting tasks, it also requires new forms of work organization, a new communication culture, as well as a shared learning culture. The establishment of a creative climate is as important in organizations as it is in schools. This involves that apprentices perceive new tasks as a challenge, to have the freedom to play with ideas, and that new ideas are supported. It requires an atmosphere of trust and openness and a dynamic use of time and space. An atmosphere of liveliness, playfulness, and humor needs to be created for which leaders are largely responsible. Supporting creativity also requires discussions, a readiness to take risks, and discharging conflicts (Rustler 2016).

Social factors can have a powerful impact on creativity (Amabile 1996), and the question of what are the social conditions most conducive to creativity becomes highly relevant for organizational cultures in learning and work settings. Amabile (1996, p. 120) defined the following social environmental influences on creativity, distinguishing between those with a positive or negative effect on workers' creativity:

	Positive	Negative
General	Autonomy/sense of control	Threatening critical evaluation connoting incompetence
	Sufficient resources	Expectation of critical evaluation
	Optimal challenge	Surveillance
	Recognition/reward that confirms competence	Contracted-for reward connoting
	Reward that enables intrinsically interesting work	Restricted choice/constraint control
	Task matched to interest	Arbitrary/unrealistic deadlines
	Sufficient task structure to support competent performance	Competition with co-workers
Organizational	Recognition that failure in work can provide valuable information	Lack of communication
	Mechanisms for considering new ideas	Lack of cooperation
	High-level encouragement toward innovation	Emphasis on the status quo
	Immediate supervisor encouragement	Emphasis on extrinsic motivators
	Co-worker skill diversity	Win-lose competition within the organization
	Co-workers' openness to new ideas	Rigid procedures
	Rigid status structures	Apathy toward project from others in organization
	Co-workers challenge ideas constructively	
	Emphasis on intrinsic motivators	
	Competition with outside organizations	
	Constructive work-focused feedback	
	Clear strategic direction, with procedural autonomy	
	Cooperation	
Collaboration		

Next to work climate, the learning culture within a work setting can impact creativity development. Particularly important for working creatively is a solid information base. Information exchange at the workplace, especially between apprentices and more experienced workers, through working in teams or through rotation models where apprentices can get to know different parts of the enterprise and being able to observe processes would support the development of a wider view and the possibility to gather knowledge. In addition to these sources of information, various media and digital devices can be used. However, finding reliable and valuable information requires good searching skills as well as critical judgment skills.

A change in the work organization is a logical result of the required climate changes described above. This could mean that a formerly vertical organization needs to be turned into a largely horizontal work organization, with project work being the norm. Decision-making would be more than before a concern of middle management, such as project managers. Individual responsibility and initiative among workers are

strengthened, and ideally cooperation takes on the form of equal partnership. While individual creativity, which involves activities that individuals perform on their own, will still be required in certain jobs and work environments, more emphasis is put onto organizational creativity mechanism, or the practices and formal procedures adopted by organizations to promote creative behavior (also see Bharadwaj and Menon 2000). Tanggaard and Stadil (2014) frame the conditions for creativity work with low distance of power, quick interchange of knowledge, learning across sectors, and the conceptualization of new products and designs on “the edge of the box.”

Some of the conditions above are already becoming a reality in enterprises, while others are still mainly theoretical considerations. The gradual workplace culture change and a turn toward valuing, unleashing, and using workers’ creativity start to arrive in the minds of VET teachers and trainers and lead to changes within the organization of apprenticeships. One trend would be to delegate more responsibility to the apprentice, especially during times of the master journeymen’s absence. Such situations force the young employee to find ones’ own solution that one believes is better than those that already exist. The new trend to become early on a member of a team and over time of many different teams (which can mostly be practices within larger enterprises and organizations), some of them can be called “innovation teams,” provides apprentices with the experience of developing a shared understanding of what a company stands for, what its goals are in terms of vision and mission, and how it wants to achieve them. Values, attitudes, and shared beliefs are highly relevant, and learning about them as well as integrating them in ones’ mind-set is part of the socialization process at the workplace.

After addressing the cultural and organizational needs within schools and workplaces to facilitate creativity development among VET students, the necessary framework conditions are clarified. However, there is an aspect missing that mostly comes to mind first when talking about creativity. It is the arts as well as arts-based methods in teaching and learning that heavily rely on creativity and also inspire new one. The following paragraph will provide some elaborations on the role of art and its integration into VET.

## **The Role of Art in Teaching, Learning, and Working**

Joseph Beuys declared once “everyone is an artist” (1972, Manifest at Documenta 5 in Kassel). While the sentence holds true, it might often be used ironically to comment on ones’ humble attempts to work creatively. However, the statement is becoming a philosophy for modern workplaces to the extent that not just the creativity of workers within the so-called creative professions needs to be developed but that every ones’ creativity can be drawn on to develop innovations. Creativity is needed to produce art and art inspires new creativity. This has implications for the ways in which individuals and teams work, on the shape of their work environment and on the usage of art as a tool to unleash creativity.

While most people think of art primarily in the form of paintings, music and performance, or sculptures, it can be much more. When during the era of Pop Art art

has been declared as a good, Marcel Duchamp's readymades declared goods for art, and concept artists declared a concept as art, the idea of designing almost everything as art evolved, and finally art became much more than a physical product or creation. It can be a process, a concept, a rhetoric design, a service, or a network. Art can be anything, be it immaterial, digital, or virtual (Rothauer 2016).

Along with the creation of art came the notion of design. Design is the creation of a plan or convention for the construction of an object, system, or measurable human interaction. The idea of designing something does not only relate to shaping a product with a particular aesthetic approach; it is also the response to develop something better because the existing product or practice seems to be insufficient. Thinking about a solution for this insufficiency is foundational to design and later on to design thinking. Today many different approaches to design have been developed because of the large variety of perceived defects in society, e.g., sustainable design, information design, inclusive design, service design, or social design (see Rothauer 2016).

Design thinking can build a bridge between art, design, and finding solutions for particular problems through the development of new ideas. It is mainly an innovation method applied in education and gradually now at workplaces, e.g., at Swisscom. However, most enterprises that apply the methods of design thinking have not taken a holistic design thinking approach, which would also require a change of their work environment, a requirement which was claimed to have a major impact on creative thinking and creative work. Although working with art is not a requirement within the design thinking theory, the development of the collection of information and inspiration, e.g., by looking at art objects, as well as the development of new designs that can be artful brings the two close together. Next to it, art-based methods to shape work and learning are increasingly applied in education and some workplaces.

Rothauer (2016), for example, cites a project undertaken at the company Unilever which struggled to remain competitive in the market and undertook a training program with hundreds of their employees who learned with artists to unleash their creative potential. A representative from human resources resumed: "(...) I think that by exposing people to the visual arts, to the theatre and to poetry, the skill levels in design, video and therefore advertising and personal communication, both written and verbal, have gone up. People are being more challenged" (Hill, zit. by Darso 2004, p. 110). Other examples refer to introducing theater-based methods in the training of nurses, policemen, or personnel in various social occupations.

The "Arts-in-Business Movement" which had been created with this large-scale activity at Unilever could be taken as a model for exploring the possibilities of integrating arts into vocational education and training. Darso (2015) realizes that the movement did not take off within industry yet, although the time seemed to be ripe for it. However, she is convinced that education is foundational to changing the ways in which businesses operate. Students need to experience artfulness themselves first in order to understand how the process works. This would enable them to contribute to innovation at the workplace by understanding artistic creativity as the basis, as a mind-set (Darso 2015).

Based on the realization of what comprises art, Seelig (2012, p. 79) states that “learning about art is much more than learning how to paint a picture, make a photograph, or create a sculpture; it is about how to observe the world with great attention to detail, to internalize those observations, and then to give expression to them in the chosen medium.” It is the challenge for VET to provide environments and opportunities to teach students these observation skills. These skills are essential in the development of an aesthetic mind and critical for developing an individual opinion about something as well as an individual style.

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## Conclusion

There is a large body of literature about the concept of creativity, how it evolved within the arts and crafts metier, and how it is needed for innovation. Authors have provided several lists of advice as to what kinds of climate, including attitudes, values, and beliefs, are necessary for stimulating creativity, which methods can be applied within teaching as well as at the workplace, and how creativity can be assessed. While the literature is largely concerned with primary education and the workplace, general education is covered to some extent, and a very few sources do specifically refer to the field of VET. A wide consensus exists about the need to do more to support creativity within education as the following statement by various authors illustrates: “The relationship between education and creativity would seem to be a natural one, almost obvious in its degree of ‘fit’. But to a great extent, this appears not to be the case” (Makel 2009; Plucker et al. 2004).

For VET creativity development and its potential for innovation need to be understood as an essential element within our attitude and our pedagogical approaches toward learning. Part of this paradigm is that teachers and VET students need to develop the self-confidence and trust in their abilities. For VET teachers, the challenge is to unleash their own creative potential as a precondition for understanding how to support students in developing theirs. Thinking about creativity and acting creatively require a change of mind that goes beyond schooling. To think innovatively and act creatively should be a general approach to work and life. Acting creatively selectively in certain moments is less promising than turning this approach into a life philosophy.

While most scholars agree that creativity development is important and that it needs to be better integrated in curricula, there is some disagreement about the role of knowledge in all of that. Some futurists believe that knowledge acquisition will increasingly be less important, because we might soon have a chip in our brain and easily draw on all the existing knowledge. However, this only holds true, if one knows which questions to ask and how to make sense of the existing knowledge. Witt’s (2010, p. 24) statement about the role of knowledge, which says that “without knowledge phantasy cannot evolve and ideas cannot be developed, except by chance,” should support one of the traditional roles that educationalists have and also pioneer their thinking about how to transmit, reflect, and discuss knowledge in the future. It is evident that “domain-relevant skills,” such as factual knowledge,

technical skills, and special talents in the domain in question, as well as “creativity-relevant skills,” such as cognitive style, application of heuristics for the exploration of new cognitive pathways, and working styles, need to go hand in hand.

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# Working and Learning from a Bernsteinian Perspective 53

Sai Loo

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## Abstract

This chapter focuses on the working and learning of teachers' professional/occupational practices. These practices occur in the teachers' specific areas of professional sectors such as the airline industry, equine sector, and fashion and textiles. The deliverers teach on work-related programs in the vocational/technical and vocational education and training (TVET)/preuniversity academic level.

In studying the working and learning of the teachers' professional practices, this chapter uses a conceptual framework that relies on a dual professional concept (Handal 1999) at the initial stage, and this contribution centers on occupational practices and not the pedagogic activities of the teachers. Acquisition of knowledge theoretical frameworks relates to those by Clarke and Winch (2004), Eraut (2004), and Winch (2014). Turning to the application of knowledge, the relevant conceptual frameworks include those by Barnett (2006), Evans et al. (2010), Kahneman (2012), Kemmis and Green (2013), and Evans (2016).

The empirical evidence is based on data from a larger project (Loo 2018). The research methodologies include quantitative and qualitative research methods.

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These are questionnaire survey, one-to-one semi-structured interviews and documentary evidence.

Using empirical data, examples of how types of know-how acquired by participants in gas servicing, health and social work, fashion and textiles, and equine industries are discussed. The participants' perspectives of their use of know-how are also delineated using the above theoretical frameworks to provide deep insights into how they perform their roles in the respective work areas. The conclusion section offers contributions and implications of this study.

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**Keywords**

Vocationalism · Teachers' knowledge · Working · Learning · Occupational practices

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## Introduction

This chapter contributes to the “Vocational learning” section, and specifically, it focuses on the vocational learning and working of teachers in their occupational settings. These teachers in the post-compulsory or further education (FE) sector, in addition to delivering work-related or vocational programs, also have experiences of working in their relevant occupations. Using empirical data from a large project (Loo 2018), the data on teachers of vocational or technical and vocational education and training (TVET) is used in this chapter. TVET is used for two reasons. The first is that it is an internationally recognized term (United Nations Educational, Scientific and Cultural Organization 2012) that features programs that are related to work such as health and social care, travel and tourism (e.g., airline studies), and gas fitting. The second reason is to avoid the “English contexts” where past research has been hampered by issues such as the academic-vocational division and sociocultural dimensions (Loo and Jameson 2017).

The FE sector in England has a diverse range of teaching settings. The teaching settings include adult and community learning providers; armed and uniformed services; commercial organizations; FE colleges; independent training providers; industry, prisons, and offender learning institutions; public sector organizations, specialist colleges; and voluntary and community sector organizations (Education and Training Foundation 2014). The learners are 16 plus, adult, and lifelong learners, and a significant percentage of them have diverse learning abilities. One of the characteristics of this sector is it offers further learning opportunities for students from the compulsory education sector. The other characteristic is over 75% of the provisions which are work-related. The popular areas include visual and performing arts and media; health, social care, and public services; foundation programs; business administration; management and professional (at higher education academic level); and hospitality, sports, leisure, and travel (Frontier Economics Limited 2014, Table 15).

This chapter investigates how and what the TVET teachers need to carry out their occupational practices in their respective areas. Using the empirical data of the larger project (Loo 2018), the TVET occupational areas include the airline industry, equine

sector, fashion and textiles, gas services, and health and social care. To study this, the chapter is structured into five sections, following the introduction. The next section delineates the relevant theoretical frameworks, and the third section offers details of the relevant project. The fourth section includes a discussion of the findings, and the final section provides a summary, contributions, and implications of this study.

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## Conceptual Frameworks of Working and Learning

This section on the theoretical frameworks investigates the relevance of knowledge concerning learning and work. The relevant knowledge is then discussed concerning its application in work settings. This section uses recontextualization processes to offer insights into how knowledge may be understood regarding its relevance to work and its utility concerning work practices. Recontextualization may be viewed as the selection, relocation, and refocus of knowledge (Bernstein 1996), which is modified and made relevant to a specific occupation.

Post-Bernsteinian researchers such as Barnett (2006), Evans et al. (2010), and Loo (2012, 2014) offer additional forms of this process. Barnett (2006) acknowledges the relevance of the disciplinary knowledge in work conditions. His reclassificatory recontextualization process relates to the utility of disciplinary knowledge such as physics as a “toolbox of applicable knowledge” with strategies to satisfy the demands of occupational practice (Barnett 2006, p. 147). He offers another process which he calls “pedagogic recontextualization” for teaching purposes. However, he is short on the details of the two recontextualization processes. Evans et al. (2010, p. 254) develop the recontextualization concept further to include the “subject-based and work-based aspects of a curriculum and learning programme” where different forms of know-how are selected and relocated in “different sites of learning in colleges and workplaces.” They include skills and capabilities in addition to disciplinary knowledge and suggested four recontextualization processes. These are content recontextualization, pedagogic recontextualization, workplace recontextualization, and learner recontextualization. With content recontextualization process, codified forms of knowledge of disciplinary, procedural, and work process are selected for use in curriculum and teaching. Pedagogic recontextualization relates to the selected know-how and its application in teaching, learning, and assessment. Workplace recontextualization offers insights into how knowledge may be applied in workplace contexts. Learner recontextualization concerns the learner’s acquisition and application of knowledge. Evans et al. offer nuanced insights of the acquisition and application of know-how in pedagogic and work contexts. However, from a temporal dimension, it is not clear how the two codified knowledge of disciplinary and work-related are acquired. Also, there are insufficient details of the possible interactions between explicit and tacit know-how. Evans (2016) clarifies this point in her descriptions of “knowledgeable practice” where it infers forms of learning such as informal and peer learning. It assumes varieties of know-how such as explicit (e.g., disciplinary knowledge) and tacit (e.g., interpretation of work activity), skills (e.g., suturing skills in nursing), and abilities (e.g.,

problem-solving). Loo (2012) explicitly suggests that tacit knowledge, such as those from work settings, may be recontextualized along with explicit forms. He later offers a new form of recontextualization – ongoing recontextualization – involving disciplinary know-how between subject areas and between disciplinary/theoretical knowledge and everyday or tacit experiences (Loo 2014, p. 352). He develops further “Bernstein’s fine division of his horizontal pedagogic discourses and tacit ‘vocational elements’ of horizontal knowledge structures of the vertical pedagogic discourses, and Barnett’s reclassificatory recontextualization” (Loo 2018, p. 40). In short, Loo advocates that explicit and tacit forms of knowledge may interact and are changed as a result.

A worker, who may eventually become a teacher of TVET programs, needs to acquire the relevant disciplinary know-how that is related to that occupation. This acquisition may be exemplified by a person learning to become a gas fitter. He/she needs to know about physics relating to gas expansion, etc. However, the knowledge of how a particular type of gas such as carbon monoxide behaves is not sufficient. This know-how needs to be relevant to gas fitting. It is through the process of content recontextualization where the disciplinary knowledge of physics is selected and relocated to meet the needs of gas fitting.

Bernstein offers three modes of the organization of the vertical knowledge. Bernstein viewed this knowledge as explicit and codified and might be organized into singulars, regions, and generic. For him, singulars are disciplinary knowledge such as “physics, chemistry, history, economics and psychology” (Bernstein 1996, p. 65). Regions are constructed by recontextualizing singulars into larger units, which operate in fields such as engineering and architecture (Bernstein 1996). Generic mode relies less on academic or applied academic disciplines, and vocational know-how may be classified in this mode as part of a “skill task, practice or even area of work” (Bernstein 1996, pp. 66–67). This radical “generic” mode offers insights into learning of TVET programs such as airline studies, equine studies, fashion and textiles, and gas fitting. These occupations are included in the list of occupational areas in Table 1.

Once the disciplinary knowledge is made relevant via the content recontextualization process, it becomes occupational knowledge. According to Eraut (2004) and Winch (2014), this type of knowledge also includes knowledge of procedures, skills (e.g., interpersonal and intrapersonal that are tacit), techniques, transversal abilities, project management abilities, personal capabilities, and occupational awareness. In short, occupational know-how is more than recontextualized disciplinary knowledge from the singular mode. It consists of a worker’s past knowledge (of theoretical and procedural knowledge and experiences), understanding (of work and specific project contexts), skills (technical and nontechnical), dispositions, and the perceptions of the work settings the workers operates. This know-how may be explicit or tacit (Collins 2010; Nonaka and Takeuchi 1995).

The occupational knowledge along with work knowledge (which is viewed as knowledge that is related to the work environment/organization in which the worker is situated) are then recontextualized via the occupational recontextualization process to become applied occupational knowledge. This work knowledge may include

**Table 1** Details of participants

Participant	Teaching institutions	Full-time/ part-time	Disciplinary areas	Occupational/life experiences
Gender	Level of academic qualifications	Years of teaching experience		
Age				
P1 Female 40s	FE college Level 4	Full-time 7 years	Travel and tourism	Worked in the airline industry as part of a cabin crew for 8 years
P2 Male 50s	FE college Level 4	Full-time 15 years	Gas services	Worked in the gas service industry as an engineer and as trainer and assessor
P3 Female 50s	FE college Level 5	Full-time 8 years	Health and social care	Worked as health and social care worker and nursery nurse in the early years and childcare areas
P4 Female 60s	FE college Level 5	Full-time 13 years (6 years in HEIs) currently 0.6	Art and design fashion and textiles	Worked in banking and retail (craft and museums) Currently working as a fashion designer
P5 Male 40s	FE college Level 4	Full-time 3.5 years (4 years p-t)	Equine studies	Worked and performed in the equine industry and related governing bodies
P6 Female 40s	FE college Level	Full-time 5 years	Equine studies	Worked in the equine industry
P7 Male 40s	Adult and community Level 5	Part-time	Art – Painting and printmaking	Worked as a printmaker and architect

processes, protocols, and mentoring systems, which are specific to that work environment (Evans et al. 2010). This is after the second recontextualization process that this modified know-how may be applied in work activities.

In addition to the recontextualization processes, there are concepts that provide additional insights into how a worker may apply the modified know-how to work practices. These concepts include “knowledgeable practice” (Evans 2016). It is developed through formal and informal learning in the work environments and beyond. “Practice architecture” (Kemmis and Green 2013) is viewed as the “sayings,” “relatings,” and “doings” in work organizations, institutions, and settings, and “systems 1 and 2” (Kahneman 2012) where the former is intuitively based on past occupational experiences. The latter system is based on rational and cognitive interactions.

“Knowledgeable practice” is developed through learning at the workplace, observations of others, and includes support structures such as mentorship (Evans 2016). This concept offers a way of understanding the occupational practice. It supports the sociocultural impact on a worker’s learning including collaborative working with people in the work settings. One may also suggest that this approach infers informal and peer learning and assumes a wide perspective of knowledge to include explicit

and tacit forms along with occupational experiences, skill sets, abilities, and dispositions. These perspectives of practices offer insights into how a TVET worker may acquire and apply forms of knowledge in the work environments.

“Practice architecture” is used as a concept to understanding teachers’ pedagogic activities in work-related provisions. Kemmis and Green (2013) advocated that these teachers with occupational experiences can provide insights into the micro-workings which use past work-related experiences. Practice architecture uses “sayings, doings, and relatings” to help understand the practices. They argue that “these practice architectures are constructed shapes practice in its cultural-discursive, social-political and material-economic dimensions, giving substance and form to what is and can be actually said and done by, with and for whom” (Kemmis and Grootenboer 2008, p. 57). Like knowledgeable practice above, practice architecture acknowledges the sociocultural dimensions. The former concept perhaps offers a more micro-delineations of working in an occupational setting focusing on the deliberations – verbal, actions, and cognitions – concerning work practices. However, neither of the concepts provides understandings of decision-making.

Kahneman (2012) offers “systems 1 and 2” to understanding how a worker decides a course of action. For him, system 1 is responsive to a specific need for decision-making such as responding to an already drunk airline passenger’s request for more alcohol in the airline industry. Little effort is involved and is based on skills or heuristics from past occupational experiences. System 2 is slower in its reaction to a particular situation and is based on conscious and rational approach. It needs continuous professional training, and with this, there are implications for financial and human resourcing. The two systems are connected. Kahneman’s concepts provide a way of understanding decision-making processes, which have varying speeds of reaction and potentialities of judgment errors. These approaches have traction on how TVET workers decide on their courses of action.

It is through these frameworks that know-how is acquired and applied in work settings by a worker. This conceptual framework is not necessarily linear or -one-directional but is dynamic and process-driven (Chaiklin and Lave 1996; Cole 1996).

It involves contexts of sociological forces around temporal dimensions such as work conditions, forms of teaching institutions, academic level of the taught provision, types of learners, and nature of the occupation. Movements may occur between these contexts and can affect the acquisition and utility of occupational know-how via the recontextualization processes in specific learning and work conditions.

These concepts will be referred to in the discussion section below using analyzed data. Before this, the next section offers salient methodological details.

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## Project Details

The empirical data that is used in this chapter relates to a larger project (Loo 2018) where the main research questions center on the nature of occupational pedagogy and the manner in which the related know-how is acquired and employed in the pedagogic activities of work-related programs. The project used the term

“occupational pedagogy” to denote teaching and learning practices across the three academic levels of TVET, first-degree/higher vocational and professional education. It draws on 21 purposive teachers/participants, 7 from each of the 3 levels. In this chapter, seven of these participants (P1–7) (Table 1) teach on the TVET programs of airline studies, art (painting and printmaking, equine studies, fashion and textiles, gas services, and health and social care). The research methods used included a questionnaire survey and semi-structured interviews. The survey elicited details such as gender, age, pedagogic, occupational and life experiences, and academic and professional qualifications. The qualitative data from the interviews offered thick descriptions of their professional practices. Both the data capture involved pilot studies in fine-tuning the survey, interview questions, and procedures. Documentary evidence such as program specifications was also gathered, and these three data sources were analyzed and triangulated using generated codes, identified phrases, patterns, and themes as part of the thematic analysis (Robson 2002). The principal and only investigator used narrative analysis (Robson 2002) where the relevant teachers’ descriptions were employed in the discussion and findings section to illustrate and provide further insights. It is not the intention to include details of all seven of the participants but merely to focus on those participants, whose occupational experiences are pertinent to the aims of this chapter.

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## Findings and Discussion

This penultimate section uses the relevant analyzed data to discuss the participants’ perceptions of the sources and types of know-how and how these relate to their occupational practices. The structure follows the same format as in the literature review section of critiquing the sources and types and applications of the related know-how.

### Acquisition

P2 (Table 1), a male lecturer in his 50s at an FE college, has been teaching gas services provisions for 15 years. He worked in the gas service industry as an engineer. From a disciplinary knowledge, he views the “basic knowledge of physics, mathematics, and chemistry” as relevant to this industry. In particular, the theoretical knowledge of combustion equation and gas flows is as particularly relevant to his sector. However, the theoretical knowledge is not as in-depth as those required at “Advanced” levels, and the emphasis is on the “hands-on” dimension concerning his occupation practice. In the health and social care sector, P3, a female lecturer with 8 years full-time teaching experiences, indicated that “basic knowledge of biology, anatomy, and psychology” is required. Additionally, her “practitioner’s experiences and life experiences of secure family life” are also relevant to her occupational work. For an equine industry, P5 with the industrial or occupational experiences suggested that “physics, anatomy, psychology, numeracy, and occupational knowledge” are all

necessary for working in this sector. In addition to disciplinary know-how, there is also occupation-specific “knowledge of show jumping, dressage, and theory of horses getting into a horsebox.” Other industry-specific know-how includes numeracy such as 2.5 kilos of oats and barley are consumed daily by a horse, and a horse has 36–45 heartbeats per minute. However, he admits that “the equine sector regarding the types and sources of knowledge are at the coal face” and much more research is still needed.

The above delineations offer a range of sources and types of knowledge. P2, P3, and P5 refer to theoretical knowledge from the disciplines (Becher 1994; Smeby 1996), which Bernstein (1996) refers to as “vertical discourse.” The source of this knowledge is from the disciplines. Some of the participants use “basic knowledge” to describe the knowledge of disciplines. They imply that these forms of theoretical knowledge are used as starting blocks for their occupations. The participants also mentioned that other types of know-how are relevant in their occupational practices. The term, “occupational relevance,” offers an entry point into how they relate theoretical knowledge to their work. P2 uses “hands-on” in a similar fashion.

The suggested conceptual framework uses content recontextualization as a process by which knowledge from other sources such as the disciplines of physics, chemistry, biology, and mathematics are re-applied for their occupational relevance. So, in P2’s example, certain aspects of physics about gas fitting/services are chosen as of occupational relevance. This theoretical knowledge is recontextualized, that is, selected, relocated, and refocused (Bernstein 1996) to make the knowledge relevant to gas fitting. Here, theoretical knowledge of combustion and gas flows from physics is selected from the curriculum. This is relocated and refocused to make it relevant and applicable to gas services so that a worker in this industry can understand the theoretical principles as well as understanding the relevance to the gas fitting of a boiler in a household environment. This process is called content recontextualization where parts of the specifications are selected and made relevant to the occupation. A civil engineer who is involved in sewage works may use the same disciplinary know-how, but for the particular occupational practice that is specific to that project. One may argue that this content recontextualization process is different for different occupations and occupational practices.

From a curriculum formation or development perspective, the level of theoretical knowledge necessary for occupational practices may not be at the same level of those merely acquiring the knowledge of that discipline. So a person studying “A” physics may have a higher level of the subject compared to a student of gas services. However, one may argue that for the gas fitter learner, he/she requires further cognitive processing to understand the selected theoretical know-how and then relate it to the industrial requirements, which may require further cognitive processing. The cognitive processing uses learner recontextualization (Evans et al. 2010).

This application of theoretical knowledge is supported by Clarke and Winch (2004, p. 519) which they see as “applicable theory and practice appropriately informed by theory.” Eraut (2004), in a similar vein, views disciplinary knowledge as the springboard to work practices, and Winch’s (2014) professional knowledge typology also subscribes to “systematic knowledge” as theoretical know-how that is



applied to occupational contexts. All three theorists advocate the relevance of theoretical know-how to work contexts. What might be missing was the acknowledgment that the theoretical knowledge needs to be made relevant via a process of content recontextualization where parts of a specification are chosen and relocated to specific occupational needs.

In addition to the theoretical knowledge, the participants also refer to other sources of know-how. P3 refers to her “practitioner’s experiences and life experiences of secure family life,” and P5 mentions his occupation-specific know-how of show jumping, dressage, horse’s food consumption, etc. These are sources of know-how, which relate to Eraut’s (2004) methodological knowledge, practical skills and techniques, and general knowledge. Winch’s (2014) professional knowledge typology also has overlaps with Eraut’s and the participants’ knowledge sources especially with his technique, skill, transversal abilities (such as planning and coordinating a dressage event), and project management abilities (such as fitting a boiler in a house). These know-how, skills, abilities, and capacities are pertinent to the participants’ specific work practices. They are front-loaded base on the seven participants’ experiences. However, this does not mean that in theory, occupational know-how may not be acquired while in occupational settings (Hager 2004) rather than a front-loaded scenario, as exemplified by the seven participants.

In addition to the sources of know-how, there are types too such as explicit and tacit. Explicit types may include the disciplinary know-how such as physics and biology. These can be acquired in a formal program such as the Level 3 National Vocational Qualification (NVQ) in gas servicing, a Level 3 Business and Technology Education Council (BTEC) program in fashion and design and travel and tourism. Knowledge sources from the Internet may also be codified. Tacit sources may be from individuals or through collaborations (Nonaka and Takeuchi 1995; Collins 2010). They may include a participant’s occupational experiences, colleagues’ experiences, and occupational skills (e.g., the necessary pressure to turn a valve in gas fitting and steer a horse for dressage). How the occupational know-how is utilized is discussed in the next section.

## Applications

This section offers the perspectives of two participants – P2 and P5 – who are practitioners in the gas services and equine industries, respectively. They provide insights of their use of know-how concerning their occupational practices and their relevance to the concepts of “knowledgeable practice” (Evans 2016), “practice architecture” (Kemmis and Green 2013), and “systems 1 and 2” (Kahneman 2012).

P2 recounted the incident as a gas service engineer (for 6 years) with a national gas provider in the private sector:

On a cold winter’s day being asked to go to a house in the street next to my house as there was a smell of gas. There was no gas leak inside the house on inspection, and so the leak must be from the outside. I radioed to Bolton (where the office was) and left it and further



asked the outside distribution lads to check it out. On my return from my other duties, I passed the inspected house, and the front door was blown off along with the windows. Since that incident, the house had not been lived in. (Loo 2018, p. 58)

P5 worked in the equine industry for over 20 years as the owner of riding schools and designer of showjumping courses and took part in competitive showjumping. Before entering the horse industry, he trained as an accountant. He acknowledged the need for the equine industry to undertake further research. These include the intricate synergy between the horse and rider using the Pegasus system of cameras and global positioning system (GPS) to track the anatomical movements of the horse and rider. They also include the enhancement of safety features in the sector as advocated in France and the impact of racecourses on both the horse and the rider.

From the perspective of the occupational recontextualization, P2 used his occupational knowledge (via the content recontextualization) of physics and chemistry knowledge of gas flows, gas expansions, and combustion that is occupationally relevant to gas servicing to inspect the house internally. On satisfying himself that the gas leak was not from the house, he concluded that the leak was from the outside. This decision was illustrative of Kahneman's system 2 where P2's past professional experiences, cognitive processes, and the specific contexts of the setting were used in arriving at a professional judgment to discount the house as a potential source of the gas leak. Practice architecture of "sayings, doings, and relatings" (Kemmis and Green 2013) may also be featured here. P2 conveyed ("sayings") his professional evaluation to the head office before moving to another case. He adhered to this procedural aspect of the company's system ("doings"). His message should have been conveyed to the external distribution department of the company in the follow-up process ("relatings"). P2 as a professional practitioner carried out the company's procedures. This aspect of the specific occupational practice also has resonance with another part of the content recontextualization, which is work knowledge. In addition to applying his recontextualized disciplinary knowledge, i.e., occupational knowledge, P2 also used his knowledge of the organizational system of health and safety procedures and established lines of communications to carry out his professional responsibilities.

In a slightly tangential perspective, Evans's (2016) knowledgeable practice concept provides insights into P2's learning of his occupational experiences by focusing on the development of his learning by observing and being mentored by his peers and learning about specific aspects of his work through different occupational experiences. The combination of his disciplinary/theoretical knowledge along with his learning experiences while at work provided him with a unique data of knowledge, experiences, skills, and abilities (Eraut 2004; Winch 2014) to refer to and apply to the specific professional setting such as the one, which was recounted above.

Turning to P5, he offers a different perspective to that of P2's. P5 ran his riding schools and designed showjumping courses. Different knowledge, abilities, and skill sets are needed. He needs to have a vision for setting up a riding school such as its location, potential catchment area, and clients and the rationale for this undertaking.

His earlier training in accountancy would have been useful in ascertaining the financial viability of such an undertaking through his use of cash flow and budgeting know-how. Leadership, planning, project management abilities, focus, self-motivation, and risk-taking are skills, abilities, and capacities (Eraut 2004; Winch 2014) that are needed to start his riding schools. Also, P5 needs to establish a system for his school such as health and safety procedures, especially if young people are involved, and procedural, administrative, and financial systems. An example of this is the purchase and payment of food for the horses. A horse consumes, on average, two and a half kilos of oats and barley feeds per day. This information will be helpful in the ordering of feed for the horses, and the choice of supplier and its payment require a system in place. These systems constitute work knowledge and together with the necessary occupational know-how will enable P5 to relocate and modify via occupational recontextualization process to facilitate him in his occupational activities.

He uses his occupational know-how of competitive horse eventing experiences, knowledge of showjumping courses, and the equine industry to enable him to design a showjumping circuit. This know-how may include his experiences as a competitive rider of approaching jumps, the use of support teams in getting horse and rider ready for such an event, the required feed leading up to this, and the exercises for both horses and riders to acquaint with a specific course. All these experiences will enable P5 to design a circuit for an appropriate level. It will involve details of the type of ground, distances leading up to and after the hurdles, the dimensions and structures of the hurdles, and much more. From the perspective of occupational recontextualization, he draws on not only his past professional experiences but also his sense of a vision for a circuit, which fits the requirements of a specific event or funder, and his leadership abilities to sell his idea. From the implementation aspects, he needs project management abilities, collaborative capacities, patience, and the ability to follow it through to completion. The know-how, like the ones stated earlier, is both codified and tacit (Polanyi 1966; Nonaka and Takeuchi 1995; Collins 2010). Examples of codified forms are the occupational knowledge derived from the disciplines such as biology and mathematics. The tacit ones include occupational experiences, knowledge of showjumping courses, and collaborative working with related stakeholders. These tacit varieties may broadly be classified as individual and collaboration-related as investigated by Nonaka and Takeuchi (1995) and Collins (2010).

P5's occupational activities may be connected to the three concepts of "knowledgeable practice" (Evans 2016), "practice architecture" (Kemmis and Green 2013), and "systems 1 and 2" (Kahneman 2012). Examples of the first concept include the setting up and implementation of a mentoring system in P5's riding schools and observations of the impact of riders and horses at a showjumping event. Examples of the second concept are how health and safety features are conveyed to his staff and users in the riding school and the implementation of these guidelines concerning the wider industry and its related organizations such as the British Horse Society and the World Equestrian Authority. Finally, with the third concept, his professional experiences in approaching equestrian jumps in a competition may be

viewed from system 1 or 2 perspectives, the former has a quick response and the latter a considered response based on reflected evaluations of similar situations.

The above discussions focusing on the occupational activities of P2 and P5 provide contrasting insights into the types, sources, and applications of occupational and applied occupational know-how.

Regarding sources and types of know-how, P2 and P5 use disciplinary or “basic” knowledge of physics, mathematics, and chemistry for gas fitting and physics, anatomy, psychology, and numeracy for the equine industry, respectively. However, these basic knowledge needs to be “made relevant” to the specific occupations. Similarly, the level of disciplinary know-how is not the same as its academic equivalent program. Thus for P2, the level of physics necessary for gas fitting is not as high as the equivalent advanced level course. However, it does not mean that the training is of lesser quality, as the disciplinary knowledge needs to be recontextualized via the content recontextualization process to give the know-how the “occupational relevance” for eventual application. Additionally, the participants’ occupational and life experiences along with occupational know-how such as knowledge of showjumping and dressage are needed, especially in the equine sector where the lack of research meant that, according to P5, “the types and sources of knowledge are at the coal face.” Also, there are the explicit and tacit forms of know-how. The disciplinary ones represent the explicit variety. The tacit variety (Polanyi 1966; Nonaka and Takeuchi 1995; Collins 2010) includes occupational experiences, experiences from colleagues, and skill sets, e.g., the necessary pressure to turn a valve in gas fitting and steering a horse in a dressage event. It also includes collaborative working with the related stakeholders. The two studies also offer insights into the explicit and tacit forms of know-how as well as a wider delineation of knowledge (such as abilities, capacities, experiences, skill sets, and theoretical knowledge) as espoused by Eraut (2004) and Winch (2014).

P2 and P5 recounted their real-life experiences of a gas leak in a house nearby to P2’s and the managing of riding schools, designing of and competing in showjumping events, and accountancy training, respectively. P2 used his disciplinary and occupational know-how to inspect the gas leak (via the content and occupational recontextualization processes). He decided to discount an internal gas leak (Kahneman 2012) and contacted the head office to look into an external leak before going onto another job (Kemmis and Green 2013). P5 has managerial experiences (Eraut 2004; Winch 2014) where he implemented health and safety procedures in his riding schools with specific adherence to the equine industry guidelines (Kemmis and Green 2013) and organized mentoring systems to train staff (Evans 2016). These “knowledgeable practices,” “practice architectures,” and “systems 1 and 2 decision-making” processes added another layer of understanding of knowledge applications.

However, these complex interactions of know-how occur constantly and are continually modified as a result of specific occupational settings. These ongoing recontextualization processes as propounded by Loo (2018) involve the following. They are forms of disciplinary knowledge, “theoretical” and “everyday” knowledge (Bernstein 1996), explicit and tacit varieties of know-how (Nonaka and Takeuchi 1995), and between abilities, capacities, experiences, and skill sets (Eraut 2004;

Winch 2014). Examples of these were discussed earlier. This ongoing process, according to Loo, changes the characteristics of the know-how from the users' perspectives (such as P2 and P5). For the users, they can become conscious and unconscious varieties of know-how, where the disciplinary knowledge (explicit and conscious, e.g., knowledge of physics) combined with occupational experiences and practices (tacit to a degree) may become unconscious and instinctive in decision-making. Similarly, a solving of an occupational problem may offer opportunities for aspects of the know-how to become explicit, e.g., the formalization of industry procedures. Through this, constant recontextualization of knowledge by a practitioner over time becomes specific to him/her.

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## Conclusion

This chapter studied the working and learning of teachers' professional/occupational practices. The conceptual framework used Bernstein's recontextualization as a platform for delineating these micro-practices. The framework draws on post-Bernsteinian researchers to illuminate these complex practices and at the same time expanding and developing the definition of knowledge to include theoretical know-how, experiences, abilities, capacities, and skill sets. The framework offered two types of recontextualization processes: content recontextualization and occupational recontextualization. In so doing, the contributions of this chapter include a theoretical framework to understanding the micro-workings of a vocational practitioner, a wider perspective of knowledge, and the use of real-life examples of vocational areas to illustrate the practitioners' activities.

These contributions have implications for the education of vocational teachers, the areas for qualified teachers' continuous professional development (CPD), and the support structures to mentoring and professionalizing vocational/occupational teacher educators and lecturers.

For FE teachers, the training in the sector in England is at present underdeveloped and inconsistent (Loo 2014). An issue concerning the training of lecturers surrounds disciplinary teaching, where generic teacher training is more the norm. The findings from this chapter highlight the need for vocational teachers to understand uncontested and ill-defined terms like teacher knowledge, vocational education and training, and vocational pedagogy (Loo 2018). Included in a teacher education program should be opportunities to study the evidence-informed findings on topics, such as teacher know-how, choice of pedagogic strategies, and understanding of teacher knowledge applications. Where possible, there should be offers of action research opportunities (perhaps as part of a separate module) to pursue a trainee's interest. Perhaps more significantly, the trainee teachers should understand how to integrate disciplinary and pedagogic know-how. Loo (2013) used multimodality (Kress 2010) and reflective peer review (Pollard et al. 2008) to offer a "360°" training experience using digital recordings of teaching sessions. Multimodality is used to analyze the different modes (e.g., visual imagery, sound, and text) of the digital recordings (Kress 2010). Reflective peer review is applied to offer a

supportive and constructive dimension to evaluate the recorded teaching sessions in a collaborative context within a sociocultural environment (Loo 2013, p. 501). Through these, trainee teachers have the opportunities to analyze, discuss, and inform each other about the subtleties of teaching; the mutability of disciplinary, pedagogic, occupational, and real-life know-how (both explicit and tacit forms); and the symbiotic relationships between teaching and occupational practices (Loo 2014).

Regarding CPD, one needs to be aware of the possible tensions in CPD provisions. One tension is for teaching institutions to offer generic or specific offers. Generic ones could include administrative aspects relating to teachers' requirements such as adherence to particular institutional systems and teaching styles such as the use of smart boards and technological tools, e.g., Socrative software. Specific CPD offers relate to the teachers' occupational areas such as equine studies and gas fitting industry. These CPD provisions might include teaching strategies that are relevant to the delivery of these occupational areas. These teachers would also need to keep in touch with their occupational practices. These could include spending time at the occupational organizations (industrial placements), attending trade and professional conferences and related events, and subscribing to related publications. Linking to this generic and specific tension is the delivery of these provisions either internally or externally. The constraints such as expertise, resource (financial and nonfinancial), and temporal would need to be taken into account. The third tension revolves around pedagogic and occupational considerations. As these vocational lecturers require the two areas of professional updating, consideration should be given to offer a balanced approach. As the deliverers work in a teaching organization, the vocational needs might not be fully appreciated by the management, which could be a cause of conflict. One possible solution is to appoint industry experts on the CPD panel to oversee staff development. This panel of external experts drawing from education, industry, and lay members might ensure that the needs of the staff are met. So far, the foci have been on teaching staff. However, there will be those who are in positions of responsibility where managerial and leadership abilities are needed. So, the final tension for CPD requirements relates to managerial and leadership provisions. Questions concerning the actual subject areas and delivery by external or internal experts need resolving.

Finally, teacher educators also require similar CPD and supporting structures to enable them to update their relevant occupational expertise. One has to bear in mind the specific nature of these educators. They are very likely to be former teachers in the sector with varied disciplinary expertise. Their roles are to provide a training program to a diverse group of FE teachers where over 70% of its provisions are vocational. It appears that they have three dimensions to their roles: as vocational practitioners, lecturers of vocational programs, and teacher trainers. Currently, there are no accredited pathways to becoming teacher educators. One possible route is to undertake action research in their disciplinary or pedagogic field via a doctoral program. Their exposure to the investigations of education and occupational theories regarding teacher training would hone their powers of research methodologies, judgment, and critical analysis. As there are gaps in teacher education in the FE

sector, there is much to be gained by this approach. However, there might be other approaches such as a program with specific modules for these educators in areas like teaching knowledge, curriculum development, and generic and subject-specific teaching approaches.

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# Developments in Research on Vocational Learning: A Perspective from China

# 54

Yujing Li and Dayong Yuan

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**Abstract**

Research on vocational education and training has a long history in China, and it developed based upon the rapid development of vocational education and training system after the reform and opening-up of People's Republic of China. Under the relative support policies, research on vocational education and training has formed a comprehensive organization system, project system, and results publication system. Tracking the published papers and books about vocational education since 2000 shows that research on vocational education and training is focusing on nine fields: Development strategy and path of higher vocational education; relations between vocational education and socio-economic development; theories and discipline construction of vocational education; reform and development of rural vocational education; curriculum and teaching reform of vocational education; strengthening school-enterprise cooperation; constructing modern vocational education system; reflection and comment on vocational education policies; ideas and strategies of vocational education in international society, especially in developed countries. On the whole, research on vocational education and training in China manifests distinct policy guidance in research themes, together with the conscientious pursuit of scholars to strengthen discipline construction. Inquiries take literature research as the principal method while tending towards multiple and mixed research methods. Construction of the Chinese mode by referring to international experience is an important field.

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**Keywords**

Research on vocational education and training · China · Modern vocational education system · Research focus · Research method

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**Introduction**

Chinese vocational education started more than 150 years ago and has gone through the tenacious and tough contending period in old China, the overall arranging and planned developing construction period in new China, and the modernized development period with reform, opening-up and rising prosperity. During the vocational education development process, research has always provided an important knowledge base. This chapter reviews the background, system, and changing priorities in the field of research on vocational education in China, with particular reference to the organizational and curriculum features that impact on vocational learning.

**Background of Research on Vocational Education and Training in China**

Based on the interpretation of the *Vocational Education Law of the People's Republic of China*, vocational education is also called vocational and technical education and refers to an education type of necessary vocational knowledge, skills, and

professional ethics offered to the students to make them able to engage in certain occupations. Vocational education includes vocational education in school and vocational training. Vocational education in school is a kind of degree education and can be divided into secondary and higher vocational education. Secondary vocational education plays a fundamental role in the modern vocational education system and carries out fundamental knowledge, technique, and skills education for the graduates of lower secondary schools implemented by various kinds of secondary vocational schools. Higher vocational education refers to degree education and continuing education at junior college and undergraduate stages delivered by higher vocational colleges, and postgraduate education at professional degree level delivered by various institutions of higher education. Vocational training includes pre-employment training, occupation-transfer training, apprenticeship training, on-the-job training, job-transfer training, and other occupational training and can be divided into elementary, middle, and higher vocational training according to actual situations. Vocational training can be implemented by corresponding vocational training institutions and vocational schools, respectively.

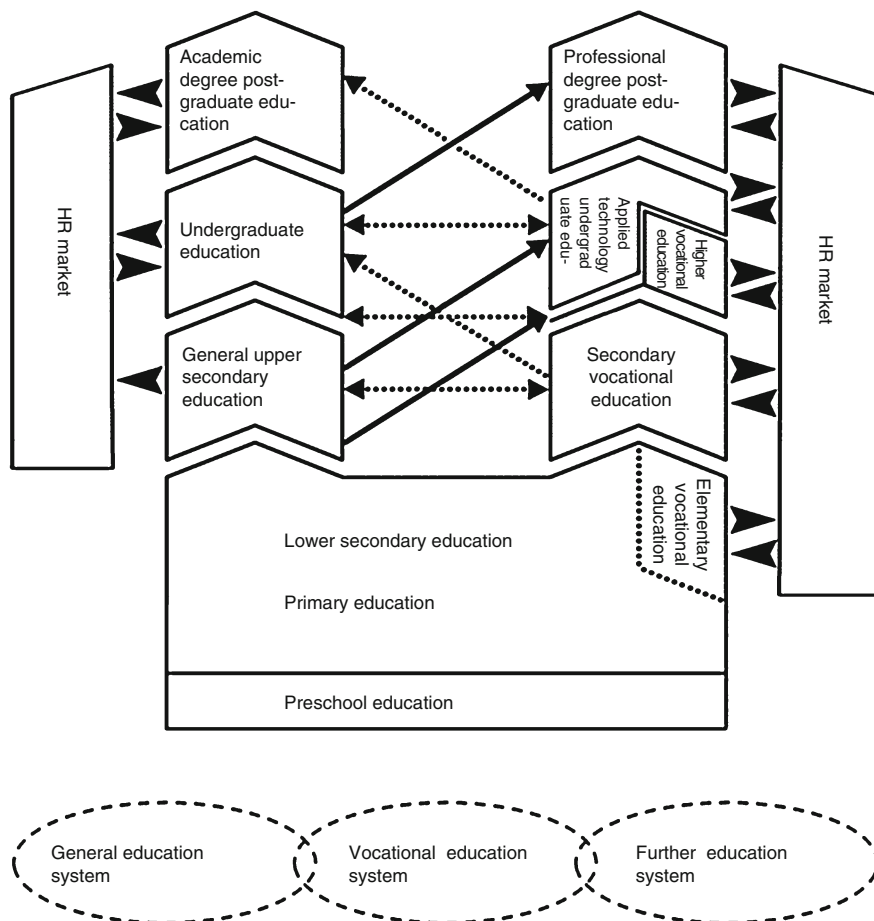
After the implementation of the reform and opening-up in 1978, the State has accelerated and promoted the development of modern vocational education and has achieved a historical breakthrough. The most important mark is that China has established the largest scale of vocational education in the world. In 2015, China had more than 10,000 secondary vocational schools with over 18 million students and more than 1,200 higher vocational colleges with over 10 million students.

Based on the requirements of national policy, the development objective of Chinese vocational education is, by 2020, to form the modern vocational education system with Chinese characteristics and world standards, which shall adapt to development demands, deeply integrate the enterprise and education, link secondary and higher vocational schools, exchange the ideas of vocational education and general education, and embody the lifelong education concept. See Fig. 1 for the basic framework of the system.

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## Research System of Vocational Education and Training in China

Since the implementation of the reform and opening-up policy, China has paid high attention to the vocational education research work. From March 23 to April 14, 1979, the Ministry of Education and Chinese Academy of Social Sciences jointly convened the First National Working Conference on Education Sciences Planning. The Conference deliberated and adopted the *Education Sciences Development Planning Outline 1978–1985 (Draft)*, which placed the development of vocational and technical education research in an important position. In 1987, 10 discipline planning groups, including the vocational and technical education, were established under the *Leading Group of National Education Science Planning*, which marked the official incorporation of vocational education research into the national education research planning system. The *Vocational Education Law*, issued for enforcement in



**Fig. 1** Schematic diagram of basic framework of Chinese education system

1996, clearly indicated that “the country encourages and organizes the scientific research on vocational education.”

In 2002, the State Council issued the *Decision on Energetically Promoting the Reform and Development of Vocational Education*, which proposed that China should strengthen the theoretical research and policy research on vocational education and perfect the scientific research and teaching research organizations. In 2015, the Ministry of Education issued the *Innovative Development Action Plan for Higher Vocational Education (2015–2018)*, which proposed that China should strengthen macro decision-making research and research into hot topics and difficult problems on higher vocational education reform and development.

The implementation of policies and regulations promoted the prosperity and development of research undertakings of vocational education and enhanced the development of vocational education research organization. At present, China has

basically formed four research groups of vocational education, including the governmental vocational education research institutes, the vocational education research departments in higher education institutes, the vocational education research departments in vocational schools, and the vocational education societies and associations system in China, which has formed the vocational education research system covering the national, local, and school levels from department to industry and from the central government to the local governments. According to incomplete statistics, there are more than 200 vocational education research (teaching and research) institutes throughout the country (Xue Peng 2015).

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## **Focus Fields of Research on Vocational Education and Training in China**

Since entering the new century, under the guidance of national policy, the research on vocational education in China has demonstrated substantial development. On the one hand, the quantity of academic papers on vocational education published on journals increased rapidly; when retrieving on China Knowledge Resource Integrated Database (CNKI, <http://www.cnki.net/>) with the key word of “vocational education,” the number of papers retrieved since 1980 is 33,814, while the number since 2000 is 33,605. On the other hand, the publishing of academic monographs on vocational education also presents a rapid increasing trend; according to an incomplete statistics, there are hundreds of monographs on vocational education published since the new century. From the perspective of themes, the research on vocational education in China mainly focuses on the following fields.

## **Development Strategy and Path of Higher Vocational Education**

Since the new century, with the development of higher vocational colleges, higher vocational education has become the emphasis of vocational education research in China. Zhang Yaoxue clearly proposed that “higher vocational education is a kind of education” to deal with the problem of relatively ambiguous orientation of higher vocational education (Zhang Yaoxue 2002). Wei Jin used the regression analysis method and established a mathematical model through deep enterprise investigation and overall sampling and concluded that: compared with the graduates of general higher education institutes, the graduates of higher vocational colleges who obtain employment in targeted majors enjoy higher job satisfaction, bring in higher labor productivity, and realize higher economic benefits (Wei Jin 2004). Wang Minglun systematically researched higher vocational education in the aspects of background, orientation, concept, scale, institution, quality, system, evaluation, target, curriculum, and trend and tried to build a theoretical system for higher vocational education development (Wang Minglun 2004). Feng Zengjun proposed that higher vocational education must adhere to the development of technical education and, on this basis, promote the combination of skills and humanity and move to a new higher

vocational education development road from pure technique to combined technique and R&D and to the integration of technique, R&D and academic application (Feng Zengjun 2006). Ma Shuchao comprehensively and systematically analyzed the historical development, practical conditions, and strategic thinking of the higher vocational education in China and illuminated that the development of higher vocational education is an inevitable historical choice of the social and economic development in contemporary China (Ma Shuchao 2009). Liu Hongyi put forward the paths of higher vocational education development: adapting to the needs of regional economic and social development, reasonably adjusting scale and speed, establishing a system suitable for the regional industrial structure, and developing a characteristic regional development road (Liu Hongyi 2012). Ding Jinchang proposed that the talent cultivation ideas of higher vocational colleges mainly include the following steps: clearly define the cultivation objective; form a school-running pattern of combination of production, teaching and research; build a curriculum system with a mainline of professional technology application ability; establish the educating system organically integrating “three kind of learning spaces (school, community and enterprise)”; construct supporting conditions suitable for the cultivation of technical talents (Ding Jinchang 2015).

## **Relations Between Vocational Education and Socio-economic Development**

Exploring, in depth, the relations between vocational education and socio-economic development and strengthening the service capability of vocational education are the important focus of research on vocational education in China. Yu Zuguang examined vocational education’s function in helping the disadvantaged and concluded that China still needed to make long-term efforts to establish a lifelong vocational and technical education and training system, no matter from the perspective of popularization or improvement. Such efforts included the update of educational concept, the adjustment of educational development goals, and the rational combination of the educational, economic, and employment policies (Yu Zuguang 2007).

In 2008, the *Sociology of Vocational Education* was published. This book tried to establish an interdisciplinary systematic framework between vocational pedagogy and sociology. According to this book, the sociology of vocational education mainly studied the interaction between vocational education and the society, its theoretical bases included the theories of vocational education, sociology, and economics, and its practice basis lay in the continuous development of the course of vocational education and the continuous appearance of issues in vocational education (Wang Qinglian and Zhang Shezi 2008). Cao Hongjian and Zhou Nan made a special study on the role of vocational education in social stratification. The study presented that under the external functions of the education system, the educational management system, and the traditional cultural ideas of the society, vocational education worked on the development of the students through multiple processes. The processes included education and teaching (including the selection and transmission of

knowledge, and the achievement expectancy on the students shown by the teachers) and the influence of school educational culture (including the identity culture of peer groups of the students and the positioning of objective hierarchy of the school), thus shaping the output of educational achievements of vocational education (Cao Hongjian and Zhou Nan 2012). Zhang Yuan associated vocational education with the strategy of reinvigorating China through human resource development and pointed out that the gap between the vocational education system and the strategy of reinvigorating China through human resource development exists in many aspects at present and China must steadily build a corresponding security mechanism in combination with the process of industrialization in the future to solve the problems in the development of modern vocational education system (Zhang Yuan 2012). Chen Peng and Pang Xueguang et al. specifically discussed the development of vocational education under the background of *Made in China 2025*. Their study suggests that as the Chinese economy has entered a state of new normal and under the background of transformation and upgrading of the industrial structure, vocational education must improve its concept, quality, and the development of its professionals.

With the rapid development of vocational education, the economic benefits of vocational education have become an important research focus. Hu Yongyuan divided human capital into three kinds of general human capital, skills human capital, and innovative human capital and calculated that the contribution rate of skills human capital in China to economic development is 1.96% (Hu Yongyuan 2004). Some researchers measured the relationship between vocational education and total factor productivity (TFP) using the GMM method of spatial correction system and found that all levels of vocational education public input, nonpublic input, and TFP have spatial auto-correlation, and TFP exists spatial spillover effects. When increased 1% of public investment for higher vocational education, the TFP can significantly increase 0.082% (Lv Lianju and Kan Daxue 2016). Recently, some researchers have paid attention to the microbenefits of vocational education, such as the changing of income, occupational enhancement, employment stability, and self-entrepreneurship after accepting vocational education. For example, by the method of tracking investigation, the *Chinese Higher Vocational Education Quality Report* put forward that higher vocational graduates' average month wage has increased continuously since 2011; after 3 years of graduation, higher students' average month income can increase 83.8% comparing with after half a year of graduation (MyCOS Institute 2016).

## Theories and Discipline Construction of Vocational Education

An in-depth exploration on the essential attribute, position, and role of vocational education and its relationship with human and society through literature analysis has indicated that the essence of vocational education is to cultivate application-oriented talents and skilled talents, and its essential attribute is occupation-oriented nature of technical skills (Ouyang He 2004). Jiang Dayuan presented that vocational

education, as a type of education, had the type characteristics different from those of general education that reflected the basic attributes of vocational education. These type characteristics at least include: the talent concept based on multiple intelligence, the education concept based on competency, the competency concept based on overall development, the specialty concept based on professional attribute, the curriculum concept based on working process, the teaching concept based on action orientation, the construction concept based on learning environment, the evaluation concept based on whole consideration, the foundation concept based on life development, the hierarchy theory based on technical application, and the concept of education system based on flexible management (Jiang Dayuan 2007a).

Xu Guoqing proposed that the principle of VTE existed along with other sub-disciplines of vocational education and was a subdiscipline with its own research contents and style. This should be the reasonable position of the principle of VTE in the discipline system of vocational education (Xu Guoqing 2006). Zhou Mingxing put forward that the development direction of the disciplinary study of vocational and technical education was to highlight the innovativeness, the systematic approach, and the theoretical properties (Zhou Mingxing 2009). The *Historical Logic and Philosophical Foundation of Vocational Education* addressed the question “what is vocational education” linearly from the perspective of historical development in combination with multidisciplinary knowledge. The dynamic mechanism of vocational education came from the basic human nature, and society and its formation can be attributed to various factors such as “vocational interest” and “market requirement” (Xu Pingli 2010).

## Reform and Development of Rural Vocational Education

Issues concerning agriculture, countryside, and farmers have always been major concerns for the government of China. It has become a key field to improve the vocational ability of rural population through rural vocational education and then enhance the economic development level of rural areas. In China, the concept of rural vocational education indicates the kind of vocational education serving for agriculture, countryside, and farmers, which includes the vocational education running in countryside, the agricultural vocational education, and the vocational education and skills training that aims for training talents for the construction of countryside. Agricultural vocational education indicates the vocational education serving industries that relates to agriculture, forestry, animal husbandry, fishing, water conservancy, grain, and agricultural socialization service. Therefore, rural vocational education is a more broad concept than agricultural vocational education.

Li Shuishan checked out the situation of rural education in the respective regions by questionnaire and analyzed the main sticking points in the development of rural vocational education, the basic problems in the combination of preliminary education in rural areas with vocational education, and the basic situation of curriculum and teaching material design in rural vocational education (Li Shuishan 2003). Xu Changfa explored the scientific development, classification and regionalization,

comparative advantages, overall planning, adaptation to local conditions, and harmonious development of rural vocational education under the new situation (Xu Changfa 2006). Tang Shengling and Cao Ye established a discipline system for rural vocational education, and first proposed and performed the studies on “rural vocational education in three types of economical areas” and “government in rural vocational education” (Tang Shengling and Cao Ye 2006).

On the basis of building an evaluation system of farmer vocational education, Chen Huayu and Jiang Nan comprehensively analyzed the overall condition and regional variance of farmer vocational development in China from three dimensions of educational objects, educational conditions, and educational effects (Chen Huayu and Jiang Nan 2008). Through a positive analysis on the rate of return to education and to length of service of the income of migrants, Ren Yuan stated the effects of human capital on the income of migrants and tried to establish an academic education and vocational training system more suitable for the requirements of migrants (Ren Yuan 2010). Ma Jianfu proposed that it was difficult to truly solve the problems of relative poverty and development poverty in rural areas in China merely through economic growth, and the key lied in education and the core was to provide suitable vocational education and training for the farmers and their children (Ma Jianfu 2012).

Wu Zhihui made a special exploration into the strategic transitions of rural vocational education. First, vocational education should be oriented towards the construction of the ecological agriculture system with modern characteristics and new rural construction in various regions and towards the transfer of surplus rural labor and the technical talents in urgent need by the country. Second, build a unified labor employment training system for both urban and rural areas, and a vocational education administrative system and a labor force employment system under urban and rural integration (Wu Zhihui 2012). Ma Jianfu studied the relationship between vocational education and the cultivation of new vocational farmers, the competence model and cultivation concept of new vocational farmers, and other basic problems (Ma Jianfu 2015).

## **Curriculum and Teaching Reform of Vocational Education**

Since the new century, the development of vocational education in China has been shifting its focus from size development to connotation construction, paying attention to questions of the meaning and qualities of vocational education and how vocational learning is best supported. Against this background, improving the quality of talent cultivation in vocational education through curriculum and teaching reform has become an area of focus for the researchers. Zhao Zhiqun introduced three theories of action-oriented teaching, social learning, and organizational learning to explain the rules of modern vocational learning (Zhao Zhiqun 2003). Yang Jin comprehensively clarified that the teaching reform and curriculum construction of secondary vocational education must be student-oriented, to operationalize the teaching process, promote the socialization of quality evaluation, and improve the quality and profit of vocational education (Yang Jin 2004). Jiang Dayuan believed



that the most important characteristic of specialized teaching of vocational education was the consistency between the teaching process and the action in related fields, so the specialized teaching of vocational education should be oriented towards typical vocational activities corresponding to this specialty, and vocational education should be built with specialized teaching theory different from the teaching theory of general education (Jiang Dayuan 2004). Chen Yongfang proposed to construct specialized teaching theory of vocational education and that the research and teaching object under the specialized teaching theory should be not just the specialized disciplinary knowledge, but more important, the complicated interrelation among vocational education, labor (work), and skill in the area of expertise (Chen Yongfang 2007). Centering on the disciplinary theory and vocational theory, general theory and specialized theory as well as basic theory and pragmatic theory, Xu Guoqing tried to establish the curriculum theory of vocational education with the paradigm function on the level of concept and principle (Xu Guoqing 2008). He also made an integrated study on three key fields in the reform and development of vocational education in China – curriculum, teaching, and teacher – and sought a systematical understanding of these three fields from the perspective of their interaction (Xu Guoqing 2016).

It is worth noting that under the influence of competency-oriented education thought in the world, competency-oriented curriculum and teaching reform has become an important trends since 1990s. There are many articles to explore the theories, practical model, implementation strategies of competency-based vocational education. For example, Huang Riqiang put forward that competency-based vocational education is the development trends of modern vocational education (Huang Riqiang and Zhou Qi 1999). However, with the rapid changing of economic and social background, different voices against competency-based have appeared. Many researchers advocated to cultivate more broad qualities in vocational education rather than postcompetency, so as to enhance the lifelong development of learners. The most representative points are “quality-oriented,” “personality-oriented,” “capabilities-based education,” and so on.

## **Strengthening School-Enterprise Cooperation**

As the breakthrough point of realizing the reform of talent training mode of vocational education, school-enterprise cooperation is of special concern for Chinese researchers of vocational education. Chen Xiao proposed that the most remarkable feature of higher vocational education was school-enterprise cooperation and China should take a talent cultivation path combining the industry, the school, and the research (Chen Xiao 2002). Hu Yanhua explained the essence of the cooperation between school and enterprise from the perspective of economics and proposed that the talent cultivation path under the school-enterprise cooperation and the combination of production and learning was an obvious characteristic of higher vocational education (Hu Yanhua 2004). Under the framework of resource dependence theory, Huo Lijuan analyzed the foundation for school-enterprise cooperation, the resource

interdependence of both parties in the cooperation and the structure of dependence, and the effects on both parties, describing different periods of establishing and maintaining the school-enterprise cooperation in higher vocational colleges in China (Huo Lijuan 2010).

It is worth noting that, in recent years, modern apprenticeship has become an important research focus since many scholars take modern apprenticeship as the most effective way to realize working-learning combination. The total literature about modern apprenticeship exceeds 2000 in CNKI by the end of 2017. In summary, the research studies on modern apprenticeship can be divided into the following aspects: the first is about research about the essential attributes, connotation, and running mechanism of modern apprenticeship, for example, Zhao Zhiqun put forward that modern apprenticeship is a kind of cooperated vocational education system participated by vocational schools and enterprises (Zhao Zhiqun 2009). The second is about practical exploration on modern apprenticeship. In 2014, the Ministry of Education put forward to “carry out the pilot of modern apprenticeship system” and many vocational colleges in China have introduced modern apprenticeship into talent training process. For example, taking the practice of a vocational school as an example, Zhao Pengfei put forward that the effective implementation of modern apprenticeship should strengthen policy environment construction as well as connotation environment construction (Zhao Pengfei 2013). The third is about research studies on modern apprenticeship in western countries. For example, Guan Jing’ doctoral dissertation takes “western apprenticeship” as the subject (Guan Jing 2010).

## **Construction of the Modern Vocational Education System**

According to policy deployment of the state, it is a fundamental objective of vocational education development to construct the modern vocational education system, which is also the target of the research and study in Chinese vocational education. Li Yixian made a comprehensive interpretation of the concept of lifelong education system and put forward that for lifelong education as a system, during the implementation process, emphasis should be put on the principle of comprehensive organization based on various forms, but also on transcending these forms (Li Yixian 2004). Wu Xiaoyi deemed that lifelong learning is an educational idea which is formed on the basis of the concept of lifelong education and which emphasizes the dominant role of the learners and advocates to provide individualized services for lifelong learning of citizens. Its promotion and implementation will surely require making full use of educational functions of various social resources, as well as realizing communication and cohesion between school education and social training (Wu Xiaoyi 2007).

Centering on the policy hotspot of the construction of the modern vocational education system, Jiang Dayuan pointed out, through research, this construction should grasp the following three basic problems: the connotation of skill (education) and technical (education), the similarities and differences of secondary

vocational education and higher vocational education, and the equivalence between vocational education and general education. He suggested constructing a national qualifications framework and thus realizing real equivalence of various kinds of education at the same level (Jiang Dayuan 2011).

Developing vocational education at undergraduate level is a key link for perfecting the vocational education system, and has become a key focus in the academic field since the new century. Yang Jintu put forward that the pursuit for diversity of undergraduate education types and structural rationalization of education types is a common trend for reform and development of higher education in the latter half of the twentieth century in the world. Establishing the appropriate status of higher vocational and technical education in China is an objective requirement of China in the process of modernization (Yang Jintu 2003). Shi Qiheng and Wang Aiping proposed that application-oriented undergraduate education is a new education type formed along with the development of science and technology and during the transition of higher education from elite education to mass education. It is a higher education relative to theory-oriented undergraduate education and practical technology-based education, targeted at cultivating comprehensive and coordinated development of knowledge, capacity and quality toward senior application-oriented talents in first line of production, construction, management, and service. Basic characteristics of application-oriented undergraduate education are mainly manifested by: positioning the “nature” in industry, positioning the “orientation” in application, positioning the “pattern” in compound, and positioning the “point” in practice (Shi Qiheng and Wang Aiping 2008). Han Xuejun put forward the conception of construction of a vocational higher education system of Chinese characteristics, in which he made a preliminary sketch of the logic framework and practical method of the cultivation modes of application-oriented innovative talents (Han Xuejun 2010). Moreover, GuYong’an deemed that the destination of the objective of the transformation development of newly built undergraduate colleges shall be application-oriented brand universities. The application-oriented brand universities have two distinguishing characteristics: one is the application-oriented university and the other is the brand university. To construct application-oriented universities is an inevitable choice of the newly built undergraduate colleges under the background of massification of higher education, and the core of it is to emphasize participating in social progress through cultivating application-oriented talents and providing research studies on the applied technology (GuYong’an 2012).

## **Reflection and Comment on Vocational Education Policies in China**

Records, reflections and comments on development policy and the course of vocational education in China have always been focus of attention of research on vocational education. Zhang Li put forward that vocational education shall run through secondary education, higher education, and even the whole life of a person, and the core is employment, livelihood education, and career education (Zhang Li 2005). Other perspectives insist on taking employment as the orientation, with the

fundamental requirement for vocational education to serve employment and serve economic and social development (Ma Zhenhua and Zhang Yu 2005). Since 2005, the “Book Series of Researches on Modern Vocational Education” have been published by Shanghai Educational Publishing Press successively. The book series centered on practical problems of vocational education and expanded the theoretical logic around practical problems of vocational education in China, so as to promote disciplinary development of vocational education. In 2007, the “Book Series of Report on Development of Vocational and Technical Education in China” was published. This book series consist of total 11 books which displayed the development course of vocational education in China in recent years from various perspectives (Yu Zhijing 2007). In 2015, the “Book Series of Report on Development of Modern Vocational Education in China” was published; it recorded the development course of vocational education in China between 2007 and 2014 and emphasized the basic characteristics of development of vocational education in China during this period, so as to explore the thought development that the course of vocational education has entailed (Yu Zhijing 2015).

### **Ideas and Strategies of Vocational Education in International Society Especially in Developed Countries**

Strategies and good practices of vocational education in international society, especially in developed countries, have always been the focus of attention of vocational education in China. Jiang Dayuan made research studies on in-depth philosophical thought and rational thinking of vocational education in Germany (Jiang Dayuan 2007b). Kuang Ying discussed the development and transformation of higher vocational education from the perspective of comparative education, focused on expounding hotspot issues of higher vocational education in China, tried to seek solutions from the dimension of international comparison, and tried to consider advantages and disadvantages and applicability of different schemes (Kuang Ying 2006). Wu Xueping made systematic research on historical development, existing system, characteristics and reform and development trend of vocational and technical education in total 17 countries: Denmark, Finland, Norway, Sweden, Germany, France, UK, Netherlands, South Africa, Australia, New Zealand, USA, Canada, India, Japan, South Korea, and China, and made review and prospect of overall development of world vocational and technical education on the basis of national research studies (Wu Xueping 2005). Zhai Haihun made research studies on generation, development, and transformation of secondary vocational education in UK since the late nineteenth century and put forward the learned experience and lessons as well as suggestions for further reform and development of secondary vocational education in China (Zhai Haihun 2005). Li Jiyan, starting from inner link between macroeconomic, regional economic, and industrial structure, and the vocational education, and in combination of the latest development trend of vocational education in internationally developed countries in recent years, made a carding of its historical evolution and trend, so as to provide reference for construction of vocational education in China (Li Jiyan 2014).

## Conclusions

Through literature review, some important characteristics of research on vocational education and training can be observed in China.

### Distinct Policy Guidance in Research Themes

It can be seen from the development course of vocational education in China, that government leadership is the main development method of vocational education in China, while policy promotion is the main content of government leadership. Since the reform and opening-up, every time when critical periods of economic and social development occur, the government of China always made strategic deployments and issue major policy measures to promote the vocational education to match with economic and social development. As put forward by the researchers, development of vocational education in China is not a blind one but a conscious one. Constant development continuation, actuation by new situations, and promotion by national policy have jointly constituted the basic development logic of vocational education in China in an overlapping way (Yu Zhijing 2016). To adapt to such characteristic, the research themes and fields of vocational education in China are also equipped with distinct policy orientations, which are manifested by the strong sensibility of Chinese vocational education scholars toward policy hotspots of vocational education. The key point of policy development is always the focused research theme of vocational education, while serving the policy development is a conscious mission of Chinese vocational education researchers. For example, since the new century, development of higher vocational education, construction of modern vocational education system, and development of rural vocational education are all key points of reform and development of vocational education in China, and the achievements of vocational education in China in these fields are also the most abundant.

### It Is a Conscientious Pursuit of Chinese Vocational Education Scholars to Strengthen Discipline Construction

Research on basic principles of vocational education has always been key content to which Chinese scholars pay attention, with the main objective to construct an independent vocational education discipline. Early in the Period of the Republic of China when vocational education in China was in the budding stage, Chinese scholars have published a series of works on basic theories of vocational education, and the representative works extended from Zhu Jingkuan's *Theory of Vocational Education* (1916) to a series of monographs on basic theories of vocational education and on vocational and technical pedagogy (Liu Chungsheng 2006). Since the new century, on the basis of research studies on basic theories of vocational education, relevant scholars have also formed a series of research achievements in basic theories in history, sociology, economics, teaching theory,

and other fields of vocational education, which gradually made vocational pedagogy a more mature discipline.

### **Research Method Takes Literature Research as the Principal but the Trend of Multiple and Mixed Methods Is Obvious**

Over the years, academic research on vocational education in China mainly used literature research methods. However, in recent years, with the development of scientific technology, qualitative research and empirical research have increasingly become important research methods of vocational education, and a series of influential research achievements have been realized in this aspect. For example, Li Hongwei applied interview methods in qualitative research, conducted a case study by selecting one student from a vocational school, and examined the education mode, education highlights, and focus of strengthening attraction of vocational education in vocational school (Li Hongwei 2010). Shen Youlu, through investigating 22 secondary vocational schools, 25 higher vocational colleges, and in total 135 schools in all learning states in 9 provinces nationwide, analyzed the students, family backgrounds, and reasons for choosing vocational schools (Shen Youlu 2016). Chen Zhao, starting from adult questionnaire data of follow-up survey of Chinese family dynamics and making use of nationwide microsurvey data, discovered that the return of vocational education especially higher vocational education is related with the receiving place of vocational education (Chen Zhao 2015). Chen Yan et al., through referring to and applying theory and assessment system of modern international competitiveness, measured the level of competitiveness of vocational education of various countries from the structure, quality, benefit, scale, change, and investment and obtained the rank of international competitiveness of vocational education of various countries or regions in the world (Chen Yan et al. 2009).

### **Construction of Chinese Mode by Referring to International Experience Is a Key Aspect of Vocational Education Research in China**

Since vocational education started relatively late in China, in late 1970s and early 1980s of the twentieth century, with the opening-up of China, learning and borrowing vocational education experiences of developed countries have become important references for vocational education development in China. From then on, Chinese vocational education scholars began to introduce successful experiences of vocational education as well as masterpieces on vocational education in foreign countries. The book *Secondary Vocational and Technical Education* published in 1979 made selective introduction of the development of secondary vocational and technical education in foreign countries. Hereafter, some translated books introducing the development of vocational education in foreign countries have been published in China successively, including the compilation on *Productive Labor Education and*

*Vocational Education* published in 1984, of vocational education and vocational guidance approaches in the Soviet Union, Japan, France, East Germany, Thailand, and New Zealand, in the 1970s. Since the late twentieth century, Chinese scholars have begun to make deeper comparative analyses of vocational education in more developed countries, trying to introduce advanced foreign vocational education practices in China, and they have realized many valuable research achievements during this process.

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# Facilitating Lifelong Learning Through Vocational Education and Training: Promoting Inclusion and Opportunities for Young People in the UK

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## Abstract

This chapter will consider the role of vocational education and training in contributing to strategies to enhance the life chances and social inclusion of young adults. Recent changes in economic and social development and the impact of globalization have contributed to the changes in perception of both vocational learning and skills required by contemporary workplaces. Vocational and work-based learning has been recognized as a core component of national and international strategies for lifelong learning (LLL) (Evans 2012; NIACE 1999; Aspin et al. (eds) (2012) The second international handbook of lifelong learning. Springer, Dordrecht), which aim to bring about higher participation and inclusion of young people, especially those who are considered to be vulnerable or disadvantaged. Engaging vulnerable young people through different forms of lifelong learning has been strongly related to addressing the specific needs and requirements that would facilitate their participation in social, economic, and civic/political life in their relevant contexts. The

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chapter will consider the links between LLL and VET, particularly discussing the extent to which the different discourses of LLL and adult education influence strategies and approaches for vulnerable young people and the implications of VET. The chapter will further consider some policy and practice developments in the UK context, in both historical and contemporary perspectives. Subsequently, some approaches will be considered to illustrate the debate and developments, particularly drawing on research findings from selected research projects. The chapter will conclude with discussing the potential of VET for promoting active citizenship specifically in providing the learners with both economic and social skills in a lifelong learning perspective.

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**Keywords**

Lifelong learning · Inclusion · Active citizenship · Young adults · Vocational education and training (VET)

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## Introduction

Engaging young people through different forms of lifelong learning (LLL) has been strongly related to addressing the specific needs and requirements to facilitate their participation in social, economic, and civic/political life in their relevant contexts. The vocational education and training (VET) system, as a means to integrate young people into society and especially into the labor market, has been an important element of LLL and inclusion approaches (e.g., Evans and Niemeyer 2004; Holford et al. 2008). Recent changes in economic and social development and the impact of globalization have contributed to the changes in perception of both vocational learning and the skills required by contemporary workplaces. Vocational and work-based learning has been recognized as a core component of national and international strategies for LLL (Evans 2009; Aspin et al. 2012; Malloch et al. 2011), which aim to bring about higher participation and inclusion of young people, including those who are considered to be vulnerable or disadvantaged. The significance of the growing problem of social exclusion and disengagement of adults has been underpinned strongly by the current global challenges (such as youth unemployment, lack of involvement in employment or education, low levels of basic skills of the population, the refugee crisis). A recent EU report shows that around 25% of adults (aged 25–64 years) in the EU have not completed any formal education beyond the level of lower secondary education. In addition, of these, 6.5% of adults in the EU left the education system with no more than primary education (European Commission 2015). Over the last decade, one of the main concerns of governments in Europe has been to raise the skill and education level of the adult population as a way of increasing competitiveness in the global economy. Addressing these complex problems specifically through engaging and reengaging the adult population in LLL and skills development has become an important target of national governments across Europe and globally.

This chapter will consider the role of VET in contributing to strategies to enhance the life chances and social inclusion of young adults, specifically focusing on the UK

(Although this chapter makes some general observations that relate to the UK, the discussion will focus largely on England.) context. The chapter will start with a discussion of recent policy developments of VET in England and will provide some theoretical considerations on the role of LLL and its discourses for VET in the UK context. The chapter will consider the notion of disadvantage in relation to young adults and will further discuss the links between LLL, VET, and inclusion, particularly discussing the extent to which the different discourses of LLL and adult education influence strategies and approaches for vulnerable young people and the implications of VET. Subsequently, some approaches will be considered to illustrate the debate and developments, drawing particularly on findings on research dealing with issues of VET, LLL, and disadvantaged young adults. The chapter will conclude with some recommendations for policy and practice and directions for future research.

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## Theoretical Considerations and Policy Developments

The role of VET in promoting LLL and engaging young people, including those suffering from different types of disadvantage, has long been recognized in both policy and research (Saar et al. 2013; Jarvis 2012; Schuller 2009; European Commission 2015). The VET system as a means to integrate young people into society and especially into the labor market has become one of most integral configurations of LLL, fostering social inclusion through aiming to equip (vulnerable) young people with a range of skills, including vocational, basic, and personal skills. Both national and international research have stressed the potential of vocational education in combating elements of social exclusion, specifically through contributing to young adults' transition to employment, skills development, and reducing early school leaving. An investigation of young people's pathways undertaken by Cedefop demonstrates that VET attracts learners at risk of dropping out or those who have already dropped out because they prefer VET-specific pedagogies as a way of learning (Cedefop 2016). Other commentators have made similar observations in relation to potential positive impact of VET on the life chances of young adults including both professional and personal development (Evans 2009; Malloch et al. 2011).

In this respect, the role of VET in equipping individuals with skills to succeed in the labor market has been emphasized in both research literature and policy papers (e.g., Evans et al. 2006). It has been observed that the number of job roles requiring intermediate and higher skills and education is rising in the UK, and it is expected that it will become even more important to possess specialist skills in the coming years, in order to participate in a more advanced labor market (UK NARIC 2016). Vocational qualifications provide practical skills that are directly related to employment in one or more occupations and can also prepare learners to progress to academic education, and therefore, vocational learning plays a critical role in both building a skilled and productive workforce and equipping learners with employment-related skills.

In the UK context, it has been observed (e.g., Stasz et al. 2004) that government policy for VET has been directed toward two broad purposes. The first is related to economic objectives, focusing on the development of economic capabilities and employability skills of the population. This policy discourse emphasizes that higher skills levels will lead to national economic prosperity, increased benefits for companies, as well as higher earnings and better life chances for the individual. Policy developments related to this discourse in the LLL and VET fields in the UK have been strongly underpinned by neoliberalism, emphasizing global competitiveness, the market economy, and its skill demands, and this was reflected in policy documents such as the *Leitch Review of Skills* (HM Treasury 2006). The corresponding market-related or economics-associated discourse of LLL, “the more we learn, the more we earn” (Evans 2009), has affected the development of adult education both in Europe and globally over the last two decades. For both VET and LLL, economic and market-related integration have therefore been important objectives; and the development of young people’s employability skills has been considered a key factor for their successful integration into European societies. The second purpose of VET is social, emphasizing that vocational education is not simply about occupationally relevant skills and qualifications but also about developing the motivation, confidence, and transferrable skills of individuals. A substantial body of literature identifies a range of nonvocational outcomes associated with VET provision, which include increased positive learning attitudes among young people and adults, promoting social inclusion, as well as facilitating progression to further learning (e.g., Evans 2009; Guile 2011; Cedefop 2016). The success of this agenda for young people may vary across contexts and depends largely on a number of external and internal factors such as teachers’ competences and support for students, students’ attitudes, individual biographies, financial and social setup, etc.

In the UK context, the problem of social exclusion and the need for developing policies and strategies for social integration have been increasingly recognized among policy-makers and practitioners over the past two decades; specifically the term “social exclusion” has mainly been used in policy agendas since the 1997 New Labour government. These two broad purposes, both economic and social, have been evident in relevant policies and strategies implemented by the government. In the latter part of the last century, some influential policy papers contributed to developing both the social and the economic agenda of VET. *A Basis for Choice*, published by the Further Education Unit (FEU) in 1979, became an important policy document in setting the agenda for vocational education, which emphasized the significance of helping young adults to make informed and meaningful choices in relation to their education and employment and opportunities. As noted by Pring (1995), the agenda emphasized the provision of guidance to enable young people to make a more informed choice about their routes into society, adult life, and employment, as one of the dimensions of VET. The policy also underpinned the importance of developing young adults’ transferable skills to ensure that their options are kept open (FEU 1979, 1982). Furthermore, a review of courses conducted on behalf of the FEU (Pratley 1980) identified that young adults are likely to need help in areas that relate not only to general education but also to job finding, employment skills,

and personal skills development. Through the Manpower Services Commission (later succeeded by the Training Agency), some important programs were initiated in the 1970s to tackle youth unemployment (e.g., the Job Creation Programme and the Work Experience Programme, later succeeded by the Youth Opportunities Programme). An “employment program” – work experience, training, and work preparation courses for unemployed school leavers – was another example of addressing unemployment and the disengaged. However, as Evans (1991) notes, the program did not succeed in solving the problems of unemployment and social exclusion. An additional concern was the widespread abuse of the programs by employers, who often saw them as a source of cheap labor. The Youth Training Scheme (YTS) was set up to replace these schemes in 1983. As Lucas (2007) observes, this was intended to be a modernized apprenticeship for everybody, committed to providing places for all unemployed 16- and 17-year-old school leavers in order to enhance their employability chances. The 4-year Technical and Vocational Education Initiative (TVEI) and the 1-year Certificate in Prevocational Education (CPVE) were introduced in 1983 and 1986, respectively. The TVEI was introduced to offer full-time students aged 14–18 years a 4-year course combining general with technical and vocational education in schools. The primary aim of this initiative was to make the school-based curriculum more relevant to the world of work. The CPVE included common core options for developing skills in selected occupational areas, as well as job seeking and enterprise skills. However, as Evans (1991, pp. 55–56) notes, the initiatives introduced in the 1980s presented “a confusing array of possible pathways to young people as well as to teachers, counsellors and parents who seek to guide them and the companies who might offer them employment.” During the 1980s Further Education (FE) colleges played an important role in providing “new vocational” or “prevocational” programs by offering a range of courses which emphasized preparation for work in general, not for specific jobs (Lucas 2007). In 1990 Youth Training replaced the YTS and became a significant program for unemployed 16- and 17-year-olds until April 1998, when it was replaced by Work-Based Training for Young People. Youth Training was delivered by training providers under contract to the local Training and Enterprise Councils. Work-Based Training for Young People retained most of the main characteristics of Youth Training. Taking the CPVE initiative further, General National Vocational Qualifications (GNVQs) were introduced in 1992 at three levels (foundation, intermediate, and advanced). They were aimed at young people who wanted to keep their career options open rather than embarking on specific NVQs. The introduction of GNVQs (phased out in 2007) and more recently the vocational General Certificates of Secondary Education (GCSEs) in applied subjects have meant that aspects of a 14- to 16-year-old’s program of studies may be vocationally related, providing what Pring (1995) defined as “the prevocational context.” With the variety of vocational training courses that could be offered in different contexts (e.g., college or workplace), there are certain common features of this type of learning, such as the incorporation of vocational relevance, providing opportunities for sampling or “tasting” a range of jobs to allow informed choices as well as taking into account the individual needs and circumstances of young people.

More specific policy developments to address the social exclusion of adults became evident in the UK political agenda at the end of the 1990s. The Social Exclusion Unit (SEU) was set up in 1997, in order “to help improve government action to reduce social exclusion by producing ‘joined-up solutions to joined-up problems’” (SEU 2004, p. 2). One of the SEU’s most influential reports, the *Bridging the Gap* report (SEU 1999), as well as its subsequent Policy Action Team report on young people (SEU 2000), raised the issue of social exclusion as one of the most significant social challenges, affecting adults and young people. The need to develop various programs and schemes that aim to engage young people, specifically those who are disadvantaged or disengaged, has also been strongly articulated in the SEU’s reports.

Subsequent policy developments to address the issues of social exclusion raised by the SEU have been focused strongly on the economic dimension of LLL, with a focus on labor market skills and employability. Under New Labour (New Labour is a term that refers to various British Labour Party governments, during the period from the mid-1990s until 2010, under the leadership of Tony Blair and Gordon Brown.) policies, social exclusion was to be countered by economic inclusion, focusing primarily on providing education, training, and employment opportunities (Coffield et al. 2008). Schemes for young adults were usually geared toward employability and training, to help with job search, interview, and personal skills and, ultimately, move them into employment.

During recent years a number of reforms and initiatives have been launched with the purpose of improving VET for young people and adults and to make it more responsive to the needs of employers and the labor market. The provision of VET, primarily post-16, includes FE colleges, apprenticeships, and systems of work-based learning. Many recent reforms have aimed to enhance the status of VET and make it an equal alternative to higher education. University degrees have become increasingly expensive since the introduction of fees in 1998 and at the time of writing cost up to £92,500 per annum. A wide range of vocational opportunities is available for learners at the end of compulsory education, including qualifications within the National Qualifications Framework (NQF)/Qualifications and Credit Framework (QCF), other qualifications outside the NQF/QCF (e.g., RSA or City & Guilds, vendor certifications offered by Microsoft and others), short training courses (not necessarily leading to a qualification), as well as publicly funded work-based training, e.g., apprenticeships or traineeships. The issue of concern, however, is the potential for confusion over a wide range of different qualifications, resembling a junglelike landscape of post-compulsory training in the UK (Unwin 1999). A further, and very damaging, feature of the fragmented and turbulent vocational scene is that employers have little confidence in – or indeed knowledge of – the awards designed to prepare young people for entry to their businesses. There is a range of education and training providers within the UK VET sector, including secondary schools, sixth form schools, sixth form colleges, private training companies and academies, FE colleges, and higher education institutions. FE colleges make up the largest group of VET providers, providing education for both young people and adults.

Formal VET opportunities for disadvantaged groups are mostly offered by the same providers that also cater for other students; however, additional funding might be available. Funding for young people in England between the ages of 14 and 17 to succeed in education and training is available through the Youth Engagement Fund. It was created as a set of measures to address the attainment gap between children and young people from different social and economic backgrounds and to reduce the number of young people classified as “not in employment, education or training” (NEET) (HM Government 2014, p. 3). The purpose is to support disadvantaged 14- to 17-year-olds and to enhance their motivation to participate in education or training, thus improving their life chances and success for their future professional and personal development. Another example are Lifelong Learning Partnerships (LLPs), which consist of a variety of education providers ranging from voluntary sector providers to further and higher education institutions as well as employers and trade unions. LLPs often reach out to disadvantaged communities and assist disadvantaged learners to engage with education and training again (UK NARIC 2016).

Recent years have seen widespread interest among different stakeholders in VET. Both current and previous governments have issued major reports, each having quite different approaches to the problems raised by Britain’s poor record in this field (Winch 2012). Improving the VET system through making it accessible and understandable to young people has been and remains an important objective of a number of national strategies. There are concerns that the system is too complex and lacks clear routes for progression to higher-level skills or a sustainable career, with too many young people obtaining qualifications which are of little or no value to the labor market and many employers reporting hard-to-fill vacancies due to a lack of skills (DfE 2017). Recent decades have witnessed a series of reviews that have raised the debate about the need to make the VET system more responsive to the needs of both individuals and employers. The main objective of the *Leitch Review* of 2006 (HM Treasury 2006) was to raise the skills levels of the British workforce to facilitate the country’s economic competitiveness. Some of the main targets identified by the *Leitch Review* included recommendations to increase adult basic skills across all levels and strengthen employer voice and engagement as well as to increase people’s aspirations and awareness of the value of skills (HM Treasury 2006). Subsequently, the then Liberal Democrat-Conservative Coalition government recognized the need to carry on reforms in the VET sector. The independent *Wolf Review* (Wolf 2011), commissioned by then Education Secretary Michael Gove, has further underpinned the significance of VET reforms. Following the *Wolf Review*, the “Building Engagement, Building Futures” strategy was launched in 2011, which focused on raising attainment in school and beyond to ensure that young people have the skills they need to compete in a global economy; helping local partners to provide effective and coordinated services that support all young people, including the most vulnerable, aiming to achieve full participation for 16- to 17-year-olds by 2015; and encouraging and incentivizing employers to inspire and recruit young people by offering more high-quality apprenticeships and work experience places and ensuring that work pays and giving young people the personalized support they need to find the work, through universal credit (HM Government 2011, p. 5). The



program has had an explicit focus on VET, specifically, making a clear commitment to improve vocational education and specifically emphasizing the role of apprenticeships and incentivizing small businesses to take on young people and make it easier for employers to offer opportunities for apprentices. The strategy makes a clear link between vocational education and economic prosperity, suggesting that VET can yield considerable returns for young people and the economy (Cedefop 2016). Correspondingly, most recent strategies aiming to tackle youth unemployment and to provide more choices for disadvantaged young people have focused on improving apprenticeship provision, making it more accessible for different types of young adults. Traineeships provide an example of opportunities for those who are not ready to start apprenticeships due to a lack of appropriate skills or experience. This may apply to different types of disadvantaged/vulnerable young adults, including those who newly arrived in the country (immigrants or refugees), dropouts from the mainstream education system, as well as young people lacking basic skills. The trainee scheme endeavors to give young people the skills they need to progress into an apprenticeship, further education, and training or employment, specifically through developing their literacy and numeracy skills as well as providing them with opportunities to engage in work preparation and training. As noted elsewhere, the Coalition vision was one in which young people would be empowered consumers of training opportunities and where informed choice in a market of opportunities would improve standards (Swift and Fisher 2012). This was underpinned by the tradition of neoliberalism that has been centered around features such as the promotion of free competition, deregulation, privatization, internationalization, consumer choice, and the use of market proxies in the public sector (Souto-Otero 2013). Individuals with low skills levels are more likely to be unemployed or in insecure, underpaid employment (Swift and Fisher 2012). As a result, various schemes in the area of VET have often been explicitly aimed at, and seem to have a greater impact on, those individuals who are not succeeding at school or at work or whose skills do not meet the needs of the economy and therefore hamper their ability to enter employment.

The conclusion is that major government vocational education policies and reforms have been driven primarily by economic purposes and less by the need to address the problem of social exclusion. Another concern is that of the status of VET within society, as it has been perceived as a “second choice” option, while “academic” education, especially as represented by the General Certificate of Education at Advanced Level (GCE A Level), “has been widely regarded as the prestigious option to which the best should aspire” (Swift and Fisher 2012, p. 208). As the discussion above indicates, a number of reforms and initiatives have been launched with the purpose of improving VET for young people and adults and to make it more responsive to the needs of both employers and individuals. However, as Evans and Niemeyer (2004) warn, getting vulnerable young people into employment does not immediately solve the challenge of social exclusion and disengagement, and even successful entry into the labor market can bring another set of limitations and instabilities. While recognizing the significance of the economic agenda, i.e., equipping adults with employability skills and moving them into employment, a substantial body of research (Holford et al. 2011; Evans 1995; Evans 2009; Evans and

Niemeyer (2004) supports the idea of developing and promoting the LLL perspective that would enable vulnerable young adults not only to develop their economic and employability skills but would also encourage their social inclusion, personal development, and participation in their communities and wider society. Beck (2015) also notes that in investigating the issue of learning providers who work with young people with experiences of being NEET, the problems of the quality of provision, which open few opportunities for participants, need to be taken into account. In addition, she makes a point that the low expectations of providers can result in additional barriers for young people as they may be discouraged from following their ambitions with potential implications for the development of their own sense of agency. Correspondingly, White and Laczik (2016) make a similar argument and support the view that successful programs for disadvantaged young adults need to incorporate specific features that contribute to making the programs successful. They identify some characteristics of successful programs that need to be taken into account, such as offering young people tailored provision to reengage them in education and training, offering them a choice in vocational areas and other skills development programs, and supporting them in making an informed choice. The significance of tutors' attitudes and taking into account learners' backgrounds has also been cited in relation to programs provided for vulnerable learners (e.g., refugees) (Chadderton and Edmonds 2015), as well as developing meaningful VET pedagogies that contribute to individual success, motivation, and improved life chances of young adults.

Providing opportunities to engage vulnerable young adults in VET alone is, therefore, not sufficient, and the successful strategies to facilitate social inclusion through VET require taking into account the LLL perspective, to make the process of VET-related learning meaningful and have an impact on individual life courses. As Evans (2009) argues, LLL is more than simply about equipping learners with labor market-related skills and competences. The expansion of human capabilities rather than merely economic development should be the central aim of this process, which extends beyond the economic dimension, and emphasizes the importance of social and political participation as well as the responsibilities of participation, developing capabilities, and the rights to participate (Evans 2009). Facilitating inclusion through LLL in VET settings may involve a range of dimensions, such as learning contexts, skills development and recognition, and promoting opportunities for active citizenship.

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## **Facilitating Inclusion Through Lifelong Learning: Implications for VET-Related Training**

As the concept of LLL has taken prominence both nationally and globally, as one of the most influential concepts affecting educational initiatives in a range of contexts, the UK VET developments have been increasingly drawing on the LLL agenda, specifically in the way of rethinking the objectives of VET. The LLL vision of VET is that not only should vocational programs equip young adults with occupationally related skills but they should also be aiming to facilitate their transferrable skills,

improve life chances, and facilitate social inclusion. Engaging young adults to be lifelong learners through VET and facilitating the inclusion of those who are considered to be disadvantaged and at risk of social exclusion have become significant elements of VET-related and work-based learning provision. In the research literature, facilitating LLL and inclusion through VET and workplace learning has been identified as related to a range of dimensions, including the significance of learning contexts and spaces, skills and competence development, and encouraging young adults to become active citizens.

### **Learning Spaces and VET: Promoting Inclusion Through Inclusive Learning Contexts**

The notion of contexts and spaces and their role in facilitating learning and inclusion has received recognition in the research literature in the past two decades. The ways that learning spaces facilitate individual engagement and perceptions of knowledge and learning at work have been reconceptualized in response to the changing requirements of contemporary economies and, more specifically, workplaces (Kolb and Kolb 2005; Malloch et al. 2011; Evans and Kersh 2014). The complex interdependencies between types of learning spaces and learner engagement have been underpinned by research exploring school to work transitions, work-related learning, and VET as well as issues of social integration and inclusion. This research has been characterized by perceiving and conceptualizing VET and work-related spaces not simply as settings for the development and deployment of occupationally related skills but as contexts that may play an important role in contributing to personal development, improved life chances, and reducing social exclusion (e.g., Malloch et al. 2011; Evans and Kersh 2014; Evans 2009; Kersh 2015). VET-related contexts have been considered and recognized as multifaceted spaces that may promote opportunities for enhancing motivation, positive attitudes, and skills development. Fuller and Unwin (2004) have conceptualized expansive and restrictive learning environments that may exist and coexist in work-/VET-related contexts, where the former provides affordances for engagement and personal development (i.e., vision goes beyond immediate job requirements – to progression for personal development and career) and the latter restricts opportunities for wider professional and personal development (i.e., the focus is on the minimum skills required to fulfil current job tasks). The expansive/restrictive framework provides a foundation for considering potential affordances of the learning spaces in VET-related settings and the role that spaces in contexts may play in facilitating engagement and inclusion. The study by Evans and Kersh (2004) of unemployed adults has demonstrated how expansive learning environments might contribute to the development of confidence and positive learning outcomes of disadvantaged adults in work-related settings. Furthermore, Evans and Niemeyer (2004) have identified a link between engagement and situated learning contexts; specifically, their research has found that those suffering from social exclusion could be better motivated and reintegrated through

VET-related programs that provide opportunities for situated learning. The situated learning context has been perceived as a space where the individual biography of each person is highly significant for their engagement in the learning environment and communities and where workplace learning that does not take place in closed communities may have the goal of enabling people to move through and to move on. Arguing that within work-based learning contexts, situated learning potentially plays a part in countering the social and economic exclusion of young people, the researchers further identify some important dimensions of situated learning, such as pedagogical, motivational, social, and economic as well as the dimension of diversity that contributes to the flexibility of opportunities required in a modern education system (p. 29).

### **Promoting Inclusion Through Skills Recognition and Development**

Learning spaces that provide affordances for inclusion and engagement of vulnerable young adults (expansive learning spaces) have been linked to the development and recognition of a range of skills and competences, not restricted to immediate work-related skills. Engaging and reengaging adults through the development and recognition of their personal skills in vocational and work-related contexts has been receiving attention in research on work-related contexts and settings in the last two decades (Evans et al. 2006; Eraut 2000). Evans's research (Evans et al. 2006) has suggested the significance of past experiences and prior skills acquisition from a range of experiences, such as work experience, formal education, and various life experiences (e.g., running of households, bringing up children, travel, etc.). Further research has demonstrated the ways in which adult learners that have come from disadvantaged backgrounds draw on their past experiences in their new settings and contexts, including work-related contexts. The research underpins the notion of tacit skills recognition, specifically in a range of workplace contexts. Such skills have strong tacit dimensions that may become explicit or visible to the holder when deployed or recognized in a relevant context or environment. The benefits of capturing such skills for the purpose of recognition and accreditation in VET settings have been found to be the most relevant measure of progress for a number of learners experiencing different kinds of disadvantages. Improved motivation, increased confidence, self-assurance, and self-esteem are good examples associated with tacit skills recognition (Evans et al. 2004).

Lacking basic skills such as literacy, numeracy, and information technology has been identified as one of the crucial factors that may prevent employees from engaging in learning and competence development within their workplaces (Evans and Waite 2009; Wolf and Evans 2011). The issue of the significance of employing "basic skills" in the workplace has been identified as related both to employees' biographical life experiences and their workplace learning as well as career and life chances.

## Facilitating Active Citizenship

The promotion of active participatory citizenship of young people, both directly and indirectly, is an area where many adult education and VET programs overlap. Research undertaken as part of the EduMAP project (Kersh and Toivainen 2017) supported the view that the development of social, political, and economic skills can take place through different types of adult education and LLL (e.g., vocational education, basic skills classes, second-chance education) in both formal and informal settings (see also Saar et al. 2013; Jarvis 2012). While some programs are specifically focused on citizenship (e.g., programs for migrants), often “citizenship” is not used explicitly and/or may be embedded. Adult education programs and initiatives across all countries are seen as related to social, political, or economic dimensions of active citizenship. In particular, the:

- (a) Social dimension focuses on the development of social competences and social capital.
- (b) Political dimension encourages civic and political participation, running for boards and neighborhood activities.
- (c) Economic dimension relates to employment (e.g., developing employability skills) and access to social benefits.

The potential of VET for promoting active citizenship lies in providing the learners with both economic and social skills in a LLL perspective and facilitating their career aspirations and life chances, as well as progression and transition to employment. At the same time, the concept of citizenship has been described as linking the different domains of employment, education, and “life in general” in its various personal and social configurations (Further Education Funding Council 2000, p. 4). In this context, distinctions can be drawn between learning *about*, *for*, and *through* citizenship (Kersh and Toivainen 2017).

The more “traditional” dimension of learning about citizenship may be incorporated into and embedded within VET-specific curricula themselves, for example, where issues such as equal opportunities in diverse societies, employment-related rights and responsibilities, or consumer rights are concerned. Hopkins (2014) considers the issue of embedded versus “stand-alone” approaches to citizenship education in VET in England and finds that the latter is more difficult to realize in the specific context of further education in the UK, as the predominant site of VET. He attributes this to various factors, including the relatively “downgraded” status (financially and image-wise) of vocational education and the institutions delivering it compared to their more academic counterparts (i.e., higher education). At the same time, he describes processes by which VET has seen a narrowing of curricula based on specific work-related competences, influenced by market-driven concerns. In contrast, both historically and in international comparison, there are examples of VET aspiring to providing more holistic forms of education, where citizenship studies form an integrated part of the school- or college-based learning accompanying vocational craftsmanship training (e.g., in Germany). Examples of an embedded

approach to including learning for and about citizenship in VET programs provided by Hopkins (2014) include exploring issues of sustainability of wood sources within carpentry courses or considering training practices in hairdressing through a lens of cultural and ethnic diversity. In this way, the real-life contexts of VET can facilitate citizenship education uniquely and far removed from the seemingly “dry” and theoretical domains of political philosophy.

However, real-life contexts can also have their own challenges, and some would argue that they may be particularly prone to political instrumentalization. In recent years, a specific form of “citizenship education” has been introduced for a majority of VET providers (further education colleges and many independent training providers) in England and Wales through the Counter-Terrorism and Security Act 2015, requiring both the promotion of the so-called British values and various measures under the anti-extremism and anti-terrorism agenda of the “Prevent duty.” These measures have been controversial, not least because of concerns that a focus on “British” values might in fact be used to promote assimilationist agendas, revealing tensions between central government concerns based on normative concepts of “citizenship” and the diversity encountered at the local level of educational and community contexts (McGhee and Zhang 2017). These challenges are by no means unique to VET, but they demonstrate that the contexts and ways in which young people learn *about* and *for* citizenship can be complex and sometimes contested.

As mentioned above, holistic models of citizenship education also emphasize the dimension of learning *through* the practice of citizenship (EduMAP 2017), which provides a focus on how VET pedagogies and (organizational) processes promote citizenship practice. At the same time, considering citizenship as a practice, and the specific contributions made by VET as part of that, also reveals some fundamental social, economic, and political challenges. In the UK as in many other postindustrial countries, social-integrational discourses (Levitas 2005) which consider participation in the labor market as a key remedy against social exclusion are being increasingly challenged in the wake of increased digitalization as well as the exhaustion of market growth and natural resources. If paid employment itself is becoming a scarcer resource in the future, this undermines not only neoliberal discourses of LLL and economic models of the integrated citizen as “taxpayer” but also threatens some of the fundamental tenets of VET itself. In this context, Avis et al. (2017) raise concerns about risks that some young people in VET programs, particularly black and ethnic minority learners, may be subject to “warehousing,” a process by which attendance of some education and training programs not only does little to facilitate young people’s entry into the labor market but effectively contributes to their removal from it (and, as a result, from unemployment statistics). Whether such a damning verdict of specific VET programs is justified or not, this emphasizes the pertinence of exploring factors such as race, gender, and disability as part of LLL research, in order to critically analyze the ways in which VET can and does promote inclusion and active participatory citizenship. A current example in the UK context of trying to raise the particularly low labor market participation rate of adults with learning disabilities are programs of supported internship for young people aged 16–24 (Department for Education 2013). While initial evaluations suggest that the programs have been effective in terms of more young people involved in the schemes moving on to

paid employment than the national average, the long-term sustainability of their employment is not yet known. Overall, both the significant potentials of LLL and VET in contributing to inclusion and promoting active participatory citizenship and the challenges described above point toward a somewhat reciprocal relationship: as much as the practical focus of VET can give citizenship education a real-life context, a holistic concept of active citizenship (as outlined above) can support VET policy and practice in facing the fallacies of neoliberalism. What both concepts (VET and citizenship) also have in common is that in the current era of change, they need to be continuously explored and critically reexamined as part of research and practice.

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## Conclusion

Engagement and reengagement through equipping young adults with employability skills has been considered to be one of the most significant elements for combating social exclusion across European countries. This is also underpinned by the market or economically associated discourse of LLL affecting the development of adult education both in Europe and globally. The role of VET as a means to facilitate social integration and contribute to LLL of young people has been and remains a significant area of research. Over the last decade, the global recognition of LLL and learning throughout the lifespan has brought attention to the significance of the changing nature of the relationships between education, life, work, and learning in the knowledge-driven economy (Aspin et al. 2012). One of the most influential discourses of recent decades emphasizes the economic justification of LLL, where the value of LLL is in acquiring job-related skills and competences, i.e., skills that would enable individuals to succeed in the job market. The second perspective provides a different view of LLL, where education is seen as intrinsically valuable, as something that is good in and of itself (Aspin et al. 2012, p. 1). The developments of VET have been strongly influenced by the former, specifically in relation to improving the chances of young people through their integration into the labor market and by fostering lifelong learning.

The relationship between education, life, and learning has been defined by the knowledge-driven economy where the relationship between education and “real life” is that “the more we learn, the more we earn” (Evans 2009), and this has contributed to a strong focus on equipping young people with job-related skills. This chapter has debated the potentials of vocational education and training in promoting the inclusion and active participation of young people while also pointing toward some of increasing challenges facing the VET and LLL fields in the postindustrial era.

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# Past and Present Developments in Vocational Learning in Eastern Europe: The Case of Hungary

# 56

Andrea Laczik and Éva Farkas

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## Abstract

The Hungarian vocational education and training (VET) system is becoming once again highly centralized and state controlled. This chapter discusses the tendencies of centralization and decentralization of VET in three periods: 1945–1989, 1990–2010, and 2010–present. The first section concentrates on events that have influenced and impacted on the development of education within the monolithic state. It is shown through examples how the Hungarian education system slowly moved away from a highly centralized system. The

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next section demonstrates the immediate reaction to the collapse of the one-party system which resulted in a highly decentralized VET system. During 1990–2010 the VET system became stabilized, and measures were introduced to reach a balance. Nevertheless, this period is still primarily characterized by decentralization of VET. The post-2010 period is discussed in most detail in the third section of the chapter. Due to the fact that the nationalist conservative government elected in 2010 is still in power, once again the VET system experiences considerable centralization and state control.

While early on there was a genuine urge from educationalists to return to a more democratic and liberal system, other economic, political, and societal forces have been playing an influential role in how the VET system has been developing. The chapter offers some insight into the role of economic players in VET and the ways in which their roles have changed over time. The current government considers employers as key players in VET, and these players are assigned considerable responsibilities. It is yet to see whether they can fulfil expectations and make VET a more viable and hence popular option for young people.

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**Keywords**

Hungary · Vocational education and training · Dual VET system · Centralization/ decentralization · VET governance

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## Introduction

This chapter presents past and present developments, trends, and characteristics of the Hungarian initial vocational education and training (VET) for the 14–19 age group. The chapter will be divided into three parts. The first part will offer a brief and more general introduction to education in Hungary during the pre-1989 era. It will argue that deviations from the highly controlled Soviet type of education had already started in the 1950s and spread and accumulated over time. The 1985 Education Act is the most important milestone pre-1989 which reintroduced some liberal and democratic traditions in Hungarian education. The second and third parts of the chapter will focus on initial vocational education and training developments between 1989 and the present. The second part will cover the tendencies of accelerated decentralization at a systemic level and gives examples of localized national solutions between 1989 and 2010. It will be argued and demonstrated by those examples that after the initial rapid decentralization process right after 1989, measures and standards were introduced responding to economic and societal changes. The third part receives the most emphasis within the chapter as it elaborates in more detail on some of the most recent (post-2010) and current major changes in VET in Hungary. These include, for example, the introduction of the dual VET model, the increased role and responsibilities of the Hungarian Chamber of Commerce and Industry, and most importantly the tendency of a rapid centralization across the VET system post-2010.

## Education in Hungary Pre-1989

The education system in Hungary after WW2 was very similar to other Eastern bloc countries where they mirrored the Soviet model. The whole system was highly centralized, controlled, and planned by the single party: the Hungarian Communist Party. Education was interwoven with politics and was used to propagate Marxist ideology. The schools were “the tools to raise obedient citizens” (Pukánszky-Németh 2001, p. V–470). Education was also used to serve the centrally managed and planned economy. It was this ideology that drove education, economy, and society. While the broad characteristics of the system were shared among other Eastern bloc countries, Hungary demonstrated country-specific deviances. During the time between 1945 and 1989, there seems to be a mismatch between what the single-party system forced to achieve and what the economic and societal changes required. Consequently, there have been reform attempts made in education that emerged as a response to real economic and societal changes. Kelemen (2003) discusses four main periods framed around four significant events: (1) 1945–1948, unfinished or expropriated reform; (2) 1961, pseudo-reform in the name of consolidation; (3) 1972, reform or anti-reform; and (4) 1985, outbreak attempt of reform values. The earlier reform attempts aimed at promoting liberal educations, while the latter periods weakened the centralized education system over time (Laczik 2015). However, while these reform initiatives aimed high, they were often curtailed. Nevertheless, they led to some important developments. These include the introduction of free compulsory 8 years of basic education for the masses in 1945, the compulsory school attendance was raised to age 16 in 1961, and during the 1960s there were well-developed vocational post-basic education provisions available to young people. Basic (1963) and secondary school curriculum (1965) were developed, within which the modern scientific content was balanced with age differentiations and some allowances were made to meet learners’ individual interests (Hungarian on-line library 1996–2000). Kozma (2012) considers the late 1960s as one of the “most intense reform times.” Although, in 1968, the announced economic reforms were curtailed, they were followed by irreversible changes, in particular in the renegotiation of power between the state and the society. The 1970s have seen an increase in critical social and educational research, which were hoped would lead to the development of educational programs based on research and needs’ analysis. However, yet again the 1972 resolution of the Hungarian Socialist Working Party halted the democratic and liberal ideas and reinstated the power of the state where political decisions overrode professional ones.

The 1985 Education Act is considered by many educationalists in Hungary as the most important landmark before the political change in 1989 and therefore started a “radical decentralization process” (Halász 2000). Many of the political characteristics were present at the time, but there were fewer of the political elite, including educational policy makers who actually believed in the communist ideology (Halász 2009). The 1985 Education Act reflects the necessary compromises and presents an interesting mix of socialist upbringing and rhetoric combined with new content and style. The Act provided more independence to educational institutions and

pedagogues. It determined the rights and responsibilities of all those involved in education, for example, learners, parents, teachers, and the local community. Some of the reforms, however, could not be put into practice, or they were restricted due to a lack of resources and supporting economic environment or the party state's conflicting interests. Pre-1989, there has been a clear struggle to align the aim of the state, education, economy, labor market, and society. Nevertheless, changes that were successfully introduced show a slow but linear return to liberal and democratic traditions in education (Laczik 2015).

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## **Accelerated Decentralization in Vocational Education and Training Between 1989 and 2010**

Post-1989 education and training developed a radically different political, economic, and societal environment in comparison to the previous 50 years. They demanded real reforms in education, which were coupled with rapid decentralization of education and the promotion of local national needs. The stimuli behind the developments were a mixture of reactive responses to the Soviet type of system with its ideology and values and active solutions to the new situations to achieve a more decentralized, personalized, and democratic liberal education.

The fundamentally new political situation in 1990 demanded immediate changes in education, and simultaneously medium- and long-term reform plans were outlined. Due to the shortage of time, the newly elected incoming government was unable to develop a fundamentally new education law and therefore modified the 1985 Education Act in 1990. The modification focused on the most important aspects, such as the removal of all references to the communist ideology. The 1990 Act concentrated around secondary and higher education, introducing free school choice, and regulated the establishment and maintenance of educational institutions.

The new political, economic, and societal situation created huge challenges for the Hungarian VET system. The change was immense. Through the emerging market economy, the structure of the economy has changed, and the structure of ownership has shifted. The large state enterprises collapsed, which used to serve as training places for vocational schools. Therefore, vocational schools had to set up their own workshops to provide practical training for the young people. Instead, small- and medium-sized enterprises mushroomed. Whole industrial sectors have also disappeared, such as mining, and many new jobs were created, particularly in the tertiary sector. Consequently, job security has disappeared, and Hungary experienced mass unemployment that was unknown before 1989. Farkas (2013) claims that between 1989 and 1992, 1,174,000 jobs ceased to exist. As a result of the introduction of free school choice, learners and parents were able to decide on their own careers and progression routes. These were previously led by the planned economy, i.e., the state. While post-basic vocational provision was well-developed, pre-1989 it "created" the socialist working class. Post-1990, there was more emphasis placed on general education, and the compulsory school age was raised to age

16 (raised to 18 in 1998 and again reduced to 16 in 2012). This also impacted on the VET as young people's decisions shifted to post-compulsory, post-16. In Hungary there were three main secondary school types: 3-year vocational schools, vocational secondary schools, and the academic *Gimnasiums* (similar to Grammar schools). The popularity of these types of schools has changed considerably. Between 1980 and 2012, the proportion of young people attending vocational schools halved (25%), while in 2011, 41% of young people chose vocational secondary schools which could lead to studying in higher education or to pursuing postsecondary vocational programs (Ministry of Human Resources, Hungary 2012).

The new 1993 Act aims "to develop a flexible and differentiated system of VET that adjusts to the societal changes and to the national economic and labor market demands." However, it did not regulate the operations of VET establishments but instead the operations of the VET functions. According to Halász (2011), there were three particularly significant elements of this: (1) the state saved the VET educational establishments from collapsing together with the business sphere, (2) adult education has become a new significant target group for VET, and (3) enterprises have become influential partners through paying a unique, new tax-like contribution and so directly financing VET and through sitting on a tripartite decision-making board (Laczik 2015). In order to set standards, in 1993 the Government published the National Vocational Qualifications Register (NVQR), which was one of the most significant developments in the modernization process. It contains the state-recognized vocational qualifications and imposes the same requirements to all VET provision. The NVQR was redeveloped in 2004–2006. The new system was modular and competence-based which seeks to enable permeability between qualifications and also facilitates a quicker reaction to changes in the labor market by adjusting the content. The aims of the renewed NVQR were (1) to reduce the number of qualifications in the register, (2) to shorten the length of training through developing a modular system that recognizes prior qualifications, (3) to develop a competence-based qualifications system with appropriate assessment, (4) to strengthen the links between education and training and the economy, and (5) to promote lifelong learning by adjusting the NVQR and VET outcome requirements to labor market demands (Laczik 2015).

Parallel with the development of NVQR, the related Vocational and Examinations Requirements (VER) were developed for each qualification. Employers were invited to contribute to the VER to ensure that it contains only the relevant elements, activities, and knowledge to each particular occupation. Competence profiles were defined through the analysis of each occupation by teams of, for example, employers, VET teachers, and the chambers of commerce. VER is inclusive and identifies the professional knowledge and skills, transferable skills, and personal competencies. NVQR has been in VET schools since 2008 and continues to be regularly updated.

The 2010 election yet again brought a different power relation as the Fidesz, the Hungarian Civic Union, won the general election with 56% of the votes and has an outright majority in the National Assembly. Since then, the vocational system has yet again been undergoing new major changes. However, Halász (2011) argues that the

demand toward VET (and other education sectors) has remained the same: to contribute to economic competitiveness, to improve employability, and to integrate socially disadvantaged groups (p. 33).

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## **Structural and Content Transformation of the Vocational Training System in Hungary After 2010**

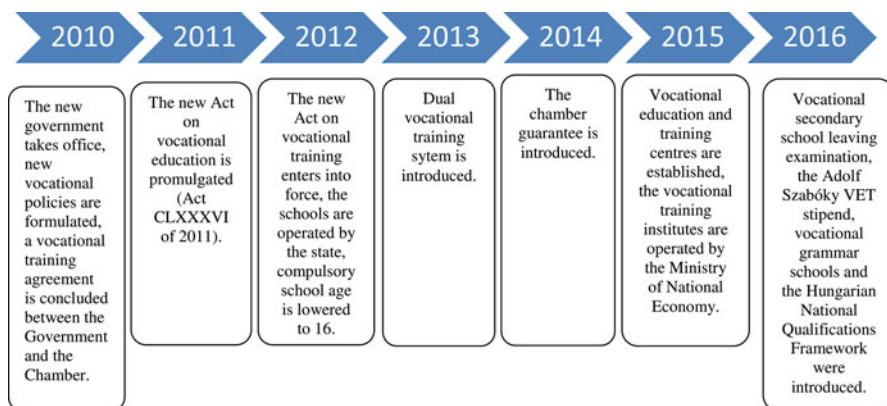
It was the priority of the incoming government in 2010 (and has been in power ever since), to fundamentally change the VET system and to reintroduce dual vocational training wholesale in Hungary. The aim was to improve VET provision to meet the needs of the labor market. The reasoning behind this was twofold: the lack of well-trained workforce was one of the major obstacles for large foreign companies coming to Hungary, and a well-trained workforce was necessary for the development of small- and medium-sized domestic businesses. A significant milestone during the transformation process was the adoption of Act CLXXXVII of 2011 on VET, which came into force on 1 January 2012. As a result, the decentralized vocational system that functioned earlier was gradually replaced by a highly centralized VET governance, funding mechanism, and institutional system. The content of VET became more strictly regulated, and a dual vocational training system was reintroduced. The model of dual vocational training and the belief that it was capable of resolving every problem in vocational training projected a new horizon for the transformation of the vocational training system. VET was of the utmost importance for the Hungarian economy, and it was also believed to help tackle social problems. VET has been continuously subject to changes during the past 7 years and continues to do so at present. The Act on VET was modified 18 times between January 2012 and December 2016. These measures were deemed necessary to better satisfy the needs of businesses, to increase the popularity of vocational training, and to boost the number of stakeholders involved in vocational training, thus providing impetus for economic development.

In this section VET policy developments after 2010 and the process and results of the VET reform will be analyzed through major milestones (see Fig. 1) paying special attention to the features of dual training.

### **Major Transformation of the Governance of the VET System**

As a result of the 2011 Act on public education and vocational training, the maintenance, management, and financing system of VET changed radically. Earlier the maintenance of school-based vocational training was the responsibility of the local municipalities, for which the state allocated per capita funding. Following the 2011 Act, in 2013 the maintenance of public education and school-based vocational training was transferred to the responsibility of the state. The maintenance responsibilities have been performed by the state-owned “KleBELSBERG” Institution Maintenance Centre. Parallel with this, per capita funding has been terminated, and input





**Fig. 1** Major milestones in the reform of vocational training between 2010 and 2016

financing has been introduced. This meant that the salaries of VET teachers and various other employees, the overhead costs, and other expenses such as material that is incurred by individual institutions are planned and funded by the state through the Institution Maintenance Centre. With the enforcement of this measure, the individual institutions cannot develop their own budgets, and they cannot make individual financial decisions. In 2015 the Act on VET was modified, and as a result, on 1 July 2015, the maintenance of the state-owned vocational institutions was transferred from the Institution Maintenance Centre to the Ministry of National Economy, who is also responsible for vocational training and adult education (Polónyi 2016). Effectively the maintenance responsibilities remained with the state.

Parallel with the above changes, the operation and structure of the vocational institutions also changed: the Government created large regional VET centers by merging individual vocational institutions. On 1 July 2015, 44 regional VET centers were established in Hungary, 5 in Budapest, and 39 in other parts of the county (1, 2, or 3 per county). Now 370 member institutions belong to the 44 regional vocational training centers. However, in addition to the vocational training centers maintained by the Ministry of National Economy, there is a significant volume of vocational training offered by other organizations (e.g., churches and private foundations).

The transformation of the maintenance and structure of institutions also entailed the transformation of funding. The vocational training concept adopted by the Hungarian Government in 2011 (Government Resolution 1198 of 2011) contained that the vocational qualifications and rates of enrolment into school-based vocational training must be centrally determined. Therefore the final decision about these issues is made by the Government and is based on the recommendations issued by the regionally functioning training and development committees. The aim of this measure was that the state would allocate funds only for those vocational school maintainers (including churches and private foundations), whose schools trained students to acquire vocational qualifications that most probably were in demand in the labor market. This is particularly interesting as between 2006 and 2010, local

professional consultative bodies were set up within the regional integrated vocational training centers with identical aims, that is, to identify local skills needs and influence the career choice of young people and VET school's provisions according to labor market needs (Farkas 2013). Although the work of these institutions ceased in 2011, the regional integrated vocational training centers have resurfaced again in 2015 under the name of vocational training centers.

## **A Core Element of the Reform: The Introduction of Dual Vocational Training**

In 2016, the names of vocational schools and vocational secondary schools have been changed to raise the profile of vocational training. There are currently two types of VET schools in Hungary, both of which are part of the public education system. The previously called vocational schools became vocational secondary schools (3 years and awarded an ISCED 353 level state-recognized vocational qualification), and the vocational secondary schools became vocational grammar schools (4 years and awarded an ISCED 344 level vocational secondary school leaving certificate). They admit pupils typically upon completion of the 8 years of basic school.

Vocational secondary schools have followed the dual VET model since September 2013. Three-year vocational secondary school training prepares learners for state-recognized vocational qualifications listed in the National Vocational Qualifications Register (NVQR). Theory classes are classroom-based, while practical training takes place mainly at enterprises (see also Chamber Guarantee). Training can be school-based or enterprise-based (dual training). In school-based training, the practical training component of initial VET program is organized in school workshops. This can be supplemented by short-term training organized at an enterprise on the bases of cooperation agreement between the VET schools and enterprises. The dual apprenticeship training is based on apprenticeship training contracts when practical training is provided by enterprises. Both are integrated parts of initial VET at upper secondary VET level and lead to the same vocational qualifications listed in NVQR.

In dual VET, the state and various economic players share the responsibilities and costs relating to vocational training while recognizing mutual interests. This means that theoretical training is performed in VET schools maintained by the state or by other maintainers (e.g., churches and foundations), while practical training is provided by enterprises (or other organizations, e.g., state budgetary institutions, such as hospitals and social institutions). The Chamber plays a role of primary importance as a mediator, process manager, and coordinator between the VET schools and enterprises (Fig. 2).

An important feature of the dual VET system is that the students learn in real work environments. Therefore in essence they receive their training in corporate-industrial environments as a supplement to school training. The dual VET system in Hungary is based on the model of the dual system in Germany. However, the Hungarian local social, economic policy and education policy features were also taken into



**Fig. 2** The Hungarian dual VET model. (Source: Hungarian Chamber of Commerce and Industry 2015:18)

consideration. One of the major differences between the two systems is that while in Germany the trainees are dominantly regarded as employees, in Hungary they are primarily in student status. In the German system, a student as a first step establishes formal employment with an enterprise, which then organizes practical training for this individual. Following that, this individual enrolls in a vocational school, where theoretical training is provided. A student in Hungary attends a vocational secondary school as a first step; later on this individual can conclude an apprenticeship training contract with an enterprise. This means that students start in vocational secondary schools, but they will not necessarily continue with an apprenticeship. Those students, who cannot conclude apprenticeship training contracts, can participate in school-based VET where practical training is organized for them in the school workshops or based on bilateral agreements concluded between schools and companies.

Although the vocational secondary school programs provide state-recognized qualifications, they are not sufficient for directly entering higher education. In 2016 the Government made an attempt to mitigate this “dead-end” character of dual VET and introduced a measure which provides students with full-time vocational qualifications an opportunity to prepare for a secondary school leaving examination through an additional 2-year academic program. This opens up opportunities for students to choose from, such as applying for jobs or going onto further vocational training that requires a secondary school leaving certificate. It also makes students eligible to continue their studies at higher educational institutions.

Dual training is based on the system of apprenticeship training contracts, which is drawn up between the students and the enterprises. These contracts are countersigned and recorded by the local branches of the Hungarian Chamber of Commerce and Industry. Although apprenticeship training contracts can be concluded as early as in grade 9 at the age of 14/15, the practical training can only be provided in the school’s training workshops. However, during the second semester in grade 9, students sit for a level examination to establish whether they are in

possession of the competences necessary for work in a controlled environment and therefore whether they can be sent to an enterprise to participate in industrial “production.”

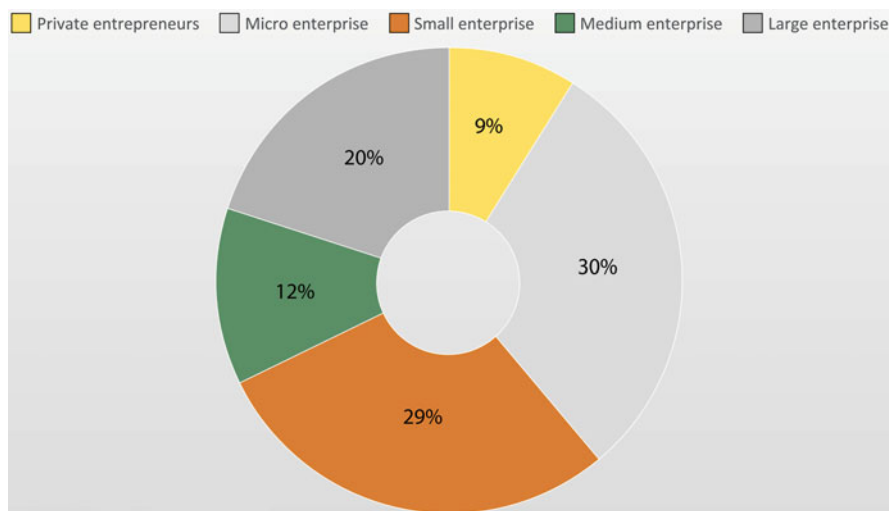
Only those enterprises can enter into an apprenticeship training contract, which are listed in the relevant register of the Hungarian Chamber of Commerce and Industry or of the Hungarian Chamber of Agriculture. In the case of new enterprises planning to offer apprenticeship training, the Chamber conducts a so-called introductory inspection, to ensure that these companies/enterprises have the personal and material conditions necessary for the efficient implementation of good quality practical training as set forth in relevant laws (Cedefop-Refernet 2014). As practical training under the apprenticeship training contracts qualifies as employment, the Labour Code is applicable. Consequently, apprentices are entitled to the same rights as any other employees, e.g., work wear, protective clothing, discounted meals, travel cost reimbursement, sick leave, sickness benefit, maternity leave, etc. (Article (7) § 26 of Act CLXXXVII of 2011). The apprentices receive monthly remuneration (similar to wages) during the training period.

In 2015, the Government set a goal to increase the number of apprentices participating in secondary dual VET to 70,000 by 2018. In order to achieve this, the Chamber Guarantee was introduced on 1 July 2015. The Chamber guarantees that it will find companies that are willing to sign apprenticeship training contracts and will provide facilities and conditions for practical training for the students. If the Chamber fails to find such companies, they issue a certificate on the basis of which vocational secondary schools can provide practical training for their students within the schools' workshops.

The dual training model relies on the increasing number of enterprises offering vocational training. At present only a small number of enterprises participate in vocational training. Currently only between 7000 and 8000 enterprises (2% of all the enterprises) provide practical training for students. The Government wishes to increase this number to 20,000 by 2018 (Hungarian Chamber of Commerce and Industry 2015). In Hungary, microenterprises (39%) and small enterprises (29%) present the highest ratio that provides practical training under apprenticeship training contracts (Fig. 3).

The Government has introduced per capita payment as an incentive for enterprises to participate in vocational training. The businesses employing apprentices on apprenticeship training contracts can write off or reclaim the basic per capita payment from their taxes in the form of vocational training contribution. This means that companies pay levy but then can reclaim per capita funding. Those companies that do not pay levy can also claim per capita funding. The amount can differ depending on the material and cost requirements of the training, the number of vocational teachers and mentors involved, the ratio of theoretical and practical training, and the extent to which training is offered for in-demand occupations.

In dual training the Government encourages participation in initial VET for in-demand occupations by centrally regulating the number of students enrolling in training institutions and offering student stipend in these qualifications. The Government



**Fig. 3** Distribution of apprenticeship training contracts according to enterprise type. (Source: Hungarian Chamber of Commerce and Industry 2015:23)

has introduced a cap on student numbers for not in-demand occupations and also centrally determines the orientations and ratios of enrolment in dual VET. The vocation-structural decision, that is based on labor market forecasts, categorizes the types of vocational qualifications – in respect of budgetary support – as supported, supported with limitations, and not-supported qualifications. Supported qualifications are supported without limitations (these are mainly related to in-demand occupations). Any VET school maintainers can launch vocational training courses in any number of classes with unlimited headcounts of apprentices in any county or in the capital of Hungary, and they are also entitled to budgetary support. The maintainers cannot claim budgetary support after vocational training classes they launch in the not-supported category (e.g., urban development, special technician, fishermen, fish breeder, industrial rubber process worker, orthopedic, mechanic, paper industry technician, and canning technician). In the category supported with limitations (e.g., CAD-CAM IT expert, confectioner, retail assistant, health masseur/masseuse, trader, gardener, cosmetician, waiter/waitress, and catering outlet manager), the total enrolment headcount per county and in the capital city is determined, as is the distribution of headcount among the maintainers of vocational training schools. The aim of this measure is for the state to provide budgetary support for only those vocational qualifications which most probably lead to jobs.

This regulation concerns each and every school maintainer, so it is binding for state, church, and private maintainers alike. However, students can engage with studies leading to vocational qualifications that are classified as non-supported, but in such cases they have to cover the cost of their own studies.

The other incentive for learning for the qualifications for in-demand occupations (e.g., carpenter, joiner, tinsmith, floorer, electronic technician, building and

**Table 1** Number of students studying at upper secondary level. (Source: Ministry of Human Capacities 2017)

Academic Year	Number of students in full-time vocational secondary school programmes (ISCED 353)	Number of students in full-time vocational grammar school programmes (ISCED 354/344)	Number of students in full-time general secondary programmes (ISCED 344)
2010/2011	129,421	240,364	198,700
2011/2012	129,440	233,122	195,169
2012/2013	117,543	224,214	189,526
2013/2014	105,122	203,515	185,440
2014/2015	92,436	188,762	182,228
2015/2016	80,493	182,529	180,966
2016/2017	78,200	167,600	181,800

construction fitter, CNC operator, intern nurse, welder, meat process worker, industrial mechanic, mason, central heating and gas network system mechanic, agricultural mechanic, dressmaker, baker, toolmaker, social caretaker and nurse, and electrician) is the VET stipend that the Government provides for students studying in vocational secondary schools to acquire their first vocational qualification. The aim of this measure is to urge students to choose occupations that are especially important for the national economy and to provide an incentive for them to achieve better learning outcomes (the rate of stipends depends on the students' individual scholarly records) in preparation for these occupations.

In spite of the priorities set by the Government and the measures introduced, the number of students attending vocational secondary schools and vocational grammar schools decreased significantly after 2013. The number of students attending full-time vocational secondary school programs fell below 80,000 by 2015 (Table 1). The reasons for the decrease can be explained by demographical data but more importantly by the fact that the vocational training period was curbed from 4 years to 3 years. Hence, in general, the interest in vocational training has been diminishing. An increasing number of young people wish to acquire higher educational degrees, and, instead of attending vocational secondary schools, they enrol in vocational grammar schools or general secondary grammar schools that provide secondary school leaving certificates.

Another reason why the number of students is decreasing in VET is the fact that the employment rate in the group of individuals with secondary school leaving certificates is significantly higher than in the group of those who have only vocational qualifications. This situation is similar for new career entrants. The dual training is shorter and contains more practical training elements. However, it does not provide enough time for the development of key competences such as literacy and numeracy. Consequently, the ratio of youths in vocational training with low literacy and numeracy is all time high; therefore they are likely to be excluded from the labor market.

## Features of Training at Vocational Grammar Schools

Apart from the vocational secondary schools that provide dual training, there are vocational grammar schools that provide secondary school leaving certificates. Therefore, they offer students the higher education pathway. Training at vocational grammar schools is similar to school-based training. The students participate in practical training blocks with enterprises during the summer as laid out in cooperation agreements between the schools and the enterprises. Only 9% of the students participate in training under apprenticeship training contracts in vocational grammar schools.

From 2013 to 2014, vocational grammar school programs have provided students general education (70%), as well as vocational training (30%) during the first 4 academic years. Following the conclusion of their studies in the four grades of secondary grammar schools, the students sit for a vocational secondary school leaving examination (ISCED 344 level). This is different from the secondary grammar school leaving examination, as instead of taking an examination in a mandatory fifth academic subject, students are tested in mandatory vocational subjects relating to their specializations. In the system of secondary school leaving examinations in Hungary, the students are tested in five different subjects: Hungarian literature and grammar, history, mathematics, a foreign language, and an optional subject. Although after the completion of the vocational secondary school leaving examination, the students are not granted state-recognized vocational qualifications that are listed in the NVQR, they acquire certificates that entitle them to perform various individual types of jobs in certain areas of the labor market. Students who have the vocational secondary school leaving examination have two options. They either continue their studies in postsecondary vocational grades in vocational grammar schools to acquire ISCED 454 level vocational qualifications listed in the NVQR or enter higher education. The first group of students graduated under the new regulation from vocational grammar schools in 2017, so there is not enough evidence available for the assessment of this type of training.

## Content Regulation of VET

Parallel with the centralization of the management and financing of vocational training, the content of VET has become highly centralized. In dual VET, only courses leading to vocational qualifications listed in the NVQR may be launched. The NVQR contains vocational qualifications recognized by the state. The NVQR was first published in 1993 and was later modified several times (see earlier section). The latest significant modification of the NVQR took place in 2012 (Government Decree 150 of 2012 on the National Qualifications Register and the procedure of the modification of the National Qualifications Register).

Although features such as the modular structure of vocational qualifications and competence-based character were retained in the modified version in 2012, the role of the former was reduced. The number of qualification outcomes in each

qualification was decreased by approximately 50%, and steps were taken to lower the average number of modules. There were nine modules in earlier versions of NVQR, which were lowered to six. Today the number of vocational qualifications listed in the NVQR is 769. The new NVQR was introduced to the VET system in autumn 2013 as a phasing-out system.

New vocational and examination requirements were developed for each vocational qualification listed in the NVQR. The revised documents were completed by spring 2013, and the work was coordinated by the Hungarian Chamber of Commerce and Industry. The vocational and examination requirements were issued in an order by the Minister responsible for vocational training, so it is compulsory to apply them at each vocational training institution. The function of vocational and examination requirements is to provide a uniform set of requirements regarding vocational qualifications recognized by the state. The vocational and examination requirements contain the conditions necessary for the launch of the training courses. These include the ratio between theory and practice, the jobs that are most likely to be performed with certain vocational qualifications, the training modules, and the requirements of the complex vocational examination, also the list of tools and equipment necessary for the efficient implementation of training courses.

Following the new vocational and examination requirements, new curriculum frameworks for vocational qualifications were developed. In the Hungarian education system, the framework curricula for general subjects ensure the enforcement of the National Core Curriculum in every type of school and pedagogical-educational phase. They contain the goals of education, the system of subjects, the topics, the content, and the requirements of individual subjects. Furthermore, they include the compulsory and recommended time frames available for the fulfilment of the requirements. Similarly to the education of general subjects, which is performed according to compulsory framework curricula, vocational training must also be performed according to the so-called vocational training framework curricula regulated by law. The compulsory vocational framework curricula are introduced in 2013 as a new element to determine the work in training institutions up to 90%, thus ensuring uniform quality for vocational training (including dual VET).

One of the most radical measures taken in the transformation of the content of vocational training was that in the new 3-year dual vocational training system, the ratio of practical training increased significantly reaching 66% compared to the situation earlier, while the number of lessons in vocational subjects and especially in general subjects decreased significantly (34%).

In dual vocational education, the focus is on the development of competences relating to vocational occupations to the detriment of the development of general competences. This cannot be effective; most career entrants find jobs in other areas than their special vocational ones, and those who remain in their vocational areas may also change vocational occupations several times during the expected five decades in their active working careers.

In the new VET model, the system of examinations has also changed significantly. The most important change compared to the previous system is that the new, complex vocational examinations have been simplified and shortened. This is



the consequence of a measure that the modular examinations conducted earlier (the content of which was regulated per module) have been replaced by complex vocational examinations. Only students who satisfy all the requirements set in the vocational and examination requirements before examination committees are entitled to acquire vocational qualifications. The independent examination committees consist of four examiners: the head of the examination committee is nominated by the Minister responsible for vocational training, one member is delegated by the Hungarian Chamber of Commerce and Industry, one member is a representative of sector bodies, while the fourth member is a VET school representative. The examinations are holistic, the students are tested relating to the whole content of the training, and there are no modular examinations in school-based vocational training.

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## Conclusion

In this chapter we have discussed three periods of the Hungarian vocational education, all of which demonstrated within their periods a linear progression in relations to centralization and decentralization. If centralization and decentralization of education and VET are seen as a spectrum, the 1950s being highly centralized would be at one end of this spectrum, while the 1990s would be at the other end. However, the worrying tendency of rapid centralization post-2010 and the frequent changes of VET legislations remain real.

Throughout the chapter the interconnections between the state, education, economy, labor market, and society were also outlined. In this chapter it was also claimed that VET does not operate in a vacuum, and changes in economy and society should and will impact on the VET system. Understandably, the three different eras demonstrated different contexts and experienced different challenges, the solution to which materialized in different VET developments and modernization processes.

The 1945–1989 period shows generally a highly centralized and state-controlled education with the strong infusion of socialist ideology. This era early on produced a selection of post-basic school vocational school types. This, of course, was of paramount importance and supported the development of the socialist work(wo)men. However, the changing demand of the economy and society led to attempts to introduce fragmented but more democratic and more liberal elements in education that responded to these changes. While these attempts were mostly unsuccessful, they left their traces and legacy behind. The changes that were introduced and sustained over time have accumulated. Consequently, they damaged the power of the state and people's beliefs in the socialist ideology. It is claimed that the 1985 Education Act was one of the most important milestones during this period. This is underpinned by the fact that the new 1990 Education Act, the first one after the collapse of the one-party system, continued using the 1985 Education Act as its basis and mainly only removed all references to the Soviet ideology.

During 1990, there was an immediate move away from state control, and the sense of freedom led to many significant changes in education. Over time during the 1989–2010 period, some of these quickly introduced changes were reverted.

Nevertheless, while the decentralization process peaked in the 1990s, the system gradually stabilized over time. The 1989–2010 period was also characterized by the struggle of VET to move away from the Soviet-type system and to respond to the economic and societal changes. In general, it aimed to move to a democratic and liberal vocational education that responds to local national needs, as well as individual needs. The change of the VET system affected, for example, school types, VET provision, and employer engagement. The frequent shifts of compulsory school age, in particular from 14 years to 16 years and then in 1998 from 16 years to 18 years, suggest a move toward a preference of general education and a later start of vocational specialization.

Following the change of government in 2010, a new strong centralization tendency can be detected. During this latest period, the state took the maintenance, management, and financing of VET in its hands. VET is crucial for the economy, and the Government also believed that it would tackle social problems. Dual training was introduced in Hungary as the main and preferred VET provision. The key players of the Hungarian economy, mainly the Hungarian Chamber of Commerce and Industry, were invited to contribute to the development process. In principle the strategic goal of engaging with employers was to ensure that the dual vocational training was strongly supported by enterprises. Hence, they would provide the basic pillar of dual training by offering work experience. Work experience ensures that students acquire experience in real work settings; hence they are better prepared for employment. While dual training is highly acclaimed, in particular in Germany and Switzerland, the question is what sustainable outcomes its introduction will yield in the long term. This question is also relevant in the short term considering that it was a top-down administrative measure enforced by direct educational policy interventions. The VET reform launched in 2010 is in progress even today, and the total transformation of the vocational system is expected to conclude only in 2018. As a result, it may only be possible to objectively assess the impact and outcomes of the reform of the vocational training system 5–10 years from now.

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# Cultural Diversity and Vocational Education and Training **57**

Marianne Teräs

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## Abstract

Vocational teachers and students encounter cultural diversity daily in their work and studies. They therefore need new competence, transcultural competence. The aim of this chapter is to examine cultural diversity, transcultural competence, and transcultural learning process to give VET teachers and students tools to encounter cultural diversity. First an outline of different circumstances and environments for cultural encounters is given. Then different approaches to cultural diversity are depicted and elements of learning reflected on. Lastly, a transcultural learning process is presented. The empirical examples of this chapter come from two studies. The first one focuses on the development of preparatory vocational training for immigrants (Teräs 2007) and the second on the development of regular VET concerning students with diverse cultural and lingual backgrounds (Teräs 2013; Teräs et al. 2014).

## Keywords

Cultural diversity · Transcultural learning · Vocational education and training

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## Introduction

Learning and teaching are fundamental cultural processes as Nasir et al. (2014) have argued. Vocational education practitioners usually encounter people with diverse cultural, ethnic, and linguistic backgrounds in three ways. First, they work with newly arrived migrants, also called the first generation, who are studying in various types of preparatory or introductory training and vocational programs. Second, they face the children of migrants born in the country, called the second generation, who are studying in different regular vocational programs (for more about different generations of migrants, see Rumbaut (2007)). The third possibility is to create or be part of international projects and exchange programs through which both vocational teachers and students are able to learn and study their profession and gain expertise in diverse cultural environments. Thus, cultural encounters both in one's homeland and abroad have increased tremendously during the last decades. UNESCO has been one of the international organizations promoting cultural encounters in the world.

UNESCO's (2002) Universal Declaration on Cultural Diversity states that cultural diversity is the common heritage of humanity. The declaration nurtures respect for the diversity of cultures, tolerance, dialogue, cooperation, as well as mutual trust and understanding. Diversity, however, also has other dimensions such as age, gender, disability, or sexual orientation (cf. Bennett and Bennett 2004). This chapter focuses on cultural diversity, in other words approaches when encountering with people with diverse cultural, linguistic, and ethnic backgrounds.

There is a repertoire of different approaches to the situation that people with different cultural and linguistic backgrounds encounter. They can be roughly divided into three main categories: culture-oriented, language-oriented, and society-oriented approaches. Culture-oriented approaches, which focus on familiarization with cultures and cultural practices, are divided into two additional categories: general cultural interaction and awareness-raising approaches, as well as specific cultural approaches such as learning business ways in a certain cultural environment. Language-oriented approaches focus on learning the target language, and in the case of VET, it can be also the target language of a vocation. For example, in Sweden, the government has introduced the so-called fast track for educated immigrants who move to Sweden, and the program includes both general and professional language courses (Government 2016). Society-oriented approaches are typically various kinds of integration trainings aimed at introducing societal practices and structures to new comers, for example, how to apply for a job in the new country or knowledge about how does education system function. Common to all approaches is the need for people to become aware of the attitudes and prejudices toward different groups of language and cultural practices of the group. Furthermore, approaches emphasize developing respect for others and their capabilities and practices, as well as learning to act appropriately in various intercultural situations (cf. Landis et al. 2004; Deardorff 2009). These issues are needed to take into account when a person moves to another country.

Leaving one cultural environment and moving into another is always a big change, which can be described as a cultural learning process involving transition

and transformation both on the individual and collective level. In other words, the person who moves learns as well as the community, which receives movers. Mere intercultural experience, however, is not enough; one needs to build authentic relationships with people of different backgrounds. One has to be ready to observe, listen, and ask people to share their ideas and conceptions in the new environment, which in return requires respect and trust from both parties, as the author (Deardorff 2009, p. xiii) reminds us. This cultural learning process, which is here called the transcultural learning process, takes time, and individuals and communities need new knowledge, skills, and competences.

The competence for cultural encounters has been described several ways in the literature: as multicultural competency (cf. Mayorka et al. 2012), cross-cultural competence (cf. Seeberg and Minick 2012), intercultural competence (cf. Deardorff 2009; Dervin et al. 2012), transcultural competence (cf. Mayer and Boness 2011), or simply global competence (cf. Popov et al. 2017) or cultural competence (cf. Kirmayer 2012). Each concept has a slightly different emphasis and historical background, and they have been used within different disciplines and contexts. Accordingly, behind the concept, there are diverse paradigms like culturalism, multiculturalism, interculturalism, and transculturalism, all aimed at describing situations and taking a political stance or improving encounters with diverse people. In a similar vein, there are different educational approaches among paradigms such as multicultural education (cf. Banks 2002), intercultural education (cf. Räsänen and San 2005), transcultural education (Aldridge et al. 2014), and so on. In recent educational discussions, global education has gained more space. Differences, as has been already mentioned, are in emphasis, a historical development of the concept and approach as well as contexts in which they have been used. For example, intercultural competence has been studied within communication (Gudykunst and Mody 2002) and education (cf. Teräs and Lasonen 2013). Multicultural competence has a strong foothold in education (Banks 2002), as does transcultural competence within nursing (Leininger 2002). Trompenaars and Woolliams (2009) have even argued for hypercultural competence, which involves previously mentioned competences, such as cross-cultural and intercultural competence, as layers of hypercultural competence. This multi-conceptuality and the multiple approaches reflect the complexity of the phenomenon of learning to encounter and act with groups and people who have different linguistic and cultural backgrounds. Teräs and Lasonen (2013) have written about the so-called complex concepts, which Engeström and his colleagues (2005, pp. 48–49) describe as products and tools of collective activities that evolve historically, and they need to be studied as embedded in complex human activity systems, not merely as logical propositions or textual products. Complex concepts are best learned when they are challenged, reconstructed, and implemented in practice. However, when choosing to use a certain concept, one needs to be aware of its historical involvement and how it has previously been used within different disciplines, contexts, and practices.

Some similarities among diverse approaches are that they refer to the awareness, attitudes, knowledge, sensitivity, responsiveness, and skills needed when meeting new cultural environments and people with diverse backgrounds. Moreover, they

take as a starting point the concept of culture. The concept of culture is here understood as plural, dynamic, varied, overarching, changing, and historical; it acquires its meaning and content when used. This is in contrast to a display of culture as one entity, a national, static, and ahistorical “package” that can be taught and learned in a specific situation when a person moves from one environment or country to another.

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## Transcultural Competence and Transcultural Education

The author takes as the starting point the field of vocational education and training transculturalism and transcultural learning process. Lewis (2002), in the area of cultural studies, highlights how transculturalism is interested in dissonance, tensions, and instability as well as stability and historically shaped and conducted meaning making through language. This is despite the fact that transculturalism does not underline semiotic power over the material conditions of life and vice versa. Transculturalism also emphasizes the transitory nature of culture and its power to transform (Lewis 2002). This is an important aspect when thinking transcultural competence and the learning process; it is a lifelong learning process, and one needs to be open to new ideas and practices in order to develop and transform them.

According to the *Oxford Dictionary*, “trans-” means “across,” “beyond,” or “through” like being or going to the other side or transcending and transforming a state or place. Thus, transcultural means that one crosses cultural boundaries and goes beyond cultures to transform and to create something new. In order to do this, one needs transcultural competence.

Thus, transcultural competence needs to be a part of the vocational educators’ professional skills. Mayer and Boness (2011) describe transcultural competence as having eight aspects: openness to appreciate cultural differences, emotion management, information processing, tolerance to ambiguity, cultural understanding, communication, conflict management, as well as self-management. The author agrees with their reasoning but would add that transcultural competence also involves actions. Aldridge et al. (2014) wrote that culture is also a verb, not only a noun, and they propose “culturing” to illuminate that people actively produce and create cultures, not just consume them. In a similar vein, transcultural competence includes producing discourses, practices, artefacts, and policies that transcend cultural boundaries. A teacher does not need to know every detail of the students’ cultural backgrounds, although it may help her/him to understand some of the students’ practices. Instead, the teacher needs to be aware of and discuss with the students the various cultural practices that may affect teaching and studying practices in a new cultural environment. Teachers and students can create together new, common ways and practices to enhance learning and understanding (see Teräs 2007). In other words, they went beyond and across cultural practices of teaching and studying to be able to transform them.

Aldridge and his colleagues (2014) suggest a model of transcultural education, highlighting the meaning of “trans” with five possibilities: transferential,

transactional, transformational, transmutational, and transcendent. Transferential refers to code switching when interacting with a person whose communication style differs from a dominant style. Transactional emphasizes knowledge construction within and among diverse individuals and groups participating in the teaching-learning process. Transformational highlights the process of teaching students to transform their own cultures by working to correct injustices while at the same time changing the world at large. Transmutational goes even further and highlights the deeper change. Lastly, Aldridge and his colleagues propose transcendent culturing (they use the verb not noun in relation to transcultural education), stating that it is the goal of transcultural education, and refer to overcoming cultural barriers in interaction.

The argument here is that in transcultural learning, one crosses cultural boundaries, which are permeable, and goes beyond and through cultural discourses and practices in order to transcend and transform them. Thus, transcultural learning is intertwined with learning a profession in a new environment. Learning and developing professional skills are based on learning the cultural practices required in the profession in certain time and context. Cultural practices are locally and historically developed ways and means of doing things, and their relationship with the environment and the community's cultural practices are also valued in a specific environment and in a specific vocation (cf. Nasir et al. 2014). For example, how respect is shown to teachers varies. In some environments, respect is shown by addressing the teacher by her/his title and last name, while in other environments respect is shown by engagement and dialogue with the teacher.

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## Elements of Learning

All learning consists of different elements. Accordingly, learning models and theories require considering the following: who are the participants and why are they learning, what are the contents of learning, how is it learned and with what equipment, and where does the learning take place, in which environment. Next will be briefly reflected on these elements and given examples in relation to VET and cultural diversity.

The student and her/his learning skills focus heavily on the student's cognitive skills, such as identifying a learning style or strategy, surface or deep orientation, motivation, or target orientation (cf. Illeris 2015, pp. 215–224). Based on these, students are taught a variety of studying techniques such as making notes, memorizing content, reading textbooks, and listening to lectures. All these learning skills can differ from the cultural practices of the students' previous learning environments, and thus it is important to discuss, make visible, and transform these into skills needed in the new environment. For example, in the culture laboratory, the students said that group-work practices were new to them (Teräs 2007). Working in groups and teams is an important skill in vocational education and training to prepare the students for their future working life. Not only students need new competences but also teachers need them.



Transcultural competence of a vocational teacher is a key aspect when working with students with different linguistic and cultural backgrounds. Teacher's attitudes toward different students are reflected on in her/his work, as is awareness of how teachers and students move beyond and transform cultural practices. One important trait is how the teacher can support students in transitional skills when they are moving across different cultural boundaries (Phelan et al. 1998). When crossing cultural boundaries, the students face new learning environments.

Diverse vocational learning environments form a central facet of vocational education and training. Learning environments include school, class, work, and home and virtual and other environments where learning takes place. Some students may be accustomed to school and the classroom being the only places to study. In this case, for example, study visits or homework are not considered as part of their learning process. It is crucial for the vocational teacher to clarify how to study in different environments: what is to be learned there and why it is imperative for everyone to participate in. A team consisting of different professionals and people with diverse backgrounds is also an important part of learning at work, as it helps the students to acknowledge transcultural competence. In vocational education, it is also central to be able to study at workplaces, as in apprenticeships and workplace learning periods (cf. Malloch et al. 2011). During workplace periods, students use different working and learning tools.

Vocational learning tools, as a variety of intertwined methods and equipment used in studying and teaching, can be new to students. The term covers both symbolic and material tools, which often go hand in hand (Vygotsky 1978). For example, teaching materials often guide their use. The textbook guides you to read the subject matter that is important to know in the new environment; an assignment guides on writing practices and teamwork for social interaction. While students use the tools, they are given a picture of what is important in this cultural environment and how knowledge is used in it. It is essential for students and teachers to explore how different tools are used in order to make visible what tools the students are used to in their previous education. This allows them to compare different ways and to think about what is common practice in current education. This can be called the transcultural "learning to learn" skill. It may be that the students are accustomed to teacher-oriented and teacher-centered teaching rather than student-centered. Regarding teaching methods, different technology-mediated methods are typically novel ways of studying. Teachers' expectations and different assessment practices are also important to clarify. Self-assessment or peer feedback may be a new practice for many students that require skills and training.

Different kinds of teaching methods are in use in different occupations. Before starting a new course, it is important for the teachers to explain and clarify their expectations and methods concerning, for example, the following: how do they expect students to participate in teaching; what kinds of questions will they ask; is it a question of information or whether he or she looks for different perspectives, students' opinions, or experiences? Furthermore, why are different questions important for learning, and how to work in a group?

The importance of the study group for learning a profession may also be new for some students. Understanding group dynamics and organizing work in a group require familiarity if the student is well accustomed to individual and competitive learning habits. It is also essential to clarify what a student can learn from other members of the group and how other's contribution can enrich his or her learning vocational competences.

Vocational content knowledge gives a direction and a goal for learning. In different occupations, different types of knowledge and skills are needed. Depending on the area of the vocation, typically transdisciplinary knowledge is necessary to become a competent worker. For example, in the area of health care, learning knowledge based on different sciences and disciplines such as nursing, medicine, and psychology is essential for functioning as a nurse.

In sum, the elements of learning affect transcultural learning process.

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## Transcultural Learning Process

A model for transcultural learning illuminates the elements, layers, and dimensions of the process when encountering and learning with people with diverse cultural backgrounds. Elements of a transcultural learning process are the same as in all learning that involves participants, content, tools, and environment described above.

Layers of the transcultural learning refer to individual, collective, societal, and global aspects of the process. These elements and layers are present in all learning. People are at the same time individuals, members of cultural groups, members of a society, and members of the world at large. Transcultural learning can penetrate all these layers. In vocational education and training, the layers of transcultural learning can get different manifestations. For example, a student studying economics can do her/his internship in a multinational company and have colleagues in different parts of the world. As an individual the student is thus part of the study community in one place as well as part of the global work community, following both national and international laws of accounting.

Dimensions of transcultural learning reflect four counter-pairs: transition, stoppage; transformation, stagnation; trust, mistrust; and fast time, slow time. Learning can occur as an oscillation between two ends of the dimensions. Next will be examples of the dimensions.

Moving to a new environment may be voluntary, as in a case where a person starts to study in a new school or work in an international company, or involuntary as in the case of refugees and asylum seekers. Either way, moving is a transition, which can give impetus to transcultural learning process. Transition can be regarded as movement between different places like school and work or a development between different phases, such as from childhood to adolescence (cf. Teräs et al. 2015). In this case, transition occurs very concretely when a person moves from one country to another.

Young people with a migration background experience many transitions in their life such as moving from one country to another, moving around inside one country,

and moving from one school to another or from school to work. The next example shows how a student reflected on his experiences: “I really don’t have a plan yet, if I’m staying here [Finland]. I will see how it goes on, if there, in my own country, is a war or not. This a peaceful country, it’s good to be here. But if the war ends, then of course, everyone has his own home country” (Teräs et al. 2015, p. 48).

Dimensions of transition can, however, also be abstract such as learning a new language or remembering new words needed for a specific occupation. In other words, concrete and abstract are intertwined in transcultural learning process. Dimension of transition has a stoppage at the other end. Sometimes learning in the new environment can be difficult, demanding, and overwhelming, and the person becomes trapped and stopped in her/his transcultural learning process. However, stoppage is sometimes needed for learning.

“... Everything was quite different than in our school” (Teräs 2007, p. 1) wrote one of the students in her diary. To face the difference requires transformation, that is, transformation in relation to one’s identity and in relation to a social and physical environment. Transformation can be perceived as a deep individual, social, societal, and global process of change. For example, highly educated professionals typically have difficulties finding jobs that match their competence and often are recommended to have training in their new environments (Lasonen and Teräs 2015). Transformation is necessary for different layers. In other words, not only individuals are transformed but also communities and societies. For example, companies need to develop different kinds of recruiting policies to face a diversity of clients or determine the kinds of services that are needed to reach different cultural groups. Dimension of transformation has stagnation at the other end. Stagnation can occur if there is no activity, growth, or development on either the individual or collective level. It may be that there is too much that is new and too many changes, and a person feels that she/he needs to wait to be able to learn it all. In the case of an organization, which is going through many changes, stagnation can occur.

Transition and transformation need two other dimensions, namely, trust and time. Trust in the respect that refers to a person being able to learn and understand; one needs to trust that the knowledge and skills one is learning are beneficial in the vocation of the new environment. Therefore trust-building is essential in transcultural learning process. One needs to trust teachers and the new environment, and vice versa. Without trust, learning is not meaningful to the person. Trust-building is a reciprocal process, and mistrust might direct learning toward unintended directions. For example, when one young person with a migration background discussed his future plans, he expressed both mistrust and trust: mistrust from a collective perspective and trust from his individual perspective. “(...) They [other immigrants] have said to me once that for us [foreigners] it’s no use to study, because we are foreigners. We are not going to get any good jobs. Our future is in a pizzeria or something like that. But I want more and I want to get a good certification so that I would get a good job, not like the pizzeria” (Teräs 2010, p. 7). An employer working with migrant families had noticed that a trustful relationship was beneficial for the whole family: “(...) Parents try to hide as long as possible if they have issues, they are inside family issues and no one [the authorities] is supposed to touch those

issues. They try of hide possible problems as long as possible. But then I have noticed that if a good, trustful and open relationship is formed to parents, then they open up and they want to use services and they are content and grateful. (. . .)” (Teräs 2010, p. 8).

Time dimension is interesting; on the one hand, learning a vocation takes time, even though there are individual differences. Some people learn faster than others do. However, especially when learning in a new cultural environment and with a new language, it is time-consuming. Time has been approached from different angles, such as how people experience time and haste in work (cf. Niemelä 2006) or how different occupations have different timeframes (Kaiser 2009) and how social processes seem to accelerate (Rosa 2013). In relation to transcultural learning process, for example, the government of Sweden (2016) introduced the “fast track” program for newly arrived migrants so that they would find a job quicker than before, especially if they have an education from their previous countries. Dimensions of time oscillate between slow and fast in the transcultural learning process. Furthermore, a person needs to learn many things at the same time, such as a new language and subject content, as well as how to study. One of the students expressed it like this: “Then we think that learning in workplaces is important because workplace learning, because there we can improve our Finnish language skills and then we get to know about professions and then we can talk to Finnish people” (Teräs 2007, p. 120).

In sum, a transcultural learning process is a cyclic, oscillational process involving elements such as participants, contents, tools, and environments as well as layers of individuals, collectives, societies, and the global community, in addition to dimensions of transition, stoppage; transformation, stagnation; trust, mistrust; and fast time, slow time. These elements, layers, and dimensions are here called ingredients of transcultural learning.

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## Discussion

The aim of this chapter was to examine the cultural diversity that students and teachers of vocational education and training encounter in their work. In addition, the aim was to reflect on transcultural competence and the transcultural learning process.

Teachers and students of vocational education and training can encounter cultural diversity in several ways. They can be part of an international project, they can be engaged in various exchange and mobility efforts, or they meet people and their children who have moved to new cultural environments. Accordingly, there are several ways to approach cultural diversity in vocational schools. Banks (2002) has studied and proposed multicultural education, highlighting equity and prejudice reduction in education. Räsänen and San (2005) discuss intercultural education as a way to act with cultural diversity. Aldridge and his colleagues (2014) bring transcultural education into discussion. Each approach is followed by competence needed in practical situations – multicultural competence, intercultural competence,

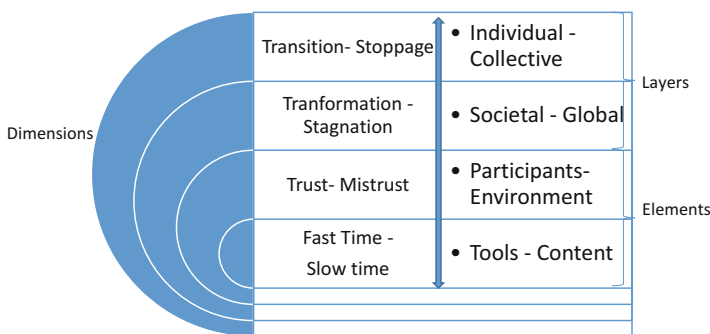
or transcultural competence – to name some. The focus, in this chapter, has been on transcultural competence and transcultural learning process.

The elements of transcultural learning process follow a regular learning process involving participants, teachers, and students, content knowledge, as well as tools and diverse learning environments. Layers of transcultural learning involve individuals, groups such as communities and organizations, different societies, and the global community at large. These layers are present in all learning, even though the focus of learning can be on individual layer or community layer, for example.

Furthermore, four dialectical dimensions are present in transcultural learning process: transition, stoppage; transformation, stagnation; trust, mistrust; and fast time, slow time. A question rises if these dimensions are a quality of all learning too. In addition, what does make learning transcultural? Before pondering this question, the Figs. 1 and 2 depict relations of the ingredients of transcultural learning.

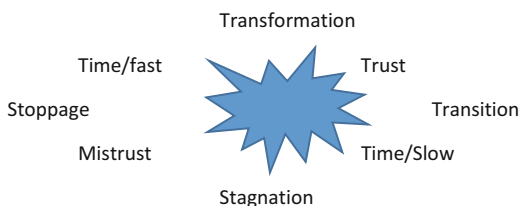
In Fig. 1, the model of transcultural learning reflects the complexity of the phenomenon, which is learning when diverse people and cultures encounter each other. It also describes how elements, layers, and dimensions are dynamic and intertwined in the transcultural learning process. The arrow at the center of Fig. 1 illustrates that the ingredients are in constant interaction with each other. Fig. 2 spotlights the dimensions. In the figure, a star outlines relations of different dimensions.

All dimensions are in relation with each other, but at the same time, some dimensions can have stronger emphasis in the learning process. For example, when starting to study a new vocation, mistrust can dominate the learning process.



**Fig. 1** Ingredients of transcultural learning

**Fig. 2** The dimensions of transcultural learning



A person, especially if one has already vocational qualifications from her/his previous country, may feel that she/he already have competences and that she/he does not need any further training. When proceeding in the training, transformation dimension can oversee the learning process, which then requires more time from the person. Therefore, interplay on the one hand between dimensions and, on the other hand, oscillation between the ends of dimensions is a dynamic and self-renewing learning process.

Now back to the previous questions on what makes transcultural learning special and if elements and layers depicted are present in all learning. This question can be perceived from three angles. First, dimensions of transcultural learning can be present in all learning, depending on the elements and layers of learning, in other words who are the participants, what kinds of contents are in focus and what kinds of tools are used, and so on. Also layers of learning are central: is the focus on individual or global layer? The comprehensive whole is important. Second, it is important to understand what the context of learning is. For example, are the participants of the learning process migrant workers or refugees, why are they learning, what are the aim and objective of learning, and what kinds of previous learning experiences do they have? Third, if all learning is perceived as similar, it becomes vague and the conceptual and analytical power can be easily lost. Learning and transcultural learning are complex concepts and that they get their meaning when used in actual empirical situations. Thus, more empirical research in the area is needed.

Promoting transcultural learning and facilitating it require transcultural competence from vocational teachers. Mayer and Boness (2011) describe transcultural competence with eight aspects such as being open and appreciating cultural differences, being tolerant to and understanding cultural diversity, as well as being able to communicate with different people and managing conflicts. Furthermore, transcultural competence also involves actions; one needs to be able to act in different situations. In other words, the teachers need to be aware of the transcultural learning process and to facilitate the students to navigate through cultural diversity.

Cultural diversity and practices are part of the vocational and professional activity. In order to meet the challenges that vocational teachers and students face in their work, they need to increase their transcultural competence. It is therefore crucial that vocational education institutions identify and make visible the different roles, practices, and tools that teachers and students use in their studying and teaching practices. Transcultural learning arises from the respect of different people and cultures, the desire to understand one's own and others' cultural heritage, the ability to work in diverse situations, and the ambition to create a new kind of study and teaching culture.

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# Knowledge, Practice, and Workplace Learning

# 58

Jim Hordern

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## Abstract

This chapter examines conceptualizations of the relationship between vocational knowledge and practice and explores implications for workplace learning suggested by contrasting approaches. A distinction is drawn between theories that foreground practice as a site of vocational learning through participation and those which have tended to highlight the acquisition of systematic knowledge as the basis for expertise in occupations. It is suggested that these divergent approaches assume different conceptualizations of practice itself and involve distinctive treatments of issues of vocational knowledge and identity. It is argued that greater attention needs to be paid to the differentiation between specialized and nonspecialized aspects of vocational knowledge, and this provides a basis for differentiating forms of vocational practice in terms of the specialization of underpinning knowledge and through the extent to which that knowledge is acknowledged, recognized, and foregrounded in workplace curricula. This then provides a means for evaluating the potential for learning profitably from aspects of workplace activity and for considering what constitutes full participation in an occupational practice.

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**Keywords**

Vocational education · Knowledge specialization · Vocational practice · Systematic knowledge · Learning as participation

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**Introduction**

Debates around the importance of vocational knowledge in vocational education are often framed around unresolved questions concerning the relationship between theory and practice in vocations. On the one hand it can be argued that the systematic knowledge produced by academic research and represented by academic disciplines is the most reliable and durable form of knowledge (Young 2006; Wheelahan 2010) and therefore must be represented in all forms of education including that which takes place for vocations and in workplaces. Such arguments for the prominence of systematic knowledge also draw on theories of expertise (Winch 2010) that suggest that propositional, inferential, and procedural knowledge are interdependent elements in the constitution of expert practice. This argument is also supported by research into the knowledge requirements of certain occupations, for example, that which examines the needs of occupations in sectors such as engineering, construction, or health, where forms of “applied theoretical knowledge” (Clark and Winch 2004) are seen as indispensable for vocational activity.

On the other hand, it can be argued that forms of systematic disciplinary knowledge are remote from the actuality of vocational practice and largely irrelevant to much of what occurs in workplaces, and therefore vocational education needs to focus to a greater extent on forms of situated know-how attained in the context of practice (i.e., Markauskaite and Goodyear 2014). Studies have shown the considerable potential for learning in workplaces, particularly where certain “environmental” conditions exist (Fuller and Unwin 2004). Furthermore, research examining the relationship between work practices and learning (i.e., Orr 1996; Lave and Wenger 1991; Fuller et al. 2007) demonstrates the potential of occupational practice to generate forms of situated knowledge that are adapted and refined in processes of exchange among bodies of practitioners deeply immersed in their work. The works of Lave and Wenger (1991) and Brown and Duguid (1991) suggest that it is the dynamics of practices that generate requirements for forms of knowledge and knowing which are therefore learnt by practitioners as they participate in the practice. As practice requirements change, thus knowledge requirements change – and therefore change is often seen as stemming as much from the practice itself as from advances in systematic knowledge produced externally to the practice.

This chapter examines the relationship between vocational knowledge and practice and explores the implications for how we think about workplace learning. First some arguments for the centrality of vocational practice for workplace learning are addressed, and some objections are raised to approaches that suggest that all valuable learning can be achieved through practice immersion. These objections relate to how practice is conceptualized in such approaches, the difficulties with sustaining quality

in practice, and the lack of connection to systematic knowledge production which may thus quickly render practice knowledge ephemeral. It is suggested instead that greater attention needs to be paid to the differentiated nature of vocational knowledge, drawing on the arguments of Bernstein, Young, Muller, and Winch, and in particular the relationship between the systematic or “specialized” and the non-systematic or “nonspecialized” forms of knowledge.

This also suggests, following Winch (2010), that greater attention needs to be paid to the relationship between the propositional, inferential, and procedural forms of knowledge, in addition to acquaintance knowledge, when identifying the knowledge base and the curriculum for an occupation, and the development of workplace expertise. Moreover, scrutiny of the differentiated nature of vocational knowledge indicates that greater attention needs to be paid to the sources of this knowledge and the processes of selection, appropriation, and transformation (Bernstein 2000) that they undergo as they move from their original source into a vocational curriculum, whether classroom- or workplace-based. It is suggested that a more acute differentiation of vocational knowledge provides a basis for differentiating forms of vocational practice, as practices can be differentiated in terms of the extent to which they are “purposive” (Rouse 2001, 2007; Hager 2011), the extent by which they are underpinned by a form of specialized knowledge, and by whether they provide the affordances and environmental conditions (Billett 2004; Fuller and Unwin 2004; Winch 2010) that enable the acknowledgment and recognition of those (and other) forms of knowledge in practice. It is argued that this approach has considerable implications for how we evaluate the potential for learning profitably from aspects of vocational activity.

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## Foregrounding Practice to Understand Vocational Learning

There is a considerable amount of academic literature on learning in occupations that suggest that how we understand practice is central to how we understand vocational learning/workplace learning. The works of Lave and Wenger (1991) on Communities of Practice, Brown and Duguid (1991) on networks of practice, and Argyris and Schön (1996) on learning in organizations served to orientate much research on vocational learning toward the analysis of work practices as sites of learning. It has been argued that practitioners develop the most important aspects of their expertise in workplace contexts and that fluent practice does not rely much on declarative knowledge, including in quite complex specialized expert practices (Dreyfus and Dreyfus 2005). It can be argued that knowledge and learning should be seen as “culturally and socially situated” (Markauskaite and Goodyear 2014, 80) and that expertise should increasingly be understood as co-constructed through collaboration with others (Guile 2010), distributed socio-materially among and within practice contexts (Fenwick 2014), and “relational,” involving boundary-crossing and “understandings of the work problem as an object of joint activity” (Edwards 2010, 13).

These arguments suggest that vocational knowledge and learning are best understood through analysis of work practice and that valuable knowledge and

opportunities to learn are in essence constituted through the character of the practice. This line of thought has led to many researchers on workplace learning to conduct detailed practice fieldwork in different occupations in attempts to profile the nature of knowledge and learning in that occupation and to garner insights that have resonance across occupations. For example, the work of Billett (2004) draws on fieldwork on hairdressers and coal mining and Eraut (2004) on studies of teachers, nurses, and midwives among others. While many of these theorists acknowledge a role for formal systematic knowledge, they often foreground workplace contexts as central sites of occupational learning, echoing traditions that have long advocated considering forms of “knowing” in practice (and practical wisdom) as much as “knowledge” as key elements of expertise (Duguid 2005).

However, it is important to note that much research on learning at work, including much of the work discussed above, is often implicitly working with a view of practice that is “regulist” or “regularist” (Rouse 2007) suggesting that practices are defined by the rules or regularities by which they are characterized. This view of practice is often complemented by a focus on phenomena such as “shared embodied know how,” “shared practical understandings,” and “tacit knowledges and presuppositions” (Schatzki 2001, 11–12) that are said to underpin any given practice and provide its regularity, rules, and character. This view frequently extends to the claim that all forms of human activities that possess rules and some form of regularity can be considered practices, with “domestic tasks,” “parenting,” and the “practices privileged in educational institutions” (Billett 2004) not categorically different as all have routines and their own characteristic “sayings” and “doings” (Schatzki 2001). Such arguments often also suggest that practices often overlap and influence each other, but each has an “architecture” (Kemmis et al. 2014) that shapes the activities that are appropriate to the practice. To unpack the “architecture” or regularities of a practice is therefore vital to understand its character and the forms of knowledge and learning therein.

In such theories learning is conceptualized as the process of engaging with and becoming part of a practice – all “practitioners” learn in order to become more fully adept and to move from novice to expert (Lave and Wenger 1991) – and this can be as true of the most everyday practices as the more complex and specialized (Nicolini 2013). Learning becomes about socialization into the rules and regularities of the practice and identity formation, “the simultaneous development and performance of a practitioner identity” so that “coordinated activities” can be undertaken more competently in accordance with the rules of the practice (Gherardi and Perotta 2014, 142). Learning as participation is thus seen as a more appropriate metaphor than acquisition (Sfard 1998), with the community or “collective subject” rather than the individual foregrounded as the locus of learning (Gherardi and Perotta 2014, 144).

The focus on practices as sites of learning enables theories to emerge which attempt at general conceptualizations of workplace learning that bridge above the nuances and characteristics of specific vocational practices. In essence the notion of practice *participation* can be said to translate fruitfully across multiple practices – learning as participation can be seen to have some fundamental tenets. Learning in workplaces can

be understood through examining “affordances,” “dispositions,” and the “workplace curriculum” (Billett 2004, 2006), and therefore there needs to be a focus on “informal learning” and learning from others (Eraut 2004), coupled with a focus on practice induction (Gherardi and Perotta 2014). While some theorists develop frameworks that continue to see an important role for systematic knowledge, often identified as “propositional” or “declarative” and as “formal” and “explicit” (i.e., “codified academic knowledge” (Eraut 2004, 263)), other frameworks of vocational learning imply that there is nothing distinctive about systematic knowledge that might warrant its necessary inclusion in a process of occupational preparation. If cognitive learning at the individual level is displaced by a focus on ideas of legitimate participation, community, and distributed expertise (i.e., Gherardi and Perotta 2014; Markauskaite and Goodyear 2014), then knowledge and learning in formal settings cannot claim to be categorically different from learning processes in organizations or occupational groups. Thus systematically produced propositional knowledge can be drawn on selectively to meet the perceived requirement of the practice, including at the behest of the practitioner. It is drawn upon where relevant to task or problem in hand and then may be discarded when tasks are completed or problems solved.

Systematic knowledge developed in disciplines and by rigorous research practices thus is often seen as *just another* form of knowledge that will be judged alongside other forms of knowledge and understanding in terms of its efficacy or utility in the practice context. It may or may not have something to offer. This view of systematic knowledge can be seen as instrumental, perceiving this knowledge as useful only in terms of what it can do for a practitioner or organization in a specific scenario. An individual proposition or set of propositions may be selected, appropriated, and relocated outside of its original context of production without an ongoing connection with other propositions that provide it with its meaning and allow it to be fully understood (Bernstein 2000; Winch 2010; Hordern 2014). The result is that it may be difficult for a practitioner to make inferences from that proposition as its accompanying propositions have not been seen as worthy of selection because they have no obvious bearing on the context at hand (Winch 2010).

For example, building work is safer if builders are aware of the relationship between types of material and how these materials respond to different forces. If a material is selected specifically because of its ability to withstand a specific force (i.e., compression) but the builder is not conscious of the different natures of tensile forces and how these impact such materials, then a building may collapse (e.g., in an earthquake). Similarly, a plumber with a working understanding of chemistry of metals will be more likely to diagnose whether two metals in close proximity are a potential cause of corrosion and whether environmental conditions may contribute. If she possesses only partial knowledge of the relevant chemistry, there is a greater chance of a misdiagnosis of the problem. Thus propositional knowledge becomes fully meaningful only when understood together within other related propositions, as this allows meaningful inferences to be made from each proposition (Winch 2010) and a more rounded impression of the problem to emerge. The implication is that many vocational occupations require a systematic knowledge base that enables

practitioners to exercise well-founded judgments in the contexts in which they work, as will be discussed further below.

Additionally, as Rouse (2007) points out, if we follow the “regularities” or “regulist” conception of social practices which underpins much writing about workplace learning, there is “no good way” to identify how practice is “maintained across multiple iterations of the practice” (2007, 47), as there is nothing that sustains the practice regularities or rules other than those regularities or rules themselves. Essentially, we are missing an understanding of the basis for the persistence of habitual action, as will be discussed below. This omission may lead to assumptions about learning processes that do not adequately differentiate between the types of knowledge learnt or differentiate between the types of practice (or human action) within which that knowledge is constituted. If knowledge and learning in vocational practices is determined by what practitioners consider makes sense for the routines and regularities that currently characterize that practice, then there is also no necessary relationship with the changing nature of knowledge external to the practice. For example, new developments in scientific research that could potentially transform a work practice can be dismissed as irrelevant if not considered to relate to the existing practice dynamics.

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## Differentiating Knowledge to Understand Vocational Education

While the ideas discussed above have considerably advanced understandings of learning at work and the variable contexts in which participation in a practice occurs, it can be argued that the role of systematic knowledge is unwisely downplayed or sometimes disregarded completely. The disciplinary knowledge produced in universities or research bodies has been criticized by some for its perceived irrelevance to practice, redundancy, excessive generalization, or inherent bias (i.e., Whitehead 1989; Schon 2001). If all knowledge is situated, the argument goes, how can a researcher in higher education claim a particular value or “power” for her or his knowledge? How can research communities claim a particular authority over knowledge and also therefore over the processes by which that knowledge can be acquired? The argument of some, in response to such questions, is to turn attention to the conditions in which knowledge is produced and made available to future vocational practitioners and to claim that “specialized” forms of knowledge are important for the vocational curriculum (Wheelahan 2010; Gamble 2016; Young and Muller 2014, 2016).

Rather than suggesting that vocational knowledge should emerge directly from vocational practice, Young and Muller (2014) draw on a sociohistorical analysis of the development of knowledge to show how knowledge used in occupations draws on higher education disciplines and that knowledge has increasingly been produced that takes account of the purpose of an occupation or field of practice (i.e., health, engineering). Some forms of knowledge (i.e., the pure disciplines such as physics and chemistry) develop specialized concepts, while other forms (i.e., applied disciplines such as engineering or architecture) develop knowledge that is specialized to a

contextual purpose (i.e., construction of a bridge or design of a building). Over time these two forms of knowledge have interconnected in an “irreversible twist” (Young and Muller 2014, 9) which has led to the applied disciplines drawing on the knowledge produced by, and influencing ongoing work within, the purer disciplines. As part of this, organizations and professional bodies involved in (for example) engineering and health, and their practitioners, have become more conversant with conceptual advances and used these to develop technologies and frameworks that have shaped the development of work. What makes this specialized knowledge reliable, and therefore useful in the ongoing development of technology and work practice, is its connection to certain disciplinary processes of evaluating truth claims which are maintained by academic and professional communities (Young and Muller 2014). Thus advances in engineering rely on the disciplinary processes in the physical sciences and the engineering community – the recontextualization of knowledge between the “pure” and “applied” disciplines – and the adaptation of knowledge to meet the purposes of the occupational practice (i.e., physics for engineers or technicians). This connection back to disciplinary sources, and ultimately to commitments to discovering truths about the world, enables new knowledge to be brought to bear on problems encountered in the occupational practice, but also means that the practice is not static as new knowledge can be fed into technological and process developments, resulting in new learning requirements for practitioners in the field.

Underpinning this argument is an important differentiation between specialized knowledge, as produced in disciplinary communities of a “pure” or “applied” nature, and everyday knowledge, which tends to be “local” and “context dependent” (Bernstein 1999), fluid, and unstructured. Whereas specialized knowledge is characterized by a disciplinary “sociality” that is in some way rule-bound and orientated toward the pursuit of truth and truthfulness, at least in its ideal conception (Young and Muller 2016), everyday knowledge is exhausted in the context of its application while remaining useful for the specific purpose to which it is put. In occupational contexts specialized knowledge might be knowledge relating to health and disease (for a nurse) or construction techniques or chemicals (for a builder or engineer), whereas nonspecialized everyday knowledge might be organizational procedures or “rules of thumb” developed by individual practitioners that may or may not have broader applicability. Indeed, the notion of individual practitioners developing and putting into practice their own solutions to problems may, in certain cases (i.e., in health and engineering), be highly problematic due to heightened levels of risk, whereas in some vocational areas (i.e., in craft or information technology) less problematic. Importantly, knowledge becomes specialized for the occupation when it meets the disciplined requirements of the occupational knowledge base – when it is tested for its validity and reliability and (in many occupations) its successful applicability in a variety of contexts. While everyday forms of knowledge are vital for undertaking many occupational tasks, they are not subject to the requirements of specialized knowledge and are often highly contextual to specific organizations or workplaces – and therefore there must be question marks around their inclusion in the vocational curriculum.



It is important to emphasize that specialized knowledge is not simply propositional (or “know-that” forms of knowledge). As Winch (2010) discusses, expertise is built not only on “know-that” but also on strongly related forms of “know-how” which are often less easy to identify. Individual propositions only make full sense when considered together with related propositions. A practitioner needs to know how to draw inferences from propositions based on an understanding of the relation between these propositions and others. Expertise in any domain is therefore reliant on inferential capabilities and understandings of the relations between propositions which are husbanded by disciplinary communities, including in applied disciplines. Strongly associated with the inferential dimension is knowledge of how to use procedures for judging new claims to knowledge. This procedural capability enables experts to assess whether a new proposition has bearing on the existing knowledge base and whether it meets standards of rigor appropriate to the discipline. Both the inferential and procedural capabilities can be seen as significant for vocational practitioners, who need to be able to understand how an aspect of vocational knowledge relevant to their practice relates to their knowledge and to be able to evaluate new ideas or techniques which may be introduced to them by a variety of sources.

However, none of this means that specialized knowledge can be used unproblematically in the vocational curriculum. A requirement to prepare practitioners for work in an occupation is distinctly different from a curriculum that prepares for further study – a vocational curriculum has to have some relation to the circumstances of the occupation and the work encountered (Muller 2009; Billett 2006) – and this may vary in terms of the extent of certainty and risk involved (Gamble 2016), but also in terms of the level of discretion and control that employees enjoy over their practice. Knowledge thus needs to be “selected, appropriated and transformed” (recontextualized) in accordance with the problems (Barnett 2006) and “supervening purpose” (Muller 2009, 213) of the occupation. However, those problems and that purpose are often subject to ongoing debates between various stakeholders (i.e., practitioners, professional associations, employers, education institutions, government) around definitions as to what aspects of work and task are “in scope” for the occupation, leading to different views as to what knowledge should form the basis of the curriculum. What Evans et al. (2010) call “content recontextualization” is therefore often a fraught process, with multiple actors engaged. Some may call for a curriculum based solely around current workplace practice, while others may see value in a more formal institutional period of preparation.

In professions as diverse as human resource management and chartered surveying, there have been debates around whether accreditation processes are responsive to employer and practice requirements (Cook and Chatterjee 2015; Gilmore and Williams 2007; Hordern 2014). While chartered surveying has decided to reinvent its connections with higher education institutions, HRM has opened up new work-based routes to qualification (Hordern 2014). Gamble (2012) notes how knowledge requirements brought about by technological change are increasing the need for formal educational involvement in intermediate-level apprenticeship programs in technical fields. However, even if forms of specialized knowledge are



valued, the process of recontextualization may result in individual propositions becoming more isolated from other propositions that provide greater meaning and from procedures that enable the evaluation of new claims to knowledge. The vocational curriculum cannot be excessively reliant on knowledge as produced by “pure” disciplines, as this is too remote from the concerns of practice. Therefore it seems a new knowledge base appropriate to the occupation must be worked through, transforming purer forms of knowledge so they relate to the practice context, so that there is a degree of coherence to the curriculum, and for most vocational occupations this will involve a degree of coherence both to the conceptual structure of a disciplinary body of knowledge and to the contexts in which practitioners work (Muller 2009; Barnett 2006).

The claims of Winch (2010) on propositional knowledge also suggest that vocational knowledge and expertise requires a form of curriculum that pays particular attention to sequencing, as new knowledge can only be properly understood in the light of knowledge previously acquired – propositions only make sense in the light of other propositions. Therefore curriculum designers need to pay special attention to how propositions are sequenced so that novice practitioners can make full sense of new ideas introduced to them. If the sequence is jumbled or confused, then practitioners will not gain from the process (Muller 2009; Gamble 2014). The structure of the knowledge base matters enormously for curriculum design in vocational fields and has implications for how the workplace aspects of vocational curricula are organized.

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## From Differentiating Knowledge to Differentiating Practice

However, conceptual work that has asserted the importance of differentiating knowledge has not often extended this differentiation into the actuality of vocational practice. Young and Muller (2014) draw a distinction between the work of Schon (2001) on reflective practice and that of Bernstein (and also therefore their work). They discuss Schon’s “epistemology of practice,” which suggests that practitioners’ knowledge is comprised of a “store of experience” consisting of “certain types of situations and examples” (Young and Muller 2014, 12) which practitioners can draw upon analogically to handle real-world problems as they experience them. Using Bernstein they observe that the work of Schon neglects the use of disciplinary specialized knowledge that has bearing on practice and is limited in how it relates practice to knowledge production. Bernstein’s (2000) work is seen as offering the opportunity to develop a deeper understanding of the relationship between the production of knowledge (in pure and applied forms), occupational curricula, and “fields of practice” (Young and Muller 2014). Young and Muller (2014) point to the risk of collapsing distinctions between knowledge types and the practices associated with them that is inherent in Schon’s work, as Schon’s work posits a generic experienced-based model of reflection that transcends the specialized character of an occupational practice, as defined by its knowledge base. Effectively the disciplined nature of specialized knowledge is downgraded and its specialized character left unacknowledged – considered less significant

than that which is interpreted through experience. For Young and Muller (2014), this amounts to overlooking the distinctive propositional, inferential, and procedural aspects of expertise (following Winch 2010) and instead mistakenly elevates undifferentiated knowledge by acquaintance as the primary source of occupational knowledge (see also Hordern 2016).

However, the argument for specialized vocational knowledge implies that certain forms of (specialized) practice are concomitant with that knowledge. Specialized knowledge forms are products of particular forms of sociality or disciplinary community (Young and Muller 2016; Muller 2009). While the practices of academic and some professional communities are relatively bounded and specialized, undertaken by academics or professionals with defined identities and disciplinary guidelines around what is appropriate practice (Muller 2009), the practices and identities of saleswomen or a photocopy technicians are more fluid and flexible, influenced and shaped by other practices and encounters (i.e., see Orr 1996). Academic physicists and historians, along with doctors or engineers, are working extensively and perhaps exclusively with specialized forms of knowledge in their practice or at least interpreting events and claims in specialized terms that might appear opaque to the layman (Shalem 2014; Hordern 2016). In essence, highly specialized occupations and their practitioners are constantly in the business of seeing in sacred terms that which might be considered profane by others (Gamble 2014) and developing diagnostic frameworks in order to manage problems encountered in the occupation (Shalem 2014). On the other hand, in some occupations very little specialized knowledge is needed, although it could be argued that if more was used that might enhance the practice. Much vocational practice is however somewhere in between the highly specialized and the unskilled, characterized by an admixture of specialized and nonspecialized knowledge forms in order to complete tasks and activities (Muller 2009; Gamble 2016).

But how can these differences in occupational practice be understood? Rouse (2007) contrasts the view of practices as habitual or rules-based activities with a “normative” conception that suggests human activities are only practices if they can hold together purposefully due to something being “at stake” (Rouse 2007, 50) in the conduct of the practice. This view of practice suggests that a practice is held together by “interactions among its constitutive performances that express their mutual accountability” (Rouse 2007, 48). Participants engage in the practice through mutual interest – the pursuit of the issues at stake in the practice is meaningful to them – and therefore they stay involved. Hager’s (2011) refurbished account of MacIntyre’s (2007) conception of practices similarly highlights “purposiveness” and contributions to wider society (though a “balance of internal and external goods” (Hager 2011, 554) as important characteristics of certain types of practices (e.g., occupational practices). Actors and their actions are bonded together in the meaningful pursuit of some objective in such practices or because of a sense of duty or perceived obligation to the practice and the community of practitioners (Young and Muller 2014).

Such strongly purposive practices tend to have achieved a certain level of societal recognition and some autonomy in developing a license to practice, underpinned by forms of knowledge specialized to the practice purpose and its contexts (Young and Muller 2014). Indeed, this category may cover to a greater or lesser extent

professional groups and other skilled occupations, including many that would be considered established vocational occupations (i.e., building trades, emergency services, etc.). Furthermore, it also seems reasonable to suggest that those occupations that involve complex tasks over which practitioners have considerable discretion are likely to require more specialized knowledge in use than other occupations. Nevertheless, some occupations have limited direct use of such knowledge and a greater reliance on everyday forms of knowledge such as organizational routines, procedures, and locally developed ways of undertaking the work involved (Muller 2009; Fuller et al. 2007). In essence, in some occupations there is more clearly something “at stake” over which the practitioner has some control than in other occupations.

In this alternative normative definition of practice knowledge and learning processes become qualitatively different in different types of work. In other words, what it means to know and learn within a purposeful occupational practice where a practitioner has some discretion over their work activity is distinctly different from what it means to know and learn in “everyday” contexts. However, when we consider the learning processes for practitioners in actual workplace contexts, a further set of dimensions come into play. For example, the expansive or restrictive characteristics of learning environments (Fuller and Unwin 2004) have considerable bearing on the potential for specialized forms of knowledge to be encountered and expertise developed. Equally, the existence of affordances within workplaces that provide opportunities to encounter knowledge and recontextualize it for specific contexts is shaped by power dynamics in organizations and workplaces (Billett 2006; Hordern 2014). Specialized forms of knowledge may or may not be recognized and acknowledged through pedagogical processes in workplaces – with more experienced practitioners drawing novice practitioners’ attention to opportunities for the development of expertise. In some workplace environments, such opportunities to learn specialized knowledge may be (i) unavailable because of local workplace or organizational factors and/or (ii) considered unnecessary because of the assumptions of managers, occupations, or local supervisors (Eraut and Hirsh 2007). Other workplace environments may go to considerable lengths to structure workplace curricula so that new practitioners have opportunities to learn requisite forms of specialized knowledge in a structured manner, ensuring that workplace experiences relate to the knowledge encountered and offering time away from work for practitioners to organize and make sense of the learning they have undertaken. Thus the workplace curriculum, and associated workplace pedagogy, may differ not only by the occupation but also by the workplace.

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## **Concluding Remarks: Implications for Workplace Learning**

So what are the implications of the above argument for how we think about workplace learning for vocational practice? Work can be seen to be strongly influenced by the extent to which the vocational practice makes use of forms of specialized knowledge, by the extent to which the differentiated nature of knowledge is acknowledged and recognized in that practice, and by the workplace curriculum and pedagogy that results. Without a recognition and acknowledgment of the

differentiated nature of knowledge, novice practitioners can be misled about the value of ideas, techniques, and practices introduced to them. The time-limited, ephemeral, or organizationally/occupationally specific nature of certain types of knowledge can be obscured without such recognition. Valuable forms of workplace learning can therefore thrive if we maintain a focus on the conditions in workplaces for valuing specialized forms of knowledge – and this needs to stem and be reinforced at an occupational practice level (i.e., through the institutional conditions that shape the purpose and character of the occupation).

Workplace learning in vocational practices that rely on forms of specialized knowledge is thus as much about acquisition as participation (Sfard 1998), and it is important to maintain a balance between the two. The notion that socialization and “induction” into a practice is a learning activity is important (as Gherardi and Perotta (2014) emphasize), but this should not neglect the importance of encounters with specialized knowledge and the acquisition of individual expertise. This learning inevitably takes place through participation, but participation needs to be understood as involving not just activities within workplaces and organizations but participation in the occupational sense – drawing on resources and expertise that are offered by the occupation and by experienced practitioners. This in turn suggests an important role for bodies and associations that represent practitioners and the standards of excellence considered important by the occupations in providing resources and support for practitioners in development and for connections between these bodies and educational institutions and academic communities involved in producing specialized knowledge and recontextualizing it for occupational education (Hordern 2017).

For full participation in an occupation, it is not however enough just to “learn effectively” in a given organizational or occupational context, in the sense of simply acquiring knowledge and becoming socialized into workplace practice. Participation in occupational practice also requires some sense of commitment to the quality of the practice, to its “internal goods” (MacIntyre 2007), to “supervening purpose” (Muller 2009), and to whatever is “at stake” (Rouse 2007). A degree of commitment to whatever is driving the practice suggests that learning is about voluntarily making a commitment to improve practice in the light of new claims to knowledge that will improve service to clients, customers, or the general public. It also entails a form of participation in the politics of the practice, to engage in internal debates and to feel a sense of responsibility for the vocation and for the quality of work undertaken. When such commitment is generated and sustained, opportunities to learn are not only made available but fully explored, to the benefit of individual practitioners, the occupation, and wider society.

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# Generalizing from Qualitative Research: A Reconceptualization Based on Vocational Learning Examples

# 59

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**Abstract**

The field of research on “generalizing from qualitative research” (for convenience now referred to as GQR) is quite recent. It stems from an era which could be characterized as the “discourse of self-justification” when disclaimers about not generalizing from qualitative research were considered mandatory. Within this discourse of self-justification, there was always – small at first – some acceptance that generalization is possible and occurs. So from within the self-justification, there was also a strand that said “But maybe, just maybe we do? Or we can?”. Our point here is to review the recent field of research and then step back and look at “generalization” in general in its historical sense and follow how generalization, in any form, was always used – in fact it was/is mandatory for survival and became essential as a process in the statistical and scientific communities. To illustrate the processes of generalization in a contemporary applied vocational learning context, we provide two case studies – one from Australia and the other from Indonesia. To conclude, we will revisit GQR in the light of this vocational learning context in order to conceptualize GQR processes without the constraints of definitions based on narrowly proscribed paradigms which limit truth and reality to what can be measured or counted.

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**Keywords**

Generalization, Qualitative research, Vocational learning, Normative truth, Evidence, Theory

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**Introduction: Why Bother?**

In 2007 we (the authors of this chapter) wrote a conference paper in which we justified qualitative generalization based on a series of case study examples from our work (Falk and Guenther 2007). That paper remains the first author’s most frequently downloaded and cited article. As we considered why this might be, 10 years on, we looked in the literature for anything new that might add to our work. We found very little (more on what we did find later) and so were tempted to conclude that indeed the debate was over and it was not worth pursuing this topic further. Moreover, literature such as Eisenhart (2009), Briesch et al. (2014), and Patton (2015) provided some different schemas for viewing the issue of generalizing from qualitative research, lending an air of respectability.

In the field of vocational training and adult learning more generally, the demands for “best practice” or “evidence-based practice” sometimes appear to imply that education and training can be delivered somewhat like a medical intervention. If only we can get the curriculum “right,” or the andragogy, or the assessment, then we will be able to improve outcomes. Yet attempts to show “what works” and generalize from one context to another are often confounded by either a lack of evidence or apparently poor methods. In their justification of the latter claim, some would point to a reliance on qualitative methods. However, the proponents of big data have not as



yet been able to explain how analysis of empirical data can improve educational outcomes in diverse contexts, such as remote Aboriginal and Torres Strait Islander communities of Australia. These issues are not confined to education and training, but for the purposes of this chapter, this is the context from which we will draw our examples, later on.

On closer inspection, most if not all of the later publications referred to earlier were based on an assumption of a “growth” or refinement of the ideas around generalization from qualitative research (GQR) as something that had emerged from the relatively recent establishment of qualitative research as a “valid” field of inquiry: this establishment itself embedded in it what we might call a “discourse of self-justification.” All qualitative methodological theses and research studies from around the 1980s onward included sections specifically referring to the incapacity to generalize from qualitative research compared with the predecessors of “valid” research typified in “hard sciences.” Lincoln and Guba’s (1985) statement that “The only generalization is: there is no generalization” is a clear example of a direct reaction to this discourse of self-justification in the historical context of the normalized expectations of qualitative research.

Before progressing, we offer a simple definition of generalizability. According to Vogt (2005), generalizability is “The extent to which you can come to conclusions about one thing (often, a \*population) based on information about another (often, a \*sample).” The simplicity of this definition disguises a contested understanding among research methodologies, which tend to split along binarized qualitative/quantitative lines. For example, Miller and Brewer (2003) define quantitative generalization as “a process of first establishing the empirical reliability of facts and then using these facts to assess the validity of theory” (p. 127) and then under the heading of qualitative generalization suggest: “Generalisation in qualitative research can be viewed as reversing this balance” (p. 127). From here, it is possible to open up a Pandora’s box of caveats, conditions, and contexts which frame and delimit the definitions. Dahler-Larson (2018 Kindle Location 30351) argues that “Issues of causality and generalization are important, but their meaning is not legislated by the philosophy of science. Instead, their meanings flow out of debate, argument, institutionalized rules, and power.”

The last five decades have seen emerging commentaries, if not debates, about how qualitative researchers might indeed generalize from their findings. As already observed, there was an overall “discourse of self-justification” which required the mandatory disclaimer as to generalizability, as we have seen above. One strand of commentary within the research pertaining to the discourse of self-justification was a growing observation that generalization was happening whether it “should” or not. Robert Stake (1980) recognized early that generalization occurred and externalized the phenomenon by attributing generalization to the actions of end users or observers. It is they who do it, not us, the researchers, who always warn against it.

In the overarching discourse of self-justification, 10 years before Lincoln and Guba (1985), Cronbach (1975) concluded that social phenomena were too context-specific to permit generalizability. He suggested the priority of qualitative research was to “appraise a practice or proposition. . . in context.” Denzin (1983) also rejected

generalizability as a goal. Others emphasized the context-specificity of qualitative research (Wainwright 1997), which in their view limited generalization to other similar situations (Creswell 1998). Hammersley (1990) argued that ethnographers are generally “not very effective in establishing the typicality of what they report. And in the absence of such information we must often suspend judgement about the generalisability of their claims.”

So these discourses of self-justification, emerging from the need for consolidation and justification of qualitative research, were paralleled by a commentary about the uses or functionality of qualitative research. That is, end users, readers, commissioners of research, and researchers themselves did to varying degrees generalize from qualitative research, as Stake noted. In other words, regardless of the debates, qualitative research has often been used either by researchers themselves or by end users to make generalized conclusions.

There followed a set of literature which recognized the commentary on generalizability as a phenomenon, analyzing and synthesizing it. Patton (2015), for example, summarizes 12 approaches to qualitative generalization depending on different inquiry perspectives. Eisenhart (2009) makes similar claims, identifying five main types of qualitative generalization: theoretical, probabilistic, nomological, grounded, and syntheses/meta-analysis. Lewis et al. (2013) argue for just three approaches: representational, inferential, and theoretical generalization. The first refers to inferences that can be made from the child to parent population samples, the second from the sample to another population, and the third where inferences can be taken from data toward theoretical propositions. On a more practical level, Larsson (2009) identifies five ways that qualitative research can be employed for generalization. The first two are used to make generalization redundant: (1) the ideographic study, where the intent is to focus on individual difference rather than common truths, and (2) studies that undermine established universal “truths,” where the focus is on creating doubt about pre-determined truth. The next three can be useful when generalization is called for: (3) enhancing generalization potential by maximizing variation, where sampling is used to deliberately increase the probability of variance, (4) generalization through context similarity such that the weight of evidence allows generalized judgments to be made, and (5) generalization through recognition of patterns.

With all these well-justified approaches, does that mean that the debates are all but over? Well, maybe. But before closing that door, we decided to implement a little evidenced-based revisionism and see what would happen to current thinking if we set the more recent work on GQR in a longer and broader historical and disciplinary context, though we have tried to be selective about this length and breadth for manageability reasons.

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## Stepping Back

In the published history of philosophy and science, debates about generalizability are not new. However, academic debates around the topic differ from practical manifestations of generalizability. Some ageless examples are self-evident (and rather

trite). For example, if a child finds they get burnt on a hot object, they will soon generalize their instance/s of experience to a workable theory about touching a hot object and learn to avoid doing so in the future from quite a limited number of instances. Trauma theory as a discipline is based on the assumption of the strong and long-lasting generalizability of a small number of impacting events. Here the individual's capacity to generalize from even a single instance to all future activity is important to survival. To attempt and phrase such generalizability in quantitative terms ends up being silly: "This experiment will require N people to apply their hands to a red hot surface to determine what the probability is that they will burn their hands if they repeat the act in the future."

So the practice of generalizing is one important consideration. Theory is inextricably linked to practice in the sense that we quickly form a theory about future likelihood of the same outcomes from limited numbers. Theory further arises when we start meta-wondering via the established cognitive discourses of various disciplines about the process and conditions under which generalizability can be reasonably expected to occur when the instance is not so clear-cut as the hand and hot object example above. The disciplines of philosophy have a way of explaining generalizability, as do those of physics, statistics, geometry, and others. To emphasize the point made above, the act of generalizing has two components: the practice (hand on hot surface) and the theory derived from that practice (if I do that again, likely I'll get hurt again and it's not worth the risk). We will return to the role of theory and observation later.

As seen above, the making sense of particular instances of information by bundling them into more general ideas about their reliable application to potential but as-yet-unexperienced events is as old as humankind. The earliest of written records such as those of the Greek philosophers "...stressed the role of general concepts in knowledge" (Woleński 2004). And this leads us onto the next section, which overviews the writings about generalization before the emergence of the push for recognition of "modern" qualitative research following Taylor et al. (2016):

... early qualitative researchers, some of whom conducted their research in an era when their preferred approach was in disfavor. ... We also have learned from the epistemological and theoretical challenges to traditional (p. xi) ethnography and qualitative methodology raised by researchers since the 1970s. (xii)

So "modern" is from the 1970s roughly, while the publication of Denzin and Lincoln's (1994) *Handbook of Qualitative Research* marks a point in this modern history of qualitative research when this establishment occurred – in Taylor's terms, when the era of "disfavored" research methodology had largely passed.

But the elephant in the room remains: How is it that GQR emerged as an issue from this "modern" era of establishing qualitative research, and largely avoided pinning the issue into the earlier historical views of generalization that were extant at the time the "hard sciences" were consolidating and changing their methodologies around generalization? What are the implications of this historical sequence? And so to the next section.

## Broad Historical Context

Here we draw on the work of six key figures from history to point to the historical development of generalizing processes. We step back more than two millennia to the work of Aristotle and move forward in time to the work of Carnap in the last century.

### Aristotle

To understand the debates about generalizability from qualitative research requires an understanding of the history of the philosophy of science. For this purpose we could go back in time to Aristotle (384–322 BCE), who built his work on a “two-dimensional framework” (Psillos 2012) of observable phenomena and a priori knowledge or principles, which should be mutually supportive. These two dimensions allow for deductive logic and inductive reasoning, as part of scientific knowledge:

According to Aristotle, it behooves us to begin philosophizing by laying out the phenomena, the appearances, or, more fully, the things appearing to be the case, and then also collecting the endoxa, the credible opinions handed down regarding matters we find puzzling. (Shields 2016)

### Bacon

Nearly two millennia later, Bacon (1561–1626) disputed Aristotle’s method, arguing for the development of first principles from observation. Bacon, “in his view of science, found almost no place for mathematics” and claimed “that an essential part of interpreting nature by the new method of induction consists in devising a crucial experiment that judges between two competing hypotheses for the causes of an effect” (Psillos 2006).

### Newton

Newton (1642–1727), a scientist of his time who is perhaps most famous for his articulation of the laws of gravity, created four rules of reasoning. These rules developed in the early 1700s applied to drawing conclusions in “natural philosophy”:

Rule I: ‘We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances’.

Rule II: ‘Therefore to the same natural effects we must, as far as possible, assign the same causes’.

Rule III: ‘The qualities of bodies, which admit neither intensification nor remission of degrees, and which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of bodies whatsoever’.

Rule IV: ‘In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurately or very nearly true, notwithstanding any

contrary hypotheses that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions' (Gower 1997)

The first two rules relate to deductive logic applied to assigning causes. In effect, he is saying we cannot assign a cause if there is no observable effect and vice versa. The third, which was constrained by objects with universal qualities, is a kind of inductive logic, but with very limited scope. You can induce to the universal if you know that all objects you are measuring have the same properties. Gravity is a good example of this. The fourth is more open, and argues for induction from the phenomenon to the hypothesis, as long as nothing observed contradicts the hypothesis. The latter rules caused some division among natural philosophers who felt that deductive logic alone could be used to make generalizations.

## Linnaeus

The work of Linnaeus (1707–1788) provides another example of observation being used to create a normative botanical classification system. Prior to Linnaeus the botanical classification system as we know it today did not exist. What he attempted to do was to create order from observations in diversity. Of significance to our discussion is that he used empirical qualitative evidence to generalize: Müller-Wille and Charmantier (2012) comment “That knowledge about the local use of a particular kind of plant or animal can be generalized to even its nearest ‘relatives,’ whether growing nearby or in distant countries, is not a simple matter of empirical fact” (p. 6). They go on to conclude: “Not all of the generalisations that Linnaeus put forward... would be verified—in fact, almost all his attempts to identify domestic substitutes or acclimatize exotics were doomed to fail” (p. 14). Importantly, Linnaeus’ ability to generalize was not dependent on having all the data required to draw a universal conclusion. However, what we could say is that as the number of his observations increased, the likelihood that his generalizations would hold true in other contexts would also increase.

## Darwin

Darwin (1809–1882) in 1833 embarked, as a natural scientist, in the *Beagle* for an expedition of 5 years, which went around the world and spent a long time in the coasts and islands of Oceania and South America. He recorded his observations and reflection in his research journals. After that trip he spent almost 20 years working on his theory of the evolution of the species, which he diffused in the book *On the Origin of the Species by Means of Natural Selection* (1859). The question about whether Darwin used deductive logic to generalize and so develop a theory of evolution or whether it was more inductive has been a point of contestation for some time (see, e.g., Caplan 1979). The reality is probably not an either (deductive) or (inductive) answer, but a creative combination of both that allows for generalization from inductive and deductive processes.

## Carnap

Skipping 200 years on from Newton and 100 on from Darwin, natural philosopher Rudolf Carnap (May 18, 1891–September 14, 1970) proposed that, consistent with Newton’s Rule IV, the greater the number of confirmations for the premises of an argument, the greater the probability generalization could be applied inductively. Carnap believed that, “just as logical implication is the key concept for deductive logic, so degree of confirmation is the key concept for inductive logic” (Gower 1997). Similarly probability associated with variability underpins the assumptions of generalizability theory which is used to assess the dependability of measurements associated with quantitative empirical studies (Briesch et al. 2014). The evolution of what was called the “scientific method” depends on the need to consider inductive processes carefully:

By ‘induction’ we are to understand a process which leads from particular facts to a general conclusion. The simplest kind of induction requires the particular facts to be positive instances of the general conclusion. (e.g., Gower, 1997 p. 52)

The point is that even the best quantitative studies suffer from limitations and that in both qualitative and quantitative studies, there is no such thing as certainty in generalizability. Comparing generalization from qualitative and quantitative research, Polit and Beck (2010) argue that the ideal of statistical generalization in science is nothing more than a “myth” (p. 1452) as is the notion of “random sampling” (p. 2453). Bringing these various historical and academic arguments together, we could feel some confidence in generalizing from qualitative research, with similar caveats which might be applied to quantitative research methods.

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## Why GQR Is Possible

The argument for the approaches and processes or mechanisms of qualitative generalization are now well established. However, understanding why generalizability is possible is seldom unpacked beyond a mechanistic logic which in part is internally driven. For example, within a constructivist paradigm terms like “credibility, transferability, dependability, and confirmability replace the usual positivist criteria of internal and external validity, reliability, and objectivity” (Denzin and Lincoln 2018, Location 995). What we can conclude from this redefinition of terms is that generalizability in positivist or post-positivist paradigms (associated with quantitative methods) is not the same thing as generalizability in constructivist or interpretivist paradigms (associated with qualitative methods). Further, the difference in terminology should not imply that one form of generalization is better than another. Again, are we off the hook as it were? Is there further need to explore the topic?

A small clue as to why there might be a need to unpack the concept of generalizability emerges in Patton’s follow-up to principles of generalization mentioned above. He introduces the topic of “truth” (Patton 2015) deferring to Thomas

Schwandt's entry in the Dictionary of Qualitative Inquiry (Schwandt 2007) where ten definitions are briefly explained. Truth is of course the concern of philosophy, under the banner of epistemology. Truth theories cut across the methodological paradigms and help explain why and on what basis normative statements or generalizations can be made.

Knowledge (for our purposes of generalization), according to Lehrer (1990), has three conditions: it must be true; it must be accepted (or believed); and it must be completely justified. Research is defined internationally in terms of knowledge creation:

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of humankind, culture and society—and to devise new applications of available knowledge. (OECD 2015)

In the context of research, evidence enables justification, and consistent with the definition offered by Denzin and Lincoln above, the credibility of research makes it believable. But a question remains about what truth is. The answer to this helps us understand why and how we can apply qualitative or quantitative research to the task of normative generalization.

Truth theories fall into five main categories: (1) truth as correspondence, (2) truth as coherence, (3) truth as what works, (4) truth as consensus, and (5) truth as warranted beliefs (Bridges 2017). There are variations of these five categorizations (see, e.g., David 2004). However in simple terms, these theories suggest one of the following five positions:

1. A proposition is true only if it corresponds with an actual state of affairs or condition (Bridges 2017).
2. Propositional statements are true if they represent a coherent, consistent, and comprehensive set of propositions (Bridges 2017).
3. A proposition is true if and only if it works, allowing you to pursue your project/interest/purposes in practice (Bridges 2017).
4. A proposition is true if there is agreement universally or among relevant populations (Bridges 2017).
5. Propositions are true if they satisfy the relevant tests of truth for propositions of their kind; they are rationally warranted, reasonable, or defensible (Bridges 2017).

In the next chapter, Bridges goes on to draw connections between educational research paradigms and the theoretical positions listed above. For example, he links the pragmatist paradigm with “what works” theories of truth. While he does not make assertions about other truth theories, it is not too hard to see a link between correspondence and positivism/post positivism, coherence and constructivist paradigms, or consensus and participatory paradigms. Beyond the epistemological position of these theories, if we take account of ontologies and axiologies, the “paradigmatic controversies” (Lincoln et al. 2011) are little more than alignments

to truth theories. Hence we could then generalize from qualitative research, not on the basis of methodology but on the basis of epistemological, ontological, and axiological foundations of truth.

## **Merging of Qualitative and Quantitative Research**

It has always intrigued us that “hard science” contains a large amount of qualitative research. While scientists devise a hypothesis, then they often engage in something they call “proof of concept” which is a minor qualitative study conducted to establish the need or veracity of the hypothesis they dreamed up to start with. In other words, somehow or other qualitative methods are used to validate a quantitative concept but are not, in the cases we have been a party to, been given legitimacy as “qualitative research”: they have been justified only in terms of proving a quantitative/scientific concept/hypothesis. So that makes it acceptable. What would be more honest is if they actually said “we will do a qualitative study first to establish if our scientific one is really valid at the outset.” A hypothesis, after all, is simply a statement of a tentative conjecture about the likelihood of something being true or not, once tested. Such “proof of concept” of a hypothesis or research question is needed because in itself it provides more substantive “proof” that the hypothesis is worth exploring. Qualitative and quantitative research merges whatever the research is called. However, the goal of all research is to find something more of the truth of something. But what is ‘truth’, and how do we know when we ‘find’ it?

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## **Illustrative Cases from Past Experience**

The following two case study illustrations based on our research in vocational education and adult learning provide a basis for reflection on the points raised above. They also provide a contextual springboard from which we can conceptually consider generalization from qualitative research.

## **Generalizing Across Contexts and Cultures: Training and Learning as the Interactive Reproduction of the Social Order**

In the discussion of generalization in this case study, we draw on Falk and Surata’s (2011) analysis of the vocational learning system in Indonesia, focusing on the province of Bali in particular. The interactive underpinnings and implications of different knowledge systems are made clear in the example of Balinese village life presented by Falk and Surata. Western notions of “industry” in terms of agriculture, tourism, and crafts are all subservient to and are consequences of the central role that the Balinese form of Hinduism plays in the cultural, vocational, and social life of the village. The social organization of the terraced rice paddies that derives from the religious culture then provides the community context for vocational knowledge.



Other examples include a builder whose skills have been acquired from an intense “apprenticeship” which involved no formal Technical and Vocational Education and Training (TVET) system training, but rather the interactive transmission of traditional knowledge mediated by religious ceremony. However, to this the builder adds new methods acquired from informal and largely Western sources.

Several strands of theory and research are drawn on and discussed in relation to the Balinese case studies of vocational learning in action. The case studies are of vocational learning as it occurs in the villages, local governments, and families. The TVET “system” is then compared with the ways most vocational learning is actually found to occur. Issues about generalizability arise regarding the underpinning theoretical issues about interactivity, as well as how these interactions are applied in different contexts. This in turn shapes the way findings and conclusions are made about vocational training and learning.

Social interactions underpin the nature of generalization discussed in this case. Lansing (2006) explains the role of interactive networks and the capacity of interactive networks to adjust flexibly and solve problems. Depending on the purpose and context, these networks could be vocational learning systems. Lansing’s research focuses on the Balinese rice irrigation system which relies on collective learning at the local level for successful farming outcomes. Lansing’s research is itself based on extensive longitudinal multidisciplinary research involving network theory, computer modeling, archaeological evidence, and mathematics. Lansing makes the generalization, supported by his and Falk and Surata’s research, that “...countless local interactions eventually produce a global optimum, with no need for centralized planning” (p. 195). The implications of the latter generalization have radical implications not only for any TVET “system” but for learning theory across cultures. The generalization suggests a strategy where policy and the local level vocational learning should work together for the mutual and sustainable benefits of each. In short, if local networks can not only “learn” and self-adapt to changing environmental conditions to produce the maximally beneficial outcome in terms of productivity and efficiency, it is crucial to ask the question as to what is the role of policy in building an effective TVET system?

One response to this question is that formal TVET policy systems should set up ways of interacting with the “informal” local learning networks (the local TVET systems) to see what each sector can learn from the other. The success over time of the informal systems as demonstrated in the research reported here therefore warrants scrutiny in order to see what can be done to assist learners in each sector, formal and informal, and find value and outcomes in the other.

In terms of generalizability, this is evident at several levels. First is the generalization about learning systems: “. . .countless local interactions eventually produce a global optimum. . .,” as Lansing puts it. The generalization is based on data which is “across cultures” in the sense that it is “not Western.” It is a generalization, however, which could apply in any culture. Moreover, it is not necessarily a generalization specifically about vocational learning, but it is applicable to vocational learning. The interactions referred to are not random. Rather they are purposeful in that they revolve around solving a specific problem or achieving a goal. In these

circumstances, the purposeful interactions form learning networks which in the cases discussed here produce relevant vocational learning outcomes at the local level.

The second issue for generalization emerging from this discussion regards its application to its intersection with formal policy, through the formal TVET system. In other words, what are the implications of the generalization about local learning systems for a formal social structure? After all, policy's main concern is with finding a single policy or strategy for problems that are generalizable to the largest number of people. If this is the case, then our discussion about local learning systems suggests that a single policy thought to be generalizable is likely to depend for its success on local processes and solutions: the interaction of these two vastly different systems provides practical food for thought in terms of the effectiveness of vocational learning (or indeed policy effectiveness in any field) in any society.

“Learning networks” – any group of purposeful interactivity – can achieve an ecological balance that at once achieves effective and productive outcomes while maintaining flexibility in problem solving. A generalization such as “learning networks” is a subset of “interactions” but with a particular purpose.

Earlier in this chapter, we quoted Bridges' (2017) elaboration of truth propositions/statements, which we revisit here:

A proposition is true only if it corresponds with an actual state of affairs or condition (Bridges 2017); Propositional statements are true if they represent a coherent, consistent and comprehensive set of propositions (Bridges 2017); A proposition is true if and only if it works allowing you to pursue your project/interest/purposes in practice (Bridges 2017); A proposition is true if there is agreement universally or among relevant populations (Bridges 2017); and propositions are true if they satisfy the relevant tests of truth for propositions of their kind; they are rationally warranted, reasonable or defensible. (Bridges 2017)

When the case of “local interactions” in Bali is considered, it is of interest that the local interactions which are the focus of the research apply in all five elaborations of Bridge's truth statements. Partly, this is because “interactions” are the fundamental means of building and maintaining human social structures of any kind in any place (e.g., Coleman 1988). However, local interactions here are examined in particular contexts all related to vocational learning. For example, one context is of the interactions involved in managing rice irrigation systems and another the interactions related to learning building skills. So the generalization in these cases not only involves the generalization of patterns of interactions but applies the concept of interactions to different contexts, which extends the scope of generalization beyond that of the original well-established notion of maintaining and building the social order. Moreover, patterns of interactions in specific contexts for specific purposes are then referred to as “training,” “vocational learning,” or “learning networks.”

In summary, in these Balinese cases, a large proportion of the interactions are built into the religious rituals and ceremonies. It is through these rituals and ceremonies that agricultural and other vocational learning practices are maintained and built through the interactive reproduction of the social order. Put more simply, in this case of “vocational learning,” generalization is seen to occur through instances of the interactive reproduction of the social order.

## A Case of Multiple Sites in Diverse Australian Contexts

In 2015, Australia's National Centre for Vocational Education Research commissioned a study to examine how remote training programs could be more successful. The rationale for the research was essentially the low completion rates of remote Aboriginal and Torres Strait Islander learners – about 10% of course starters complete their training in very remote parts of the country. The study used a five-site case study qualitative design and deliberately examined different training programs. A total of 69 people were interviewed, including employers, trainers, trainees, and nongovernment organizations. These programs were an aged care course, a health worker course, a ranger training program, an adult literacy campaign, and a mental health worker training course. These programs were about as diverse as we could find, but they were all considered successful by the training providers which delivered them (see Guenther et al. 2017 for full analysis and discussion).

One of the features of remote Aboriginal and Torres Strait Island communities is not so much their geographical isolation from large urban centers – remoteness is after all a construct of the urban metropolitan hegemony used to define and delimit them – rather, it is their connection with ancient cultural traditions and cosmologies. It is in these spaces that the generalizations usually applied to vocational learning in the urbanized metropolis fail spectacularly. For a start, the “truth” of human capital theory which argues that people invest in education and training for the purpose of gaining an economic benefit (Becker 2002) does not apply (evidenced by low completion rates). A second generalization often applied to vocational and adult learning is that it logically is a causal pathway into work. Data gathered for the justification of the project showed in these Aboriginal and Torres Strait Islander communities that it was often nonlocal people with relatively low qualification levels that filled labor market gaps (see McRae-Williams and Guenther 2014; Guenther and McRae-Williams 2014).

It turned out that only two of the five programs could demonstrate success with their course completion data. However, all programs shared common characteristics which pointed to different conceptions of success beyond completion. These included outcomes related to foundation skill development, improved personal confidence, and strengthened identity. Underpinning the revised definition of success was a common core of connection to locally accepted values (axiologies), ways of being (ontologies), knowledges (epistemologies), and understandings of belonging to their land or “country” (cosmologies).

While on the one hand the research dispelled previously accepted generalized truths (an important generalizing function of case study research as noted earlier), it went some way to confirming previous research which put forward theories of knowledge reproduction and application based on Aboriginal and Torres Strait Islander cosmologies, epistemologies, axiologies, and ontologies (McRae-Williams and Guenther 2012). As such it provides new empirical qualitative evidence, increasing the probability that the findings are indeed generalizable to a number of similar (in these cases, “remote” Aboriginal and Torres Strait Islander communities)

learning contexts. Methodologically the use of five similarly “remote” case study sites but with five diverse learning contexts is important for confirming the tenets of emerging theory. While we would not dare suggest that five cases are enough to be 100% certain of generalizable truths about the uptake and success of training, we are 100% sure that the old paradigms which purported generalizable truth are indeed false.

### So What Can We Conclude from These Case Studies?

Our case examples are consistent with a view of generalization, not as an end in itself, but as a process – one that requires constant revision, testing, and clarification – which leads to normative truth statements. As Cronbach (1975) states: “Generalizations decay.” That is, over time, or in a different context, those truths that once held true may no longer hold true. With the Australian remote training case, we would venture to suggest that in 20 years time, only some of the themes that were common to all sites would remain so in a similar study. The generalization process, which we have diagrammatized in Fig. 1, is therefore iterative, allowing for both contestation and confirmation. The qualitative data collected as “empirical evidence” may support the development of new theory or additions to existing theories. Similarly, as theories emerge, they can be tested with new data. With each

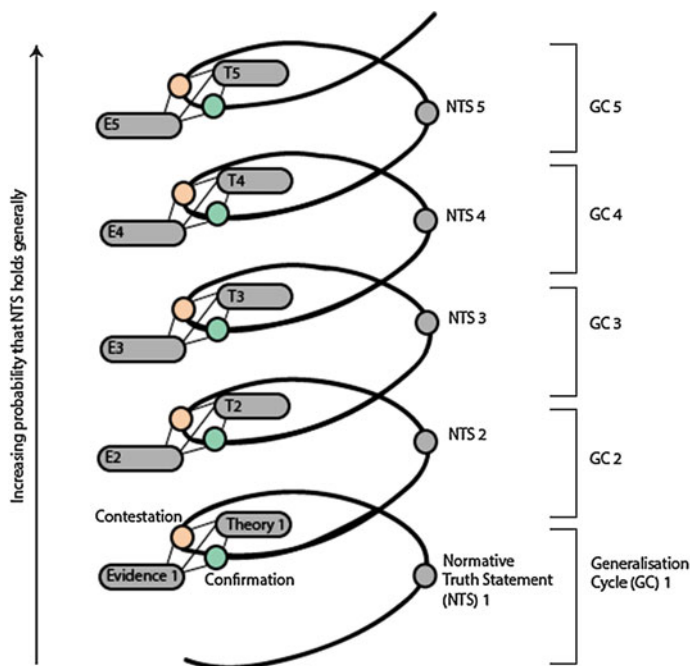


Fig. 1 The cycle of generalization from qualitative research

confirmation in the generalization process, the probability that the knowledge gained, can be applied more generally, should increase. Where contestation occurs (as happened with the remote training case), new processes of generalization occur, which in turn lead to normative truth statements – at least for a time.

For the researcher, the starting point for research may not be at the bottom of the spiral. It is quite possible that new research builds on existing normative truth statements, existing theories, and existing evidence. The Bali case of social interactions is a good example of this. The research described was ostensibly about vocational learning. However, as noted, the learning was embedded in a system of social interactions, rituals, and ceremonies that carry their own normative truth statements. The new knowledge that emerges from the vocational learning research does not displace these truth statements. Rather it adds a new cycle of generalization that further increases the probability that the truth will hold more generally to other cultural contexts.

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## Conclusions

The foregoing discussion has several implications for generalizability in qualitative research, and we forward these knowing that the field of VET research has been proactive in fostering qualitative research and using its outcomes. Having established that a) the definitions of generalization, based on quantitative research paradigms, are inadequate and b) that generalization is a process in research not a product of research and c) that generalization is an iterative process, not a once and for all outcome, we can be confident that qualitative research can play a significant role in the production of epistemological truth. Our analysis of the history of generalization from research shows that it has in the past, despite the more recent arguments of self-justification which dominated the latter part of the last century.

Our first conclusion that emerges from the historical and contemporary examples we have drawn in is that generalization from qualitative research is possible. We no longer need to self-justify generalization on the basis that “we can because we do.” Throughout history we see evidence of the process – a cycle of generalization – of creating new knowledge iteratively, where truth statements are contested and confirmed drawing on evidence and theory. However, our understanding of generalization is not an excuse for poor methodology nor should we be looking for generalizable truth to emerge from every piece of qualitative research. Truths emerging about the particular are often just as useful as those that lead to the general. In the case of qualitative educational research though, design for generalizability will be crucial when normative claims or theories are required either to explain why educational policies, practices, and systems work the way they do (or not).

The historical aspect of our reconceptualization shows that the processes of generalization are common across qualitative and quantitative research. They both use theory and evidence to create normative statements of truth. They also both use refining processes to clarify, refine, or reject normative statements of truth.

Our reconceptualization of generalization also has implications for the use of qualitative research for informing policy, including in the vocational and adult

learning space. Our experience suggests that many policy advisors are reluctant to use qualitative research largely because of the self-deprecating limitations that qualitative researchers impose on their own work. What we can now say with confidence is that well-designed qualitative research can be just as useful for generalization as well-designed quantitative research. As we have shown with our case studies, the iterative nature of qualitative research lends itself well to theory development, and confirmation or rejection of normative truth statements – and the more this occurs, the greater the probability that those truth statements will hold generally, not just to the particular.

This leads us to another important conclusion about the design of qualitative research for generalization purposes. Researchers must first be able to position themselves within a frame of existing statements of normative truth. Then from a theoretical and data gathering perspective, they must ask research questions that will respond to the existing knowledge base in ways that will clarify, challenge, or confirm truth. In some cases, the new knowledge created may lead to a rejection of preexisting assumptions of truth (as was the case with the Australian example), and in others it may build upon and add to the existing truth statements (as was the case with the Balinese example). Regardless, having positioned themselves in this way, researchers will be able to confidently make new statements of normative truth, and with each iteration of the generalization cycle, they will be able to do so more confidently.

Finally, and perhaps more importantly for vocational training practitioners, the role that qualitative research plays in building normative truth about practice is fundamentally important. We would argue that no amount of “counting” will make a scrap of difference to the practices of teaching and learning in adult learning contexts. Practitioners will inevitably be keen to learn how to teach better. While quantitative evidence might show with some probability “what works” (see, e.g., Hattie 2009), it will struggle to show individual teachers how to make “what works” work for them. This is perhaps why there is so much good qualitative research that draws on theory to give practical and generalized guidance to teachers and learning organizations.

Having established generalizable principles or theories, qualitative researchers cannot rest on their laurels either. Contexts change, policy changes, technologies develop, public perceptions change, and culture changes. The emerging nature of normative truth claims can seem elusive for qualitative researchers in the field of adult learning. Researchers need to continually take account of the changing policy and adult learning practice environments in their research, thereby revising their truth claims and theories.

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**Part VI**

**Competence and Excellence**

***R. Kirby Barrick***



# Competence and Excellence in Vocational Education and Training

# 60

R. Kirby Barrick

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## Abstract

The notion of competence continues to be a major theme of vocational research. Notions of key competencies, in particular, continue to evolve in response to arguments about the new learning requirements of work and citizenship in the twenty-first century, including the rise of an interest in cross-cultural competencies. Yet there is still much controversy over the definition of the most important competencies and over their means of acquisition and assessment. There are questions, too, about how competence needs are identified and addressed in workplaces. Indeed, there are also powerful philosophical divisions among those who advocate competencies as a core aspect of learning systems. Debates about competence have thrown up a range of alternative and additional concepts. There are concerns that competence is best suited to describing a floor of minimally acceptable ability to perform, which is appropriate for assessing basic fitness to practice, particularly for those exiting initial vocational learning. However, where the emphasis is on innovation, artistry, or mastery, then it may be

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that some further notion of excellence is required. However, such concepts often include stronger elements of tacit knowledge and more of a sense of subjective quality, making their measurement and assessment more challenging. There is little need to further define and discuss the issue of competence and competence development. However, the interface of *competence* and *excellence* needs further exploration. This chapter explores relevant research that has addressed the concept of competence and excellence and posits ways in which both can be achieved in vocational education and training.

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**Keywords**

Competence and excellence · Vocational excellence · Global competence · Work readiness

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## Competence Versus Excellence

Several authors have reviewed and discussed research regarding the possible conundrum of competence versus excellence. Evers and van der Heijden (2017) presented views of the divergent meanings of expertise regarding competence development. Hager (2017) identified a supposed limitation of competence standards, indicating that standards may discourage excellence by means of prescribing minimum standards in assessing competence. He further summarized current thinking by indicating competence-based assessment can, indeed, address a full range of expertise, from excellence to failure.

Mulder and Winterton (2017) purported that competence goes well beyond a minimum of performance. Competence does not necessarily prescribe a minimum; instead, competence depends on how high the standard is set, adding to Hager's (2017) viewpoint that there are gradations of competence assessment. But excellence does not mean "brilliance"; competence does infer additional opportunity to develop to a higher level.

Work at the US Military Academy at West Point was intended to move instruction to higher levels of trainee accomplishment by implementing four basic principles (Smith 2010). Programs and instructors must have high expectations for high levels of success, indicating that students should be expected to achieve excellence beyond skill attainment. Such an endeavor, the report continues, includes expanded opportunities for students to learn, focusing on significant outcomes and designing curricula based on proposed outcomes. Smith concluded that the outcome-based training programs should serve as a model at the university level or in any institution that requires students to excel in more than academics.

Vocational education and training standards in Lithuania, as discussed by Tütlys and Aarna (2017), include two factors: minimal performance requirements as well as the lack of attention to future needs in skill development. Further, they posited that the standards were lacking excellence indicators for the highest quality of performance.

Bowden (1997) drew upon earlier work by Gonczi, Hager, and Oliver in describing levels of competence-based education. Although his work concentrated on the state of affairs in Australia, there is probably ample evidence that the dilemma is not unique to the commonwealth. Bowden asserted that addressing issues in competence-based education must proceed from two points: that the quality of student learning is central to any argument and that the competency movement and the nature of higher education have developed over time. He further indicated the unfortunate situation regarding the disconnect between vocational competence excellence and the need to prescribe work performance that a competence-based approach is appropriate for technical training but not university education and that competence development is regulated to a certain group of students.

Bowden purported that while there are differences among countries and across time spans, the basic principles have remained: a focus on outcomes, greater workplace relevance, observable outcomes, assessments of competence and excellence, and skills recognition. Specifically, the focus on observable outcomes (competence) demands setting of goals, monitoring progress, and achievement recognition. In reviewing the four-level hierarchy of competence development, Bowden described the important trends: increasing the complexity of outcomes (competence), broader curriculum requirements, more complex assessment requirements, an increasing ambiguity between objective and outcome assessments, and an increasing need for professional judgment in assessment.

Mulder (2017a) purported from a synthesis of competence theory and research that competence mastery is not limited by standards, but that competence can be mastered at various levels including excellence and brilliance. Competence is key to effective performance. An important aspect of determining the competence that individuals need is not just for the present but also to address future challenges globally. Barrick (2017), in a review of competence-based education in the United States, also described the relationship between competence assessment and skill mastery. Further research related to vocational excellence (Nokelainen et al. 2017) also identifies self-regulation as a central concept in competence development. Goal orientation, for example, is stronger among employees who exhibit excellence. And finally, Harteis (2017) summarized characteristics of excellence in three terms: comprehensive knowledge, routine, and intuition.

When considering how effective competence-based degree programs can be implemented, Klein-Collins (2012) emphasized the need for strong leadership, rethinking staff and courses, establishing alternative degree pathways, and developing a system of reliable assessments. She concluded that assessment is vital for achieving excellence in quality and value of competence-based programs and that guidelines to assure high quality and rigor are essential.

In a model discussed by Soares (2012, June), the author described the progression of assessment in a learning model that culminates beyond the acquisition of competence; learners must be able to successfully demonstrate performance through assessment and achieving excellence. The model includes four levels of conceptual learning, beginning with traits and characteristics of the learner that serve as the foundation of their learning; they dictate the learning experiences that ensure the

acquisition and development of skills, abilities, and knowledge. Through integrated learning experiences, competence is attained, leading to the ability to demonstrate competence and assessment of performance. While some form of assessment is included at each level, the determination of overall excellence is provided through a summative assessment approach. The question remains, then, how vocational competence development can and should lead toward excellence.

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## Competence-Based Vocational Education and Training

In a Canadian study, Bell and Mitchell (2000) investigated perceptions of students enrolled in a pre-apprenticeship program. In comparing student perceptions between those in a 36-week traditional cohort group and those in a 1-year competency-based group, the researchers reported differing experiences of the content. Students in the traditional group distinctly perceived a split between theory and practice, while the competency-based group did not. Further, students in the competency-based group were less adversely affected by described academic history and literacy difficulties. The researchers concluded that the competency-based approach to technical education provided advantages in terms of technical competence, learning, and theory/practice integration. As a sidelight, the researchers also discussed the competency-based approach advantages in social development and administrative issues such as scheduling, space allocation, and evaluating student progress.

Mulder presented a comprehensive summary of foundational research on competence-based vocational education and training. Mulder's work (2017b) stems from a thorough review of the comprehensive 2017 text, *Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education*, on competence-based vocational and professional education. The concept of competence-based education continues to spread, from industry to all levels of formal education. Mulder notes, however, that assessing student competence is getting more attention than supporting student learning. Certainly, assessment is needed, but the question arises whether and how competence-based frameworks for curricula lead to and promote authentic student learning. In some arenas, skills development and assessment have supplanted competence development, leading to teaching skills rather than developing competence.

In higher education, the issue of competence and excellence versus course and degree completion is gaining new attention. Oudshoorn-Fuller et al. (2016) synthesized a number of studies that addressed teaching approaches that should lead to increased student competence. They indicated that utilizing community-building activities, enhancing academic competence, and offering freedom to advanced students appear to be plausible while retaining structure and setting explicit learning objectives for the learners. The researchers also concluded that promoting the connection between the professional field and educators will result in curricular changes to further guide student development, improving the connection between education and practice, and allowing students to develop and enhance competence and behaviors that are essential in their chosen profession. In summary, excellence in

competence development hinges upon the expectations of the profession; educators by themselves may not advance excellence while encouraging competence development among their students.

Rein (2016) provided an overview of competence orientation and development in higher education. As with the Oudshoorn-Fuller et al. study, Rein focused on the juncture of theoretical, instrumental, and practical approaches on education competence and excellence. A main theme of the research centered on the potential interface of higher education and vocational education and training. He surmised that this interface would promote the connections between qualifications in competence excellence and transferring skills and learning outcomes in both academic and nonacademic settings. The driving force, as is apparent in most competence studies, is the increasing requirements of industry and the labor market, since few if any education programs are designed to nurture and develop academic and professional competence. A holistic approach is central to solving complex problems within and beyond academia. Excellence is more than excelling in academic pursuits. Current pedagogical and assessment approaches will need to address academic and professional excellence.

In a study of competence-based vocational education (CBVE) in Ethiopia, Solomon et al. (2016), the authors, concluded that CBVE is practiced in the training and vocational education system in that country but not performing well within that dimension. The system reportedly lacks a practice-oriented learning environment which is essential to competence development and therefore vocational excellence. The challenge is based on the lack of resources and an underdeveloped industrial base within the country. A strong correlation between education and training and graduate job performance was noted as well as a positive correlation between organizational and social conditions and performance. As these issues are addressed, excellence in job performance will emanate from excellence in competence-based programming.

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## Vocational Excellence

Klotz et al. (2014) conducted a study that was aimed at promoting workforce excellence, concentrating on vocational identity in vocational educational training. They posited that vocational training includes more than factual knowledge and procedures, indicating that vocational identity is a key outcome of vocational education that is integral in how students learn and perform. In their work, the researchers developed a theoretical model to show that practical training, workplace integration, and free career choice lead to workplace and vocational identity which, in turn, lead to workplace effort and vocational competence. Practical training is enhanced through training that is school based as well as industry based; integration involves students as apprentices in actual workplace operations; and a vocation implies a “calling” to the occupation where the student has a choice in careers. The study involved students in vocational and apprenticeship programs in Germany providing perceptions of identity and effort. Generally, the key factors in the

theoretical model were related, indicating that indeed the program characteristics, identity factors, and performance worked in harmony. They concluded that vocational identity is a crucial factor for the development of excellence in the workforce.

The Commission for Adult Vocational Training and Learning (2012) in the United Kingdom can best be summarized by the statement that excellence starts with the teacher. However, they also concluded that there is not a single recommended pathway that results in having world-leading vocational education and training for adults. The researchers identify several characteristics of a positive further education system for excellence in vocational education. Among those characteristics were the following: national policies for teacher qualification, a culture of professionalism with professional organizations supporting excellence, strategic leadership, employer engagement and employer opportunities for teachers to improve, up-to-date resources, teachers serving as positive role models and as experts in their fields, and ambitious learners who are attracted to excellence teachers. An overall premise of the report is that vocational teaching must be an attractive career choice, leading to highly qualified teachers who promote excellence.

Researchers have examined competence- and competence-based education in a variety of settings. While a common understanding may not exist, the basic tenets as described by Suvedi and Ghimire (2018) indicate that vocational educators agree there is a profound need for clearer understandings of those tenets. They argued that excellence is performing at the maximum expected level; excellence provides the highest satisfaction to the individual learner. The authors identified a series of attributes that may be associated generally with excellence in education and particularly in vocational education and training, including such areas as a high level of skill development (both technical and “soft” skills), problem-solving and decision-making, transfer of learning, and persistence and perseverance. Those attributes naturally lead to a series of identified benefits associated with excellence in competence-based vocational education. Such concepts as technical skill (the fundamental purpose of vocational education and training) and non-technical skill development are coupled with more personal attributes such as communication, creativity, confidence, and time management and serve as benchmarks in determining the level of excellence attributed to competence development. Finally, they identify the role of educational institutions in ensuring that vocational education and training programs strive to achieve excellence in and for their students.

Given, then, that a set of attributes of vocational excellence can be defined and described, Relly and Keep (2018) examine approaches to achieving and recognizing vocational excellence. They draw heavily upon the WorldSkills Competition movement to illustrate how competitive events can be utilized in a variety of subject areas to encourage competence development and excellence and to reward participants and programs for their achievements. Several examples are presented, primarily in the United Kingdom. However, the premise is developed that the concepts involved in such competitions are applicable throughout the European area and probably worldwide.

Smeaton et al. (2002) also examined how UK Skills (a national subset of WorldSkills) promotes world-class standards in vocational skill development. They posited that UK Skills goes beyond competence development; the interest of the program is to encourage the pursuit of excellence. That is accomplished in several ways but primarily through competitions. To achieve that overall goal, a curriculum is required that promotes the mastery of skills as well as excellence in vocational learning. Five key attributes were identified: motivation and competitiveness among participants, the ability to organize work, an awareness of high standards, resilience and the ability to work under pressure, and social, communication, and teamwork skills.

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## Vocational Competence and Excellence

More than 9.2 million of the 14.9 million secondary school students in the United States are enrolled in some level of career and technical education (CTE) courses (Israel et al. 2012). In a study designed to assess science achievement, the researchers examined science achievement scores of CTE students in science, technology, engineering, and math (STEM) programs as well as students in health CTE and students not enrolled in any CTE or STEM program. The researchers found some differences (slightly higher of slightly lower scores) among STEM (including agriculture and natural resources) students but generally higher science scores for all groups compared to the non-STEM/CTE students. Further, science scores tended to increase as students were enrolled in additional STEM or CTE courses. The conclusion, then, was that enrolling in STEM/CTE courses does not have a negative effect on science achievement. If a concern arises regarding the importance of excellence, it could be purported that enrolling in STEM/CTE courses enhances science excellence.

The Carl D. Perkins Career and Technical Education Act of 2006 in the United States provided for the appointment of an independent panel to advise the US Department of Education on the implementation of the National Assessment of Career and technical Education (NACTE) (Independent Advisory Panel 2014). The NACTE offered three major challenges to address and enact need improvements in career and college readiness in US schools. The third challenge was to “gather robust, actionable information about the implementation and outcomes of career and technical education.” Importantly, the report called for clearer definitions of outcomes and set standards for the validity and reliability of outcome measures. Monitoring the implementation of college and career readiness programs was inherent in that effort. Seemingly, this was an initial step in defining excellence in college and career readiness federally funded programs in the United States and effort that apparently was lacking in previous legislation.

Utilizing vocational (career and technical) education student organizations to help guide the teaching and assessment of student skill development is particular to the United States. While many countries, especially in Europe and East Asia, promote and support skills competitions for school students, none are connected to a broader



organization that is designed to develop students in ways beyond skill attainment. Zirkle and Jeffery (2018) trace the history of the development of vocational student organizations and provide various examples of how those organizations are intended to develop the “whole person” instead of simply training and skill development in a specific sector of the workforce. The authors encourage the profession to delve into additional inquiry aimed at determining the extent to which student participation and student success may be related.

Three approaches to competence proficiency scaling are identified and described by Tütlys et al. (2018): methodological approaches, contextual factors, and implications for vocational and professional education. Proficiency scaling is basic to competence assessment. Scaling must involve levels of competence that can be exhibited as well as specific criteria to determine where performance falls along the established scale. Behavioral, functional, and multidimensional approaches to assessing competence are explored. Further, the context within which the competence is developed is identified as a key consideration in determining appropriate scaling methods. Various examples are provided to show how the concepts can be applied to vocational education settings.

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## Achieving Excellence

Establishing competence standards in vocational education and training appears to be a precursor to achieving excellence. Various methods and techniques are used worldwide to help students achieve vocational competence. An important factor related to skills development and competence is career readiness or enabling successful school-to-work transitions. Various researchers have investigated the role that skills competitions may play in skill development as well as career readiness, hopefully enhancing relevant work-life skills. Positive effects for students as well as instructors and trainers exist in certain arenas, such as WorldSkills. There appears to be a need to ascertain the extent to which vocational skills competitions, and the success of participants, enhance the image of vocational education and training.

As Nokelainen et al. (2018) and Tyson (2018) indicate, there is general agreement that excellence is worth striving for in vocational education and training. Given that stance, the next question involves the processes that are and/or could be utilized in education for excellence. Two paradigms emerge: the WorldSkills approach (discussed in other chapters) that emphasizes the attainment of a specific set of skills and the neo-Aristotelian approach with additional emphasis on virtues and dispositions relevant to the vocation. Tyson further concluded that the narrative approach is fairly well adopted in educational practice, but additional inquiry and writing is warranted on the reflective aspects of competence development and excellence. At best, additional research should address both approaches as well as the interface of the two approaches, as proposed in this chapter, ultimately leading toward greater self-awareness and understandings.

There are skills, and then there are skills needs. The discrepancy between the two (assuming the needs outpace the acquired skills) creates a skills mismatch (Na 2018). Literature through the years has used terms like employability and employability skills to discuss the need for and, at times, lack of essential work competence among potential and current employees. In essence, skills mismatches are a supply-and-demand phenomenon; business and industry create the demand for vocational and technical skill excellence, and the vocational education and training sector attempts to provide the supply to meet that demand. The discrepancy or mismatch of vocational skill development and competence creates a line of inquiry that is essential for achieving vocational education and training success. Na concluded that there remains ample opportunity for additional contributions to the debate surrounding the concept of skills development, its dynamic processes, and its consequences. Mismatches between skills development and skills needs of industry could also include a more holistic perspective as viewed through a multidimensional lens.

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## Work Readiness and Global Competence

Technological development continues to advance at a quickening pace (DiBenedetto 2018). Organizations in Europe and the United States have addressed the issues surrounding the development of skills and competence to meet the needs of twenty-first-century business and industry. While technical skills will remain an important aspect of vocational training and development, other areas continue to grow in importance. These skills, often referred to as employability skills, encompass all the nontechnical attributes desired in the modern worker. Being ready for work requires competence in all areas, especially since the employability skills are key for worker adaptability as the job changes and new technical skills become essential. Much of that discussion is contained within what the World Economic Forum has labeled the fourth Industrial Revolution. DiBenedetto outlines a series of constructs intended to identify the knowledge, skills, and dispositions for career readiness in a global society. They include, among others, learning and life skills, career and social skills, knowledge competencies and experiences, and interdisciplinary topics.

Pylväs and Nokelainen (2018) highlight a dimension that is often assumed within vocational education and training yet infrequently discussed and studied. That is the ability of humans throughout the world to act and interact with others in a diverse, global, complex environment. Educating future world citizens as members of the workforce requires broad understandings of the global community and intercultural communication as a part of striving for vocational education excellence. Those dimensions must be within the context of education and work. Further, the authors conclude that global competence and excellence dimensions may have created contextual imbalances such as between higher education and vocational education and training or Western versus non-Western cultures. These imbalances must be addressed in future research.

## Conclusions

A variety of factors may contribute to excellence in vocational education and training in the broad spectrum of competence development. Generally, research clearly provides evidence of strong connections among those factors, with the understanding of concerns and potential issues that should lead to the next steps along the continuum of bringing clarity to future directions.

Competence-based approaches have been a mainstay of vocational education and training for many decades. One could argue that all of education is, or should be, competence-based. Foundational research in this arena has progressed from creating programs and courses that are based on competence development to massive undertakings in the assessment of learning, that is to say, in assessing the result of vocational education and training in addition to adequate planning and development at the start. From relatively simple, straightforward, short-term instructional activities, prevalent in military training, to courses, certification programs, and college degree programs, determining whether completers have gained competence beyond merely showing up for instructional activities is now the norm.

The logical extension, then, is to ascertain the degree or level of competence achieved in the vocational education and training venue. As noted periodically in the research summarized in this document, competence and excellence are often used interchangeably. But there is evidence to suggest a need for clarifying the degree of competence that learners achieve, going beyond a simple yes/no response to the question of whether the learner has achieved. Accountability measures, whether reviewing courses or complete programs, tend to measure success by “checking off” whether the standard has been met and, therefore, competence has been achieved. But this approach short changes the efforts of vocational educators and the professional training community in attempting to differentiate between those who have merely met the standard and those who have excelled.

Although competence evaluation was not a focus of this document, suffice it to say that progressing beyond simplistic measures of competence is paramount to the continued development of a well-trained workforce and provides opportunities for advancement in the job and career. Central to that movement is the ability to reward excellence beyond meeting the basic standard of achievement. In the broader education community, utilizing grading rubrics allows the assessor to indicate the level of competence in terms such as meets the standard, exceeds the standard, and displays excellence in exhibiting the standard. Truly more effort is needed in focusing on the identification of excellence if achieving excellence in competence development is the goal. Competence *and* excellence go hand-in-hand.

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# Foundations of Competence-Based Vocational Education and Training

# 61

Martin Mulder

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## Abstract

Several competence theories have been developed, and much competence research has been conducted during the last decades. Various competence solutions emerged at conceptual, strategic and operational level in the fields of corporate strategy, human resource management, education, training, and

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the development of personal effectiveness. Furthermore, the competence-based education philosophy has deeply entered the vocational education and training sector worldwide. Despite much criticism in certain countries, the competence-based vocational education and training (CBVET) philosophy has been attractive to many stakeholders in this field. This attractiveness can be easily explained, since CBVET addresses some perennial challenges in VET: the alignment with requirements of the labor market and entrepreneurship (including self-employment), the inclusion of applying knowledge and skills in practice, the hybridization of work and learning, the attention for the attitudinal dimension in professional identity, the focus on increased self-regulated learning, and the shift from final exams to portfolio development and formative and authentic assessment. Without the pretention of being exhaustive, this chapter, on the foundations of competence-based vocational education and training, gives a review of eight theoretical views on competence, which emphasize performance, self-determination, alignment, professional knowledge, shaping, effective instruction, capability, and human development. The chapter then reviews the current states of affairs regarding competence practices, characteristics of mature CBE systems, and discussions about definitions. The chapter is concluded with an outlook on competence for the future. Amongst all future-oriented competencies, learning competence remains most important. The development of all other competencies is depending on that.

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**Keywords**

Ability · Alignment · Argumentation competence · Capabilities · Capabilities theory · Capability · Capability theory · Competence · Competence acquisition · Competence assessment · Competence dictionaries · Competence frameworks · Competence management · Competence measurement · Competence recognition · Competence research · Competence taxonomies · Competence theory · Competence-Based Vocational Education and Training · Competences · Competencies · Competency · Competency model · Competency-Based Vocational Education and Training · Core competence · Disciplinary competence · Employment · Entrepreneurial competence · European Qualifications Framework · Future competence · Human development · Incompetence · Innovation competence · Instructional theory · Integrative learning competence · Interdisciplinary competence · Learning competence · Levels of competence · Motivation · Occupational competence · Oral presentation competence · Personal-professional competence · Practical competence · Professional capability framework · Professional education · Purchasing competence · Qualifications framework · Self-management and career competence · Shaping competence · Skills-based education · Social responsibility competence · Social-professional competence · Teaching competence

## Introduction

In the 2017 movie “The Wizard of Lies,” directed by Barry Levinson (who also directed *Rain Man*), the story of the fraud made by Bernie Madoff, known as the largest Ponzi scheme ever, is told. Remember that the volume of the scam mounted to a dazzling sum of 65 billion US dollars, hitting thousands of people, including family and friends. The crime committed lasted for about 16 years, from the beginning of the 1990s until December 2008, when Madoff wanted to turn himself in, which however was actually done by his sons, after he had revealed his criminal acts to them. The movie shows Independent Financial Fraud Investigator and Analyst Harry Markopolos who said he had been warning the US Securities and Exchange Commission (SEC) already in May 2000, handing in evidence for the case. However, the SEC did not follow this up, so Madoff could continue his malpractices another 8 years. In the movie, Madoff (Robert De Niro) watches the television statement of Markopolos and alerts his wife Ruth (Michelle Pfeiffer) to it, who asks what this is about. Then Madoff explains the SEC was warned, but did not act against him, causing Ruth to conclude that the government agency was *incompetent*, which was confirmed by Madoff, claiming he was saying that for years already. Had the SEC followed up on the investigations of Markopolos, a lot of misery could have been ended significantly earlier.

However, was incompetence the real reason why the SEC did not intervene? There is some doubt about that; some state that corruption was the cause why Madoff could go on this long.

Whatever the truth, which will never be revealed, the point in case is that incompetence is often used as the major reason to blame people or institutions, justified or not, for why things are going, or will go, wrong. Look at other movies. Striking examples can be found in *Philadelphia* (1993) and *Skyfall* (2012). Government agencies, politicians, and administrators are frequently accused of being incompetent. But sadly, incompetence of people and institutions is not only featuring in motion pictures but also in real life. When “incompetence” is Googled (yielding over 35 million results in July 2018), lots of examples of bad performance are discussed of, for instance, medical doctors (“incompetent doctors” yielded over 6 million results), police officers (nearly 6 million results), and teachers (over 5 million results).

What is it that the concept of competence is so frequently used to underline the importance of being good in ones’ job and to perform well? The answer seems to be obvious: otherwise, too many people suffer from behavior of incompetent people and organizations. Think of the errors within the medical profession, the below-standard pedagogical and didactical performance of a number of teachers, and disputed behavior of certain law enforcers. Of course, this goes hand in hand with personal and professional integrity and attitude, work pressure, regulations, and assessment conditions. But incompetent behavior is generally regarded as being undesired.



Incompetence, however, is not only an issue of individual shortcomings. Competence can be constrained by cultural, organizational, and structural labor conditions. For instance, in non-meritocratic societies, in which education is not being regarded as a vehicle for individual vertical mobility, the intention to make sure that all graduates will be competent in their field may be regarded as useless. The reason for their employment and career success may be dependent on quite different personal factors such as belonging to a certain tribe or societal class. But also in societies which value professional competence, there should be opportunities to use this. A pressing problem in this respect is that in many countries not all graduates can find a job or create a livelihood by self-employment. This makes it hard for labor market-oriented education to be regarded as being successful. This problem is most prominent in societies with high youth unemployment rates. So what is important here is that inequity frames in the labor market can impede the use of acquired professional competence. When there are insufficient opportunities to find jobs, competent job performance of the unemployed, obviously, is not going to happen. See, for instance, the work of López Fogués (2014), who analyzed the state of youth unemployment in Spain and who contends that there is a lack of “guaranteed work” for students who graduate. Apart from the fact that it will be hard to “guarantee” employment for graduates, she is right in this analysis. She also states that vocational education and training, which is closely related to the labor market compared to other parts of the educational system, and especially competence- and skills-based education are not being effective. She argues that it is important to introduce “capabilities,” as possibilities for employment, which is seen as a matter of labor market policy. Actors in the labor market should enable graduates to get jobs; they should be given these capabilities as opportunities, in a sense as a basic right. This, however, is not an issue that can be solved by vocational education; the education system cannot create jobs. The critique that is often brought forward that competence or skills-based education is not effective, since it does not help graduates to find jobs, is therefore not just. Competence- or skills-based education, nor any education, can be solely blamed for labor market failure. It may be so that this type of education is not implemented well in Spain, or the region of Valencia, about which the story of López Fogués goes, but it seems that labor market imperfections are projected on certain vocational education and training practices. This chapter argues that the very purpose of the competence–approach in education is to adequately prepare students for being able to cope with the challenges of their future working, societal, and personal life. As a disclaimer, however, not all educational policies and practices which are being implemented under the label “competence-based” are really competence-based. A lot depends on how competence, competence-based education, and quality of competence-based education is conceptualized and implemented in practice.

This blurry use of competence theories and diversity in competence practices is the reason as to why there is so much confusion, dissatisfaction, and controversy about competence-based education. This is particularly disturbing because there are many countries across the globe which are implementing some form of competence-based education, not only within vocational education and training but also in elementary, secondary, and higher education. For the latter, see, for instance, the way in which Western Governors University implements competence-based

education (they call it competency-based education). In the July 31st (2017) issue of *Business*, Alana Semuels describes this innovation, although she also shares concerns and poses critical questions. Western Governors University, as she describes, is a not-for-profit school which was created by governors from 11 states in the USA in the mid-1990s. The goal of this institution was and is to better prepare students for the world of work, by using technology to enhance learning. However, it seems that assessment of student competencies is getting more attention than the support of learning, and the question is whether that complies with good competence-based education. Assessment is necessary, but it should be balanced with competence frameworks which are the foundation of the curriculum, the curricula themselves, and learning, as the core of the education process. It is because of the overrating of the importance of assessment of competencies in the UK, which resulted in the negative critiques of its competence movement and current embracement of a skills movement, if that would be any different. The objective of competence-based education after all is also to teach skills, of which many are cognitive and require in-depth knowledge, and to develop a professional identity, for which teaching educational objectives in the affective domain is essential.

This chapter, on the foundations of competence-based vocational education and training, tries to review theories on competence-based vocational education and competence practices which have emerged. It will first point at competence practices conducted by various associations and organizations, including institutions for vocational education and training. The chapter will then give an overview of characteristics of mature systems of competence-based education, which can be used to differentiate between more and less competence-based education systems. The chapter then gives a series of examples of competence frameworks for different professions. This will show the weight of the competence movement in defining the content and levels of professional performance. The chapter will then address the definition issues regarding the concept of competence. This part of the chapter is kept short, since much has been written already about the heterogeneity of definitions of the concept of competence. The chapter then finalizes with a call for attention to the importance of a reflection on future-oriented competence. This is particularly important in vocational education and training, which in many countries has the image of not being able to keep up with the developments in the world of work. An important pitfall of vocational education and training is that it is geared toward narrowly defined competencies which reflect the needs in present well-known jobs, whereas the nature of work is radically changing and profound transformations of societal, economic, industrial, and labor processes are taking place.

This chapter is largely based on a review of the literature collected in the edited volume *Competence-based Vocational and Professional Education. Bridging the Worlds of Work and Education* (Mulder 2017a). In this volume over 80 authors shared their insights in competence, competence theory, competence research and policy, practices, and educational systems issues regarding competence-based vocational education. The chapter also builds on the review of the literature on future-oriented competence frameworks (Mulder 2016). Finally, recent sources were used to complement this chapter.

## Competence Theories

In this section various theoretical approaches of competence will be presented. The section will point at the importance of the work of White and the research on achievement motivation which followed from that (Elliot et al. 2017). Next, the section will go into the relationship between competence and performance. Finally, it will give a brief overview of how competence entered the debate about the improvement of quality of teaching and education. But first an account will be given of the theoretical views on competence. Eight theoretical approaches will be reviewed, which ends with a short reflection about the relationship between the competence and human development and capabilities approach. The approaches are (1) performance theory, (2) self-determination theory, (3) alignment theory, (4) occupational domains theory, (5) shaping competence theory, (6) instructional theory, (7) capability theory, and (8) the human development and capabilities theory.

### Performance Theory: The AMO Model (Appelbaum et al.)

In line of the work of López Fogués (op. cit.), the first theoretical view on competence that will be summarized here is the one of Appelbaum et al. (2000). This theory, often referred to as the AMO model, defines competence, or ability in the terminology of that model, as a factor which predicts performance. The known formula of the model is  $P = A \times M \times O$  (P, performance; A, ability; M, motivation; O, opportunity). Therefore, if people who are in fact competent do not have the opportunity to show their competence because they are denied opportunity to perform the duties which require that competence (as described above), they may unjustly be assessed as being incompetent.

In the context of competence theory, the AMO formula may be adapted (Mulder 2017b) to

$$P(\text{erformance}) = C(\text{ompetence})_{ksa} \times O(\text{ppportunity})_{rpt} \times M(\text{otivation})_{ieo}$$

Competence in this formula consists of knowledge, skills, and attitudes, which need to be integrated in professional performance. Not only knowledge (k) and skills (s) are important, professional attitude (a) or identity is also important, which manifests itself clearly in sales, care, hospitality, and services sectors, but also holds for other professions. Opportunity includes available resources (r), positions (p) in which professionals are placed, and their task assignments (t). These can be rich in terms of opportunities or affordances, but also limited or even deprived. Motivation includes intrinsic (i) and extrinsic motivation (e), which are triggered by short- and long-term incentives, personal expectations and those of others, and personal and business objectives (o).

## Self-Determination Theory (Deci and Ryan)

The theory of self-determination, developed by Deci and Ryan (1985), is about the basic psychological needs of people, which are (1) competence, (2) relatedness, and (3) autonomy. Following the work of White (1959), who saw competence as a motive of human behavior, Deci and Ryan saw competence as the motive to master a sufficient level of performance. Relatedness is a need which is about interaction with others and a sense of belonging to a community. Autonomy is about the integrity of the self, being in control, and the feeling that one can make decisions and act according to one's own views.

Ryan and Deci (2000, p. 58) explicitly state (in their *Cognitive Evaluation Theory*) "... that interpersonal events and structures (e.g., rewards, communications, feedback) that conduce toward *feelings of competence* during action can enhance intrinsic motivation for that action because they allow satisfaction of the basic psychological need for competence." So, feelings of competence can increase intrinsic motivation, which is an important trigger for performance, as is explained in the description of the theory of Appelbaum et al. (op. cit.). But, Ryan and Deci (op. cit.) also emphasize "... that feelings of competence will *not* enhance intrinsic motivation unless they are accompanied by *a sense of autonomy*... Thus, people must not only experience perceived competence (or self-efficacy), they must also experience their behaviour to be self-determined if intrinsic motivation is to be maintained or enhanced." So, intrinsic motivation is enhanced by perceived competence of one self, also referred to self-efficacy, only if one's behavior is experienced as being self-determined.

## Alignment Theory (Biggs; Mulder)

Mulder (2017c) presents the alignment theory which is in his view the core idea behind competence-based and similar education approaches, such as outcomes-based education. The discontentment with the lack of alignment of education and the world of work was the starting point of many competence-based education practices. Notions about the alignment of education and work can be dated back to the middle of the nineteenth century, if not earlier, if the guilds which were created in the Middle Ages are included. During the last decades, the theory of strategic alignment (Biggs 1999) became quite popular in higher education. The essence of that theory is that intended learning outcomes, learning processes, and assessment of learning are balanced in such a way that they are well related. It is obvious that if learning outcomes are being modified, learning processes and assessment need to follow. But in education that did not always take place. New educational objectives were introduced, whereas often instruction, learning, and assessment stayed the same. According to Mulder (op. cit.), in vocational education and training, the strategic alignment theory of Biggs needs to be expanded. Intended learning outcomes need to be generated, and that happens within a certain context. This can be based on

competence frameworks in which stakeholders express their view on what students need to learn. These frameworks are much more general than sets of intended learning outcomes, which are specified for curricula, courses, and lessons. Educational institutes however should not blindly adopt these frameworks and try to implement them in their programs. Schools and colleges have their own views on education and training, and these philosophies should be used to filter these frameworks to establish education and training programs which are consistent with these views. Mulder positions the (extended) alignment theory in the so-called integrated occupationalistic approach of competence development. This means that competence frameworks express knowledge, skills, and attitudes which are conceived of as being essential for certain occupations (or occupational groups) and which are translated in learning programs. These learning programs are not necessarily behaviorist or reductionist, as some critics contend. For, goals, objectives, and outcomes of education and learning can be defined as open as one likes. Their nature depends to a large extent on the learning theory which is being used in the educational design process. In that sense competence frameworks are not deterministic. On the contrary, competence-based education can be holistic, flexible, and responsive. The competence frameworks merely serve as reference models for what the stakeholders of certain occupations and professions hold as being important. Mulder (op. cit.) points at various contexts and studies in which competence frameworks have been developed and used.

### **Domains of Occupational Competence (Billett)**

Billett (2017) points at the fact that expertise has been studied from the perspective of cognitive psychology but can also be seen from the socioculturalist perspective. From the latter perspective, work is seen as a cultural practice. Billett states that the socioculturalist perspective is helpful in understanding "...what comprises competent performance at work" (op. cit., p. 48). Billett consequently distinguishes three domains of knowledge which are conceived of as the foundations of competence or professional expertise: (1) canonical knowledge of the occupation, (2) particular situational knowledge, and (3) the personal domain of knowledge. The canonical domain of knowledge "...is the collection of concepts, procedures and dispositions that capture what societies want from that occupation and what are demanded and expected from those practising occupation" (op. cit., p. 48). Billett sees situated competence as "...that what is required for the practice or that occupation in a specific work of community setting" (op. cit., p. 48), referring to the importance to the situational meaning and assessment of competence. He also points at the relative importance of qualifications, which are of course important for labor market or job access, but which in his view cannot "...compensate for the inability to perform competently in specific situations and in tasks manifested in that situation" (op. cit., p. 49). Obviously, many contextual factors make a competent graduate not necessarily a competence job performer. The domain of the personal domain of knowledge, according to Billett, is constructed by people, and used "...within and across specific instances of their professional practice as they encounter and respond to it" (op. cit., p. 49).

## Shaping Competence Theory (Rauner)

As Howe and Gessler (2018) describe that Rauner introduced the idea that shaping competence (*Gestaltungskompetenz*) needed to be an important element of the theory of vocational education and training. This idea goes back to the work of Rauner et al. (1988), in which the concept of “social shaping” is introduced. This concept is used to “...describe the essential dynamic between the social purposes and technological possibilities which shape the development of technology in general” (op. cit., p. 47) and was applied to human-centered computer-integrated manufacturing (CIM). Within the discussion on professional competence as the goal of vocational education and training, Rauner thought that competent professional performance goes beyond a process-wise listing of occupational activities. Professional competence needs to go together with social and personal competence and the competence to shape work and society. This combination of competence domains needs to be understood against the background of the German version of the European Qualifications Framework (EQF), the DQR. Competence in the DQR does not stand next to the categories knowledge and skills, such as in the EQF, but it is an overarching category: it covers all intended learning outcomes, knowledge, skills, and attitudes. Essentially, the DQR is composed of two competence domains, (1) professional competence and (2) personal competence, which are both divided in two subdomains: 1.1 knowledge and 1.2 skills and 2.1 social competence and 2.2 autonomy. It is the autonomy category which represents the competence category in the EQF. The new vision of Rauner was to stress shaping as an essential element of professional competence. It is a competence domain that can be understood as comakership and co-construction. While self-responsibility and self-regulation for work became important values in the organization of work (as opposed to the Tayloristic organization of work, in which people are expected to perform part-tasks which were assigned to them), and employees were regarded more and more as co-workers, shaping one’s own work flow within the work environment that is provided, and even the innovation of work and its organization itself, became a key competence domain, referred to as shaping competence.

## Instructional Theory (De Corte et al.)

When it comes to educational design, competence is often conceptualized as related to curriculum development and less often to instructional design. However, Wesselink et al. (2017) have made an attempt to combine principles for competence-based vocational education with the design of competence-based instruction. But in most cases, competencies are seen as curricular inputs for the instructional design process or even as inputs for the curriculum development process itself, such as in the alignment theory mentioned above. An example of treating competencies as inputs for instructional design is from De Corte et al. and presented in their “CLIA model” (De Corte et al. 2004). The components of the model are competence, learning, intervention, and assessment. In the competence

component, De Corte et al. have defined five competence domains: (1) domain-specific knowledge, (2) heuristic methods, (3) metaknowledge, (4) self-regulatory skills, and (5) positive belief in the self. All these competence domains have been heavily studied by learning psychologists. The competencies defined are then related to learning, interventions, and assessment strategies, which is basically an example of alignment theory.

## Capability Theory (Cairns and Malloch)

In their review of the competence literature, Cairns and Malloch (2017) describe the critiques on the competency-based education and training philosophy. They state that that philosophy was strongly based on a behaviorist education philosophy. This competency-based education approach was recently reviewed by Barrick (2017). As this instrumental view on education has been criticized heavily already in the 1970s in the teacher education literature, alternative approaches of teaching and learning became more prominent, such as the humanistic-based teacher education (HBTE) approach and constructivist views on learning. While these developments were well underway, Cairns (1992) suggested to use the concept of “capability” to emphasize the holistic nature of education while retaining its purpose to prepare children and young adults for their role in society. Cairns based his view on literature which appeared in the UK (Stephenson 1992) and presented this as an “...alternative or complementary set of ideas and models to the competency-based education and training approach” (Cairns and Malloch 2017, p. 104). According to Cairns and Malloch, the capability movement started with a project on education for capability, which was described by Cairns and Stephenson (2009). It gained popularity in education, further education, vocational education and training, and higher education in the UK and Australia. Cairns and Malloch point at an elaborate list of applications on the capability approach in education (op. cit., pp 108–109).

Many of the publications on the integrative or holistic view on competence follow the broad view on capability. For instance, Stephenson sees it as important that (higher) education prepares capable people, who “...have confidence in their ability to take effective and appropriate action, explain what they are about, live and work effectively with others and continue to learn from their experiences as individuals and in association with others, in a diverse and changing society” (op cit., p. 1). Capability is “...a necessary part of specialist expertise, not separate from it. Capable people not only know about their specialisms; they also have the confidence to apply their knowledge and skills within varied and changing situations and to continue to develop their specialist knowledge and skills long after they have left formal education” (op cit., p. 2). Furthermore, capability is “...not just about skills and knowledge. Taking effective and appropriate action within unfamiliar and changing circumstances involves judgments, values, the self-confidence to take risks and a commitment to learn from the experience. Involving students in the decisions which directly affect what they learn and how they learn it develops a sense of ownership and a high level of motivation” (op cit., p. 2). This view on capability collides to a large extent with the views held by Biemans et al.



(2004, 2009) and relates to various principles of comprehensive competence-based vocational education (Wesselink 2010; Wesselink et al. 2015, 2017), which is also based on a broad view of occupational competence (Mulder 2014). Many of the competencies of the future are addressed near the end of this chapter (and elaborated in Mulder 2016). In the definition of competence in relatively recent publications, competence was even defined in terms of capabilities (Mulder 2014; Mulder and Winterton 2017).

## Human Development and Capabilities Theory (Nussbaum)

With discussing the human development and capabilities theory, this section goes back to the introduction, in which the work of López Fogués (2014) was mentioned, which is clearly the situation in this tradition. The competence and capability literature in education is quite different from the capabilities theory which is the foundation of the human development and capabilities approach. In their chapter Cairns and Malloch point of the work of Sen (1985, 2009) and Nussbaum (2011), who are using the plural “capabilities” in their work, but the theoretical foundations seem to be quite different. Nussbaum (2011) developed her human capabilities approach, which originates from a global politics perspective, with a strong emphasis on human rights, social justice, and opportunities to develop capabilities. There is a Human Development and Capability Association, with the subtitle “agency, well-being, and justice,” in which education is obviously included. But the capabilities distinguished by Nussbaum (op cit) are similar to basic human rights. These capabilities are (1) life; (2) bodily health; (3) bodily integrity; (4) senses, imagination, and thought; (5) emotions; (6) practical reason; (7) affiliation; (8) other species; (9) play; and (10) control over one’s environment. The capabilities approach is “...about the opportunities available to each person” (Nussbaum 2011, p. 18) and is related to social justice. Nussbaum describes these opportunities as “...created by a combination of personal abilities and the political, social, and economic environment” (op. cit., p. 18). Examples of the capabilities Nussbaum defined are the following:

1. *Life*. Being able to live to the end of a human life of normal length; not dying prematurely, or before one’s life is so reduced as to be not worth living.
2. *Bodily Health*. Being able to have good health, including reproductive health; being adequately nourished; having adequate shelter.
3. *Bodily Integrity*. Being able to move freely from place to place; having one’s bodily boundaries treated as sovereign, i.e. being able to be secure against assault, including sexual assault, child sexual abuse, and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction (op. cit., p. 33).

It will be clear that these capabilities transcend education and can be clearly seen as human rights. See, for example, Article 3 of the United Nations’ Universal Declaration of Human Rights (<http://www.un.org/en/universal-declaration-human-rights/>; accessed 24 July 2018). This article states: “Everyone has the right to life, liberty and security of person.” Article 13 is: “(1) Everyone has the right to freedom of movement and residence within the borders of each state. (2) Everyone has the right to leave any country, including his own, and to return to his country.” Article 25



(1) states: “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.” And, finally, Article 5 is: “No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment.” These are very close to the capabilities described by Nussbaum. While this is not to criticize the capabilities Nussbaum has defined, it is to show that these are fundamental to humanity; education, including vocational education and training, has to contribute to these capabilities. But education has its limits in this respect, as was mentioned above regarding the issue of unemployment. For generic global vocational and professional education, more focus is needed on professional competence (see Mulder 2016). Clearly, education can contribute to certain capabilities such as capabilities 4 on senses, imagination, and thought, which can be “...informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training” (op. cit., p. 33). Important questions here are how internal personal capabilities and external societal capabilities (as opportunities to exert human rights in a society with high standards of social justice) are related, and what education (as an external capability) can contribute to the personal capabilities of its students, and what (broad, holistic, and integral) competencies can be developed by – within the framework of this handbook – vocational education and training.

For a further detailed discussion of the analysis of the relationships and differences between these concepts, including the difference between internal and combined capabilities, see the review of the work of Nussbaum by Magni (2014). See for a further discussion of the capabilities approach in the context of European vocational education and training the work of Alessandrini (2017).

There is another view on capability, which features prominently in the literature; it is the capability of business and industry to realize technological innovation. This theme addresses knowledge transfer, business venturing, investment, etc. Technological capabilities are thus strongly related to product, business, and industry development, hence the many references to top publications in the field such as of Lall (1992), Tripsas and Gavetti (2000), Lee et al. (2001), Stuart and Podolny (1996), and Dosi et al. (2000). Since the views on technological capabilities do not focus on the design of vocational education, although the theme of technological capabilities is relevant for many vocational education programs, this chapter will not elaborate on this any further.

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## Competence: The State of Affairs

After having reviewed a number of competence theories, without having had the pretention that this would be an exhaustive review, the state of affairs regarding competence practice will be discussed. There are three themes that will be elaborated here: competence in practice, characteristics of mature competence-based education practices, and a number of competence frameworks.

## Competence in Practice

So first of all, the state of affairs regarding competence in practice will be addressed. There is no worldwide survey about competence practices. Nevertheless, the edited volume mentioned before (Mulder 2017a) serves as a global inventory of national and regional approaches of competence-based education. But competence practices exist in various communities:

- Professional associations have developed competence frameworks to define their expectations of professional practice. Sometimes these frameworks come as standards for the profession or certification schemes. In many cases the frameworks serve as the foundation of vocational and professional education, professional licensure, and training for re-licensing.
- Governmental organizations have developed various competence frameworks as well. These are in most cases dedicated to public functions, such as tax inspectors or teachers' competencies. In some cases, these frameworks are established by law.
- Testing companies have developed a wide variety of competence measurement tools to test workers or students in all kinds of fields and at various levels. These tests can be purchased and used under licenses. The testing companies offer a wide range of services for testing individuals and groups, process test data, and report test results. They also provide comparative analyses and benchmarks at institutional, national, or international levels.
- Consultancy firms (some testing firms operate on a consultancy basis) have produced competence dictionaries, advisory services for competence assessment, and systems for competence development. The largest consultancy companies have their standard dictionary which can be adapted to individual corporations and implemented for employee, management, or executive assessment and development. These dictionaries typically consist of key competencies, underlying competencies, and sub-competencies, all defined, explained, and further detailed. Some of these dictionaries can be over 100 pages. In other cases, the consultancy companies create competence frameworks for a diverse group of clients, including companies that prefer not to work with standard dictionaries.
- Organizations, companies, and institutions have implemented competence management systems. In many cases these systems are based on the dictionaries mentioned above. In regular employee assessments (each half year or year), managers and employees, and sometimes co-workers and employees that report to the person who is being assessed (the assessee), review and rate the competence levels of the assessee, sometimes in a 360° assessment. The assessments can lay the foundation for further training and development, promotion, or other human resource management decisions. Some companies have experimented with competence-based remuneration, but that appeared not to be extremely successful.
- Educational institutions have graded their education programs according to national qualifications frameworks or have developed and implemented competence-oriented and competence-based curricula. The grading of studies in

publicly financed education within the European Union is obligatory. The levels of studies are defined by the European Qualifications Framework. Educational institutions are expected to mention the respective program level on the diploma. Education and training programs offered by privately funded institutions can also request for having their levels determined, although this is (still) voluntary. The grading of education programs is meant to make national and international levels of education more transparent. The degree in which principles of competence-based education are implemented in the educational institutions is also voluntary. This depends on the educational philosophy and expertise schools and colleges have in terms of realizing competence-based practices. The form of using competence practice in curriculum design that occurs most is that program teams use competence frameworks to defined learning outcomes. Others go an extra mile and are using competencies as foundations for learning tasks and authentic competence assessments as examinations.

Examples of national approaches and evaluations of experiences regarding competence-based vocational and professional education practices are given by Barrick on the USA (Barrick 2017), Cairns and Malloch (2017) and Hager (2017) on Australia, Stokes (2017) and Evans and Kersh (2017) on the UK, Weber and Achtenhagen (2017) and Gessler (2017) on Germany, Le Deist (2017) on France, Tütlys and Aarna (2017) on two Baltic States, Ronchetti (2017) on Italy, Fan (2017) on China, Panth and Caoli-Rodriguez (2017) on South Asia, Viet (2017) on Vietnam, and Van Halsema (2017) on Rwanda. Many of these national reviews show the diversity, complexity, and struggle to get competence models, education practices, and measurement schemes in place and some point at the dissatisfaction with using competence-based education as practiced, mentioning that there is the danger that assessment gets too much attention at the cost of learning time, or that competencies are trained and ticked off individually at the cost of the integration of the parts of professional competence, or that competence-based education frameworks are too rigid, whereas they should serve dynamic processes of agile adaptation to changing circumstances.

## **Characteristics of Mature Competence-Based Education Systems**

Many educational institutions have introduced so-called competence-based education programs on the waves of the competence movement, whereas at closer inspection, this often appeared to be lip service, marketing, or a way to reduce contact hours. This is why gradually the notion of immature and mature competence-based education systems developed. Mature competence-based education systems have various characteristics.

- *Competence frameworks.* These have been discussed already and often consist of key and basic of foundational competencies. Examples of these will be presented below.

- *Competence taxonomies.* These define skills, knowledge, and attitude levels and typically employ taxonomies of educational objectives. A specific issue of competence practices in vocational education concerns the various levels within the vocational education systems, sometimes referred to as the vocational education column. Suppose a competence domain like communication of entrepreneurship is part of the curriculum of junior secondary vocational education (for students of 12–16 years of age), but also of senior secondary vocational education (for students of 16–19 years of age) or of higher vocational (college) education (for students of 17–21 years of age). What does this competence domain at these different levels mean? Surely something different. The competence domains get more complex at higher levels because of the complexity of the vocational or professional practice. But how can achievement or mastery levels of communication or entrepreneurship competencies be compared? One way to do that is to link competence specifications to reference frameworks such as the European Qualifications Framework. Another possibility is to use laddering schemes such as the one developed by De Jong et al. (2017), which is the 4Cyourway framework for the measurement of competence growth, which can also be applied for curriculum development.
- *Competence recognition.* This is a system of recognition or the validation of prior learning. An important idea behind the competence-based education philosophy is, like in mastery learning, that once competencies are acquired no further education or training is needed. This especially holds for students or adults who are entering education programs and who already possess certain competencies which are being taught in the program. One would think that those who enroll in the program would get exemptions for these competencies and that the program time would be shortened. Due to the inflexibility of many educational institutions and programs, this however does not happen, unless students have a higher qualification than is strictly needed, so that they can perhaps skip the 1st year of the program they are starting. The inflexible structure of vocational education is particularly frustrating for workers who have many years of challenging work experience and who followed a number of in-company training programs and external courses, who take an assessment to accredit their prior learning, and who are then being informed that they would need to follow a complete education program to get the qualification of the level on which they already function for years. Bohlinger (2017) has given an international overview of systems of recognition of prior learning.
- *Competence acquisition.* This is the teaching and learning practice, in which the learners acquire the professional competence specified by the educational program. This learning in competence-based vocational and professional education should be as authentic as possible, and should not only include the acquisition of knowledge and skills, but should also contain an applied learning part. In many vocational and professional education programs, this authentic and applied learning takes place in field attachments, internships, or apprenticeships. They can vary by intensity, duration, and contractual agreement. In some apprenticeship schemes, students are being paid a student-worker salary, in others they get

compensated for costs, and in still other schemes they get no financial compensation whatsoever.

- *Competence assessment.* This is about the measurement of competence gain, but it can be used in different ways. Well-known is the difference between summative and formative assessment, for making pass-fail decisions at the end of the learning process and to provide support to the learner during the learning process, respectively. However, assessment can also be conceived of as an integrated part of the learning process. By continuous assessment of learning achievements during the learning process, students get direct feedback on their performance. This feedback can give them clear cues as to where they are in terms of their progress, which can help motivate them to proceed. This assessment as learning practice can also be used in adaptive learning systems and personalized instruction. Van der Vleuten et al. (2017) and Blömeke (2017) have given overviews of different competence assessment methods which provide support of learners.
- *Competence-based school-HRM.* If schools and colleges for vocational and professional education embark on a competence-based education journey, one of the things that should be considered is to transform the educational institution into a learning organization. It is surprising that institutions, whose primary objective is to make their target groups learn, do not act as learning organizations. Team learning in vocational education institutions is getting more and more popular (Bouwman et al. 2017a, b, c, 2018), but still, team-oriented human resource management and the implementation of practices of the learning organization are scant.

## Competence Frameworks

As said in the previous section, competence frameworks are a systemic element of mature competence-based vocational education practices. Many competence frameworks have been developed, by consultancy agencies, professional associations, and researchers. Various examples will be given below.

*The Great Eight Competency Framework.* This framework, developed by Bartram (2005) of Hay Group at that time, is the result of empirical research among thousands of managers and attempts to capture all human competence in eight broad competence clusters, just like the Big Five Personality Dimensions of Barrick and Mount (1991). Both the core competencies of Bartram and the personality dimension of Barrick and Mount are related to job performance, as it was the intention of these authors to be able to predict job performance by competence or personality tests, as these are essential methods in personnel selection. The eight core competencies identified by Bartram are (1) leading and deciding, (2) supporting and cooperating, (3) interacting and presenting, (4) analyzing and interpreting, (5) creating and conceptualizing, (6) organizing and executing, (7) adapting and coping, and (8) enterprising and performing. These are all further specified in a total set of hundreds of more detailed competencies. The research of Bartram showed that a relationship between the competencies and job performance can be established if job

success as the criterion is sufficiently differentiated. Mere managerial assessments of poor, average, good, and excellent job performance do not suffice. Job performance needs to be operationalized in detailed terms, and valid assessments of these are needed, as well as valid assessment of competence.

*The CanMEDS 2015 Physician Competency Framework (Canada).* This competence framework is developed by the Royal College of Physicians and Surgeons of Canada and is endorsed by 12 medical associations (Frank et al. 2015). It comprises roles, key concepts, key competencies, and enabling competencies for each role. The roles are medical expert, communicator, collaborator, leader, health advocate, scholar, and professional. Compared with the previous (Great Eight) competence framework, this framework is much more oriented toward the content of the tasks of the medical professional. Therefore, this framework can be referred to as a domain-specific, content-oriented framework, whereas the Great Eight competence framework can be seen as a generic, behavior-oriented framework. Both frameworks are appropriate and useful in their respective contexts.

*The Engineering Competency Model (USA).* This also is a recent competence framework, developed by the American Association of Engineering Societies (AAES) and the Department of Labor of the United States (USDOL). This model is created as a foundation for the development of the workers in the engineering sector. It comprises core competencies which enable the advancement of and success of individual workers in the engineering profession. This competence framework consists of tier 1–5 competence statements and on top of that management competencies and occupation-specific requirements. Tier 1 comprises personal effectiveness competencies, including interpersonal skills, integrity, professionalism, initiative, adaptability and flexibility, dependability and reliability, and lifelong learning. Tier 2 comprises academic competencies, including reading, writing, mathematics, science and technology, communication, critical and analytical thinking, and computer skills. Tier 3 comprises workplace competencies, which are teamwork, client/stakeholder focus, planning and organization, creative thinking, problem-solving, prevention and decision-making, working with tools and technology, scheduling and coordinating, checking, examining and recording, and business fundamentals. Tier 4 comprises industry-wide technical competencies, which are foundations of engineering, design, manufacturing and construction, operations and maintenance, professional ethics, business, legal and public policy, sustainability and social and environmental impact, engineering economics, quality control and quality assurance, and safety, health, security, and environment. Tier 5 comprises industry-sector functional areas which should be specified by industry-sector representatives. As said, on top of that management- and occupation-specific requirements are positioned. These are specific for management positions and occupations and not further operationalized in the framework. All competency components seem to direct to specific jobs and contexts. Further information about this framework can be found at <http://www.aes.org/model>.

*The Professional Capability Framework of Social Work (UK).* This framework is developed by the British Association of Social Workers and actually is part of various levels of professional practice along the career of the social worker, being

the entry level, readiness for direct practice, end of first placement, end of last placement, the ASYE (which is the assessed and supported year in employment, which takes 12 months and is a program which is led by employers; candidates are being supported and assessed based on the knowledge and skills statement for social workers in adult services – see for further information <http://www.skillsforcare.org.uk/Learning-development/The-ASYE-adults/The-Assessed-and-Supported-Year-in-Employment-Adults.aspx>), social worker, experienced social worker, advanced level, and strategic level. All capabilities (or competencies) at all career levels are specified within the following categories: (1) professionalism; (2) values and ethics; (3) diversity; (4) rights, justice, and economic well-being; (5) knowledge; (6) critical reflection and analysis; (7) intervention and skills; (8) contexts and organizations; and (9) professional leadership. All capabilities are defined and further specified. For further information about this framework, see <https://www.basw.co.uk/pcf/capabilities/>.

*More Research-Based Examples.* Many more examples can be given from research. See, for instance, the following studies, which all address competence frameworks which are based on empirical research or related competence issues. The frameworks are quite different in nature. Some are more generic, others more specific. Some compartmentalized knowledge, skills, and attitudes, others integrated these. Some are more behaviorally oriented, others more content-oriented.

- Agricultural extension competence (see Karbasioun et al. 2007)
- Argumentation competence (see Noroozi et al. 2017)
- Entrepreneurial education and learning (see Lans 2009; Karimi et al. 2016; Baggen et al. 2017)
- Innovation competence (see Du Chatenier et al. 2010)
- Oral presentation competence (see Van Ginkel et al. 2015)
- Purchasing (see Mulder et al. 2005)
- Training for practical competence (see Khaled et al. 2015)
- Regional learning (see Wesselink et al. 2015)
- Rural development services (Brinkman et al. 2007)
- Social responsibility competence (see Osagie et al. 2014)
- Teaching competence (see Kasule et al. 2015; Alake-Tuenter et al. 2012)

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## Competence Definitions

In this chapter, an extensive section on the definition of competence was deliberately excluded. Much has been written about this already, and the conclusion very often is that there is little consensus about the concept and very wide diversity in the definitions. This is no surprise, given the many different competence theories and practices presented in this chapter. Also in research, there is much variation in which the concept of competence is defined, operationalized, and measured.

The definition of the concept of competence is discussed in detail in Mulder (2017a) and defined following earlier publications (e.g., Mulder 2014).



“Professional competence is seen as the generic, integrated and internalized capability to deliver sustainable effective (worthy) performance (including problem solving, realizing innovation, and creating transformation) in a certain professional domain, job, role, organizational context, and task situation” (Mulder 2014, p. 111). Competency is seen as “...an element and characteristic of competence” (op. cit., 2017, p. 14) or as “...a coherent cluster of knowledge, skills and attitudes which can be utilized in real performance contexts” (Mulder 2014, p. 111).

This chapter uses an inclusive view on competence and denies very narrow conceptualizations of competence by which students of vocational education must learn a long series of detailed tasks. But this stance is not uncontroversial. As stated above, the AMO model of Appelbaum et al. (2000) includes ability, which in the adapted formula was equated with competence. Some purists detest such elastic use of the concept of competence and make spasmodic attempts to stay away from the competence concept and narrowly stick to other – but related – concepts such as occupational knowledge, professional knowledge, capability, capacity, expertise, talent, and other concepts. However, these concepts have many commonalities. To show the elasticity of the concept of competence, the dimensions on which they differ can be mentioned (Mulder 2017b): centrality, contextuality, definability, developability, dynamic nature, knowledge inclusion, measurability, mastery level, performativity, and transferability. All definitions include variations on these dimensions and still claim they define the concept of competence.

Not much has been said about the stages of development of (professional) competence, although the work of De Jong et al. (2017) and the framework of professional capabilities of social workers are related to that issue. Nevertheless, it is an important issue, which also related to the taxonomies and mastery levels of competence. This chapter uses a broad view regarding competence. It is thought that competence can be acquired at various levels, from beginning to advanced or even world-class performance levels. Very often different words are being used for the competence levels. This is different from the theory of Dreyfus and Dreyfus (1986) who see competence as a phase on the continuum of being a novice, being competent, being proficient, being an expert, and possessing full mastery. This chapter contends that all positions of the continuum represent certain levels of competence or mastery and therefore sees competence as the overarching concept. Levels of competence can be categorized as (1) insufficient, (2) sufficient, (3) adequate, (4) good, (5) very good, (6) excellent, and (7) brilliant. Many corporate competence management systems have abbreviations of these levels of competence, whereby the tendency is to not include the category insufficient, as it would be perceived as being offensive. Typical categories are sufficient, good, very good, and excellent.

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## Competence for the Future

More important than staying on the trodden path of competence definition discussions is the reflection on what would constitute competence which is needed for the future, not only for being able to function in tomorrow’s society and to cope with the



challenges ahead but also for shaping that society: competence that is needed to bring about change, create innovation, and realize transformation. To facilitate the discussion on this issue, a model was developed during 2016 in which various proposals for future-oriented competencies were made. These include the DeSeCo Model of Key Competencies (Rychen and Salganik 2003), the EU Recommendation on key competences (European Union 2006), the work on twenty-first century skills of the NCREL/Metiri Group (2003), the Essential Learning Outcomes as defined by the Association of American Universities and Colleges (AAUC 2015), the Seven Survival Skills for today's students (Wagner 2008), further work on the twenty-first century skills (P21 2015), and the critical competencies for future leadership (Vora 2015). Elements of the competence statements in these documents were semantically analyzed and grouped together in five categories which form the model of future-oriented competence (see Fig. 1).

There are five components in this model: (1) integrative learning competence, (2) disciplinary and interdisciplinary competence, (3) self-management and career competence, (4) personal-professional competence, and (5) social-professional competence.

*Integrative learning competence* is the heart of the model. This symbolizes the key role learning competence that plays in human existence. Without learning competence humans would not be able to solve the current complex questions and future challenges.

*Disciplinary and interdisciplinary competence* are the foundation, as the idea is that for effective performance and further learning disciplinary and interdisciplinary competence is a *conditio sine qua non*. In professional contexts *self-management and career competence* are needed to establish a livelihood and start a career, which can be based on getting and keeping a job or based on self-employment or



**Fig. 1** Model of future-oriented competence. (Source: Mulder 2016)

entrepreneurship. In many vocational education and training programs, the scope of programs and teachers is to prepare for the labor market, which translates to finding a job, and too often the road to self-employment and entrepreneurship is neglected, although as a result of various stimulation schemes and policy measures this is gradually changing.

The horizontal dimension is the dimension of professionalism and consists of the *personal and social competence* side of that.

The competence components are further described as follows. The specifications are a modification of those in Mulder (2016). Repositioned competence domains are printed italic.

1. *Integrative learning competence*. This is essential for all competence domains in the model. Next to other competencies, it consists of competence regarding *critical thinking*, development, knowledge creation, *higher order thinking*, *sound reasoning*, *inquiry and analysis*, synthesis, evaluation, and *lifelong learning*.
2. *Disciplinary and interdisciplinary competence*. This includes the whole array of competence domains which are related to certain professional fields and interdisciplinary working contexts, such as competence in finance, economics, business literacy, mathematics literacy, social sciences literacy, humanities literacy, languages literacy, arts literacy, digital (ICT) literacy, media and information literacy, reading, writing, numeracy, computational competence, science, technology, design and inquiry literacy, environmental literacy, and interdisciplinary problem-solving competence.
3. *Self-management and career competence*. This includes competence in autonomous action, self-regulation, life planning, personal project planning, responsibility, managing for results, prioritizing, productivity, accountability, argumentative reasoning, resilience and stamina, sense of initiative, innovation and entrepreneurialism, and calculated risk taking.
4. *Personal-professional competence*. This includes competencies such as *ambiguity and uncertainty handling*, adaptability, flexibility, agility, reflection and self-awareness, emotions handling, curiosity, imagination, creativity, intuition, mindfulness and integrity, big picture visioning, global competence, cultural awareness and expression, civic competence (balancing, defending/asserting rights, interest, limits, needs), anticipate and create change, complex problem-solving, managing complexity, health and physical competence, *sustainability*, and ethical reasoning and action competence.
5. *Social-professional competence*. This includes competence regarding civic knowledge and engagement, relating well to others, interpersonal contact, interactive communication, clarification of information to others, negotiating on meaning, multicultural literacy, *leadership*, *transformation*, productive teamwork, collaboration in networks, creating ecosystems for engagement, and managing and resolving conflicts.

As stated in Mulder (2016), the listing of competencies in the overview does not suggest an order of priority, nor does it serve as an exhaustive overview of

future-oriented competencies. Furthermore, more discussion and reflection are needed on future-oriented competence such as in the context of Industry 4.0, but more in general also in the context of transformation and transition.

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## Conclusions

This chapter has reviewed various foundations of competence-based vocational education, addressing theories regarding performance, self-determination, alignment, knowledge domains of occupational competence, shaping competence, instruction, capability, and human development and capabilities. It then reviewed the state of affairs regarding competence practice and pointed at the way in which professional associations, governmental organizations, testing companies, consultancy firms, companies, and educational institutions are dealing with the competence movement. It listed the structural components of mature competence-based education systems, which included competence frameworks, competence taxonomies, competence recognition, competence acquisition, competence assessment, and competence-based human resource management. Next it gave examples of large and comprehensive competence frameworks for the management profession, medical profession, engineering profession, and social work profession. It then listed various examples of research-based competence frameworks. The chapter then shortly went into the issue of defining competence and was completed with drawing attention to the necessity of reflecting on and discussing the competence which is needed for the future. This is no easy exercise, but there have been various studies already which address this. These studies can be used to define future-oriented competencies for secondary and post-secondary levels of vocational and professional education and training. The changes in industry and transformations in society regarding smart technologies, big data, virtual mobility, and carbon-neutral production and consumption on the one hand, and geopolitical, climate change, food production, and water management challenges on the other hand, ask for immediate attention for this reflection, not only for the sake of setting the right course in vocational education and training, and thus focusing on the right things, but also for aligning learning and assessment practices in that direction. And although critics of the competence movement contend that competence-based education draws attention away from learning, it should not. In all education approaches, student learning and development should be at the core (World Bank 2018).

Returning to the introduction of this chapter, the public interest in incompetence is understandable. Incompetence goes with a lot of societal costs. Therefore, vocational education needs to prepare for professional competence (and where possible: professional excellence). It is up to educational designers, teaching professionals, and all those who are involved in quality education, to prepare students for a meaningful position in society in which the public can have trust.

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## Abstract

“Excellence” and “vocational excellence” are buzzwords today, discussed in the literature with various connotations. Individuals want and try to perform their best, but not all succeed. How do some individuals succeed and become exemplary? What makes them the excellent performers? These questions always hound us. This review-based chapter sheds light on excellence and vocational excellence. Grounded on competence, self-regulation, and expertise theories, the chapter begins with defining the term “excellence.” The major portion of the chapter is spent on explaining attributes of vocational excellence. To name a few, individuals with vocational excellence are self-motivated people with high technical as well as soft skills. Ability to network with professionals, to solve problems, to communicate effectively with others, to work successfully as part of a team, and to remain calm and focused on the work are some of the attributes of vocational excellence. The chapter ends with presenting benefits of vocational excellence and ways that educational institutions can contribute to attainment of vocational excellence.

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**Keywords**Vocational excellence · Attributes · Technical skills · Soft skills · Competence

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**Introduction**

The world is evolving fast. Challenges, risks, and problems are emerging that are making human life more difficult in some ways even as new technologies and innovations are being invented to make life easier in other ways. As human beings, we strive to examine challenges, risks, and problems that we come across, find ways to move forward and continue developing, and live prosperous and happy lives. To make this happen, we use our knowledge and skills and try to perform our best. But not all of us succeed. This leads us to these questions: What factors govern the best performance? Why are some people able to give their best while others cannot? These questions can be answered through the terms “excellence” and “vocational excellence,” which is the focus of this chapter.

Many examples in the literature discuss excellence and vocational excellence (Attwood 1984; Imel 1984; James 2016; Miller 1984; Levesque et al. 1995; Nokelainen et al. 2012; SKOPE 2016; Tyson 2015). Yet, they differ on the definitions and explanations of these terms. Some authors present excellence as being similar to competence; others argue that excellence is a step further and at a higher level than competence.

The literature presents differing perspectives on how and when the term “excellence” originated and gained wide recognition, while some (Lewis 2009; Tyson 2015) suggest that “excellence” came into the limelight with Greek philosopher Aristotle’s *Nicomachean Ethics* 1975, wherein he discusses that humans always strive to achieve good and, more importantly, the highest good. Knowledge, skills, and positive attitudes help them acquire pleasure, wealth, honor and virtues, and then happiness – the highest good. The happiest stage – when nothing is lacking – is the state of excellence. This is possible when intellectual virtue, discipline of the mind acquired through education and training, and moral virtue, discipline of action acquired through habituated moral action, are attained. Lewis (2009) noted that the inspiration of the concept of excellence came from Chinese culture. Zhuge Liang (181–234) led a war using excellent strategies and the finest weaponries, which made the Chinese army win the wars they fought under Zhuge’s leadership, therefore achieving the state of excellence. According to Lewis (2009), Zhuge was popular not only as a war hero but also for his moral character – treating people with respect. It is, therefore, argued that human excellence and good citizenship (social responsibility) go together and are integral to each other.

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**What Is Vocational Excellence?**

Changing human lifestyles, advancing technologies, and public anticipation of innovative, advanced, and efficient services press service providers to offer services more efficiently and their employees to have increasingly higher levels of

competence. Interest and enthusiasm to learn about and attain excellence in their respective fields among beneficiaries, service providers, students, and faculty are ever high. Given that service seekers as well as service providers are demanding quality services that are simple and that provide immediate relief, as emphasized by vocational education, this section discusses what excellence is in relation to vocational jobs and delineates various attributes of vocational excellence.

An individual with vocational excellence (VE) gives the best services – as expected or beyond what service seekers expect. According to Smeaton, Hughes, and Graeme (2002), vocational excellence is performing at the maximum expected and/or anticipated level and giving the highest level of satisfaction to the individuals involved. This prompts us to these questions: What are the attributes of vocational excellence? How do we know one has vocational excellence? What makes one so special and outstanding that he/she is able to demonstrate his/her vocational excellence? How does one attain vocational excellence?

Drawing from various items in the literature (Attwood 1984; Miller 1984; Klotz et al. 2014; Nokelainen et al. 2012; Smeaton et al. 2002; Smith and Rahimi 2011) and reflecting on our experiences of working in academia and elsewhere, we present the following attributes of vocational excellence. Conceptually the chapter builds on three complementary lines of thought – competence (Mulder 2014), self-regulation (Zimmerman 2002), and expertise through practice and social engagement (Lave and Wenger 1991; Smith and Rahimi 2011). Competence is the stage of having acquired cognitive, psychomotor, and affective learning. It is assumed that individuals with VE have all the attributes that competent individuals have. Having knowledge about the tasks, having skills to transform that knowledge into action, and having motivation to apply those skills in real life situations make individuals competent. Individuals with higher levels of competency perform better and contribute to enhance their organizational performance. On a similar note, as posited by Zimmerman (2002), individuals with vocational excellence should also be mentally strong and be able to self-regulate themselves to perform and stand out as demanded by the context. Finally, they value participative practice and social engagement (Lave and Wenger 1991; Smith and Rahimi 2011; Wenger 1998). They believe that their services are not limited to their own benefits and satisfaction but have benefits for their communities. They anticipate learning much from their communities and their activities. They feel themselves to be integral parts of the community. Qualities that build these constructs or foundations are what VE individuals uphold.

**Technical skills:** Vocational education should prepare individuals with necessary technical skills. Also referred to as “hard skills,” technical skills are specific skills that an individual possesses that helps him/her perform certain tasks or jobs. Technical skills are prerequisite for any individuals in their pursuit to attain vocational excellence, but technical skills are not all that they need. Technical skill:

... implies understanding of, and proficiency in, a specific kind of activity, particularly one involving methods, processes, procedures, or techniques. Technical skill involves specialized knowledge, analytical ability within that specialty, and facility in the use of the tools and techniques of the specific discipline. (Katz 1974)

Technical skills could be in various fields and/or professions (e.g., medicine, agriculture, business, computer science, environmental science, etc.) and at different levels of competency as outlined in National Institutes of Health (n.d.): fundamental awareness, basic knowledge; novice, limited experience; intermediate, practical application; advanced, applied theory; and expert, recognized authority or specialist, depending on the training, education, and experiences the individuals have.

The literature (Teaching.org 2012) has outlined many attributes that define technical skills of people with vocational excellence. Individuals with vocational excellence are able to run the tools and have thorough understanding of how those tools work, what problems they might see in those, and how to resolve those problems, as well as safety measures to follow while running the tools, to name a few. Innovativeness and motivation to learn and develop new technologies are other important attributes of individuals with sound technical skills.

There is a general consensus among scholars that technical skills are acquired through education and experience. A prevalent misconception among some practitioners, mainly in developing countries, is that technical skill is everything that is required to attain vocational excellence. This is not true.

**Soft skills:** Vocational excellence requires excellence in both technical and soft skills. Smeaton et al. (2002) argue that vocational excellence depends not only on high technical skills but also on individuals' ability to articulate what they are doing and interpret or explain new things and difficulties to their clients and peers. Smeaton et al. (2002), Rampersad (2001), and Nokelainen et al. (2012) identified various attributes of vocational excellence that are summarized in the following paragraphs.

Identifying needs and problems facing communities or organizations, prioritizing them, and deciding when, what, and how to address them are essential attributes of vocational excellence. Vocational training institutions seek individuals to diagnose the problems and issues facing communities and proactively work to solve those issues.

Ability to work in a team is another attribute of individuals with vocational excellence. As and when needed, individuals should be able to bring in other workers and work as a team to attain the goal. The literature does not discuss much about how teamwork can be strengthened. We believe that involving members in planning and decision-making, communicating with and respecting others, and evaluating and reflecting on their work strengthen teamwork.

Individuals with vocational excellence are adaptive and flexible. They can quickly adapt to new situations as they arise. They act and proceed calmly when under pressure. They are apt at making adjustments to the work in progress and when work conditions and circumstances are changing.

Anderson et al. (2013) explain Bloom's learning hierarchy model and argue that individuals with vocational excellence are able to recall, comprehend, apply, analyze, synthesize, and evaluate information and knowledge. Vocational education helps individuals articulate and apply learning as they move from one workplace or working community to another. It is not only them learning and being knowledgeable and intelligent but also helping their clients learn and succeed in the

transfer of the skills and knowledge to solve problems. For effective transfer of learning to happen, individuals with vocational excellence should be good communicators.

Literature underscores the importance of communication in vocational excellence. Individuals with VE have to constantly communicate with their peers and others in their organization and in their communities. Thus, we strongly believe that communication skills are one of the most important attributes they should possess. They require interpersonal skills, listening, writing, and speaking skills.

Gainful employment is one of the key goals of vocational education. It is therefore important to know what employers are looking for in employees vis-à-vis what employees should possess to be exemplary workers that employers would appreciate. Presenting the results of a survey conducted among employers, Smeaton et al. (2002) argued that employees should possess excellent reasoning skills, have the ability to schedule work and diagnose work problems, have work-process management skills, and be able to visualize output and plan the work accordingly. In summary, employees should be farsighted individuals with potential to become managers at their respective institutions.

Individuals with vocational excellence accept the challenges and risks that come along their paths as learning opportunities. They are able to manage those challenges and risks as they keep their mission going and thus become stronger and more confident in their endeavors. On a similar note, they do not give up even in difficult situations. They keep working on their endeavors, thus demonstrating resiliency and ability to work under pressure. Getting back to finishing unfinished tasks is an important quality they possess.

Reaching out and networking with other professionals and professional organizations; sharing innovations, information, knowledge, and skills; and learning from such networks are inevitable parts of attaining vocational excellence.

Being resourceful is yet another attribute of VE. This is possible because they have a rich body of knowledge and skills. Having been able to network with a large number of other professionals and organizations, they have a vast store of information that they can utilize to make informed decisions. Additionally, because they are credible and trustworthy, they are able to pull resources from many sources and utilize them wherever and whenever resources are needed the most.

People with vocational excellence possess Total Quality Management (TQM) attributes. They are lifelong learners – i.e., learning continuously and striving toward excellence. Knowledge ages rapidly, and it needs to be updated by further learning (Rampersad 2001). Individuals with vocational excellence strive to learn, establish collaborative relationships with industries, and eagerly share successful experiences and skills with others. They develop skills as experts through networking with colleagues from other teams, observing other people perform at their best, keeping up-to-date with developments in their professions, and exploring new possibilities in their careers.

Individuals with vocational excellence strive to learn from their own actions and also from the people around them. They learn from their teachers, fellow workers, and experiences at their workplaces. Individuals also have the zeal to learn from

people in their communities as they work together. As Nokelainen et al. (2012) describe, in essence the attributes, attitudes, and values of individuals and their interactions with others and with their environments underpin the development of vocational excellence.

Vocational excellence is not only for learning to know and learning to do but also for learning to be. Individuals who embrace higher levels of learning and make learning their way of life realize that they are the experts and should be exemplary to the organizations or communities they belong to. They also possess occupational knowledge and skills, attain occupational advancement, and hold aspirations, attitudes and values, feelings of success, and citizenship.

Individuals with vocational excellence demonstrate social responsibility; they learn and work not only for themselves but also for others – for example, for their communities. Such individuals are highly respected in their societies.

They value time and strive to accomplish tasks on time. They understand that time is precious and limited. Striving to achieve in career, knowledge, skills, recognition, etc., is paramount to them. They are strongly dedicated to their professions. They are committed to pursue and finish the tasks they are assigned. They are proud of their own work and the work of others in their organizations.

They are self-initiators and are able to work and succeed on their own initiative. They are eager to compete when opportunity arises because they possess a competitive spirit. They are enthusiastic about their work, enthusiastic to learn new things, and enthusiastic to fix problems. With a well-thought-out plan, they are clear about what they are doing, what their objectives and goals are, and how to attain those objectives and goals. They follow the trajectories they have envisioned. They prepare and organize things well; therefore, they know the bits and pieces of the things they are involved in. People observing them and their actions and behaviors clearly understand their message: they are fully aware of what they are working for, what their clients or peers are expecting from them, and what they should do to promote excellence and achievement in others.

In all these actions, they evaluate their work and evaluate themselves – their mental preparedness and/or motivation to their work. They critically evaluate each of their actions and their works/projects and correct them as needed. They learn from their actions and experiences. For example, they accept the criticisms of other people, they carefully examine those criticisms, and they learn from them and improve their actions as needed.

Vocational excellence promotes professionalism. The Merriam-Webster (2018) dictionary defines professionalism as “the conduct, aims, or qualities that characterize or mark a profession or a professional person”; and it defines a profession as “a calling requiring specialized knowledge and often long and intensive academic preparation.” Individuals with VE highly value their professions, adhere to professional ethics, and contribute to strengthen their professions. They live up to the standards expected by their profession and become inspirations for their peers.

In summary, individuals with vocational excellence strive to attain mastery by learning things as deeply as possible, and they possess high levels of technical and social skills and continually reflect on their entrepreneurial abilities.

## Benefits of Vocational Excellence

Benefits of vocational excellence are many, technical, social, and economic, and of benefit to individuals, communities, and industries, locally and nationally (Mayhew et al. 2013a, b; Chankseliani and Mayhew 2015). Individuals with vocational excellence have gone through the learning hierarchical ladder – cognitive, psychomotor, and affective. This means that they are not only aware about or possess knowledge on their respective subjects, but they also have skills to apply that knowledge and are motivated to put those skills into action. They obviously have gone through higher levels of technical training and have attained a high level of technical ability that enables them to observe, assess their situations, diagnose problems, and make appropriate decisions to address those problems. Further, vocational excellence also bolsters individuals' creativity.

Additional benefits of VE as outlined by Mayhew et al. (2013a, b) and Chankseliani and Mayhew (2015) include motivation to strive for a higher standard in their endeavors or work, for which they diligently pursue refinement of existing techniques.

Communication and interpersonal skills are essential for people to achieve vocational excellence. Additionally, communities today are getting more diverse than ever; thus cross-cultural understanding is paramount. Individuals with vocational excellence possess these qualities – communication skills and ability to work with diverse teams – and so impart lasting impact on their organizations.

Performing their work with confidence and working independently with others' assistance are other benefits at the individual level. When individuals are at the height of their knowledge and skills, they can make judgments about what, how, why, when, and where to act, whom to seek help from, and to whom to provide support. They are able to lead the tasks that are in their hands because they are confident in their work and their ability to deal with others – their clients, their counterparts, and their organizations.

Doing the right things on time with the right approach is what successful individuals do. In the same vein, individuals with vocational excellence efficiently manage their time. As the above discussion alludes, the trajectory of achieving vocational excellence is complex and passes through cognitive, psychomotor, and affective phases. While one goes through these phases, he/she gets involved in many types of activities that serve as the platform for actors to plan, act, reflect, and synthesize their learning experiences. As a result, the activities in the succeeding cycle are more refined and advanced than those in the preceding ones. This is an example of improvement through practice.

It is worthy to note that individuals who are committed to experiential learning and who strive to attain excellence also pursue self-regulated learning. As noted by Wolters (2003), “. . . self-regulated learners are autonomous, reflective and efficient learners, and have the cognitive and metacognitive abilities as well as the motivational beliefs and attitudes needed to understand, monitor and direct their own learning” (p. 189). Wolters adds that self-regulated learners believe that efforts lead to success. Perseverance pays off.

Vocational excellence scholars are career-focused. They strategically examine and foresee job trends (Teaching.org 2012) and pursue studies in subjects that industries are looking for in their employees. Also, they can independently establish and maintain extensive networks with professionals, peers, and customers. They strive for career progression such as pay raises, promotion, and advancement to managerial positions. Because they have all the skills that are required to start new ventures and/or businesses, many of them can be self-employed if they want.

Businesses and industries strive to offer new, efficient, and quality services to their customers at affordable rates so that as many customers receive their services as possible. To make this happen, however, they need a sound plan, efficient machines, and skilled employees who can run those machineries. Industries and employers greatly benefit from employees with vocational excellence because these employees can offer new services or products, and they master new technologies for the companies that hire them. Eventually, vocational excellence does not only improve employee performance but provides employers higher return on investment together with positive publicity and increased prestige.

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## **Educational Institutions' Roles to Attain Vocational Excellence**

Educational institutions such as colleges, universities, and vocational and technical schools play critical roles to impart to students theoretical as well as applied knowledge and skills and to motivate students to apply their skills in their respective professions. Tinto (1987) stressed that students come from varied socioeconomic backgrounds, and vocational and technical schools environments may be entirely new to them. Welcoming new students and guiding students to integrate themselves within the college culture through inception workshops, extracurricular and curricular activities, internships, informal student interactions, and faculty-student interactions are paramount.

It is essential to start orienting students about VE right from the very beginning so that they envision and plan high and they uphold high expectations and motivations. Schools should expose students to high standards and goals and motivate and prepare them to long for and strive to attain those standards and goals (Magisos et al. 1984; Nielsen 2010; Smeaton et al. 2002). Attaining excellence requires well-developed foundation skills in the subject areas he/she will pursue in his/her careers.

Competitiveness leading to excellence is a skill that requires preparation and practice. Opportunities to compete motivate students to work hard to improve their level of skills and thus achievement. So, schools are encouraged to hold competitions among students and inform participating students how they perform compared to the given standards.

Academic advising is an integral component of vocational education. According to Astin (1984), students' proficiencies, academic or otherwise, depend on availability of faculty advisors, mentors, student affairs professionals, and resources and how they facilitate students to get involved in college activities. Students should



have opportunities to interact with faculty members and other school staff members. Faculty and staff advising will greatly help students find not only the right courses that suit their interest and backgrounds but also the resources that are available within the schools and, ultimately, to create proper learning environments. Suvedi et al. (2015) underscore the need to strengthen advising services for college students. The academic advisors need to organize themselves and frequently interact with their advisees.

How teachers teach and behave with students greatly influences student learning. Teachers are therefore advised to be extremely skillful in communicating with students. A University of Colorado (1988) report provides teachers and advisors with these tips: choose the right communication methods, adhere to timelines, dress well, use the right words with appropriate level of emphasis, use humor, prepare before class, use innovative learning tools, give concrete and real-life examples to elaborate on points, involve classes in role play, encourage all students to participate in class, and seek students' feedback about facilitation.

Gopinathan and Lee (2018) describe the features of a good school that help attain excellence. These features include knowing the needs and interests of students, ensuring all students acquire fundamentals of literacy and numeracy, creating a positive learning environment, having caring and competent teachers, securing parental and community support, and providing opportunities to all students, regardless of family circumstances.

To serve students with high quality educational services, instructional staff members should be current with information, knowledge (expert), and skills. Their presentations should be appealing and motivating to students. Schools should be prepared to train advisors as needed. Instructors should also be motivated to teach their students, to understand their students' learning needs and employer demands, and to offer the best learning experience to their students that they can.

Curricula guide teaching and learning in schools and colleges. Schools should regularly evaluate their curricula, soliciting input from experts, past graduates, students, and employers, and update and redesign the courses as needed (Magisos et al. 1984; Nielsen 2010; Smeaton et al. 2002). The world is dynamic. Communities, industries, consumers, and producers, to name a few, all are changing, and their needs and demands are changing, too. Colleges and schools should be mindful of these changes and update and revise their educational programs so that their graduates are comfortable and productive in the changed contexts. Those schools and graduates who can anticipate the future and prepare themselves for the future will stand out and will attain excellence.

Much has been discussed about students, teachers, and advisors as they relate to vocational excellence. But, there has been limited discussion about roles of support staff, parents and family members, communities, and organizations to help students attain, use, and sustain vocational excellence. We believe that support staff are critical to students' learning and they should be proactive to cater to student needs and be accessible as needed.

Parents and family members make significant contributions to student learning. To build strong trust and rapport between student families and schools, it is highly



recommended that schools survey student families at the beginning of the enrollment and use survey input to plan for educational excellence, and, ultimately, students, their families, and schools together celebrate the excellence. Parents and family members should also render moral support to help students learn and grow intellectually and otherwise.

Communities should also offer necessary support – providing platforms to showcase talents, acknowledging talents and contributions, and marketing the talents, among others. It is the community where excellence is recognized, supported, and sustained.

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## Conclusion

Discourse on vocational education and training has been going on for a long time. A body of literature exists on this topic, but literature on vocational excellence has been sparse and scattered. A document discussing attributes of vocational excellence has been long overdue, a gap which this chapter has tried to fill.

Individuals need to attain high levels of vocational excellence to meet changing societal needs. As outlined earlier, vocational excellence is grounded on three pillars: competence, self-regulation, and social engagement. And it requires individual, family, and community efforts; vocational excellence results from the synergistic effect of these entities. The discussions point out that individuals desiring to achieve vocational excellence should strive for high levels of motivation, competence, and resilience. These professionals are resourceful, and they are valuable capital or assets in themselves.

The discussion illustrates that educational institutions, families, and societies have great influence on how individuals attain and sustain vocational excellence. We emphasize that all these entities – i.e., families, communities, and educational institutions, in particular – have to be proactive and competent in themselves to assist students in acquiring vocational excellence. The educational intuitions and their staffs should understand the meaning and gravity of vocational excellence. Evaluating educational programs, including advising and revising curricula, using cutting-edge technologies, providing opportunities for hands-on learning, exposing students to problem-based learning, organizing competitions among students, and recognizing students for their achievement are among the ways that educational institutions can promote the development of vocational excellence.

That process begins with educational and vocational training institutions following a six-step procedure: selecting the students, developing and revising curricula and instruction methods, providing qualified teachers, providing a conducive learning environment, managing the programs well, and continually evaluating and updating programs.

Because technical skills are prerequisites to attain vocational excellence and individuals acquire technical skills through education and training, educational institutions need to tailor their training programs to the needs of and make them accessible to members of disadvantaged groups who otherwise might not be able to afford or access them.

Teachers play crucial roles in students' pursuit of educational excellence. To prepare teachers for teaching vocational excellence, institutions can bring teachers together with scientists and/or engineers from industry or government so that they can hear about cutting-edge research and development, ask questions, and network with other professionals.

Just as students should be evaluated for what and how they are learning, educational institutions need to continually evaluate their instructional programs, their professional development levels, teacher qualifications, and program management, among others (Maryland State Department of Education 2015).

We strongly feel that training to achieve vocational excellence should go beyond schools and colleges and reach people in all walks of life – employers, industries, consumers, politicians, to name a few. We believe that nonformal lifelong education would greatly contribute to making the world and the people living in it more prosperous and happy, as Aristotle envisioned.

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# Recognizing and Developing Vocational Excellence Through Skills Competitions

# 63

Susan James Relly and Ewart Keep

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## Abstract

Vocational excellence is not easy to define, not least because of differing country contexts, expectations, and norms. Yet, excellence in vocational education and training abounds. One such example is skills competitions. These provide both a benchmark for high performance and an objective way to assess vocational excellence, and where they are international, they also allow cross-country assessments against commonly agreed standards. International skills competitions, specifically WorldSkills Competitions, are the focus of this chapter with the aim of illuminating what vocational excellence is. Drawing on research on WorldSkills Competitions allows an opportunity to understand better the factors that contribute to the development of vocational skills to a high standard, while focusing on understanding the knowledge and skills development of the competitors, and the people involved in this development, allows us to begin to understand better how vocational excellence can be achieved and recognized.

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**Keywords**

Vocational excellence · Skills competitions · Vocational education and training · Standards

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**Introduction**

Economies around the world would not survive without vocational education and training (VET) systems. Yet, criticisms of the design and delivery of VET provision by some politicians and businesses are long standing (see Keep and Mayhew 1988, for a discussion of the UK). While there is clearly room for improvement in VET worldwide (OECD 2015), evidence also points to many positive aspects of VET (Maclean and Wilson 2009) and clear illustrations of vocational excellence. For example, Keep and James (2011, p. 56) highlight the fact that competition in the UK for apprenticeship training places with companies such as BT and Rolls Royce outstrips competition for undergraduate places at elite universities (e.g., Oxford and Cambridge) such is the reputation of these programs.

The other point to make at the outset is that national norms and conceptions of vocational learning for any given occupation at any given level can vary significantly in terms of curriculum and content from country to country. As research by Brockmann et al. (2011) demonstrates, the conceptual and philosophical underpinnings of what it requires by way of skill and knowledge to be able to practice in an occupation such as nurse or bricklayer are not uniform across Europe, and Anglo-Saxon models of occupations and vocational skill diverge quite significantly from those found on the continent.

As a result, what constitutes vocational excellence can vary across national boundaries, and hence international definitions of vocational excellence are not simple to arrive at. This chapter focuses on a practical example of an activity that both celebrates and actively supports the development of vocational excellence – skills competitions – to begin to understand better what it looks like and how it is developed. These competitions provide both a benchmark for high performance and an objective way to assess vocational excellence, and where they are international, they also allow international assessment against commonly agreed standards. They also allow an opportunity to understand better the factors that contribute to the development of vocational skills to a high standard. The next section provides the context of skills competitions, the pinnacle of excellence, followed by a discussion of current understanding of what vocational excellence encompasses.

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**The Pinnacle of Excellence?**

Although some of the research on the role of competitions in education (for example, Verhoeff 1997) focuses on the potential for competitions to discourage a student's learning (Wang and Yang 2003), a great deal of other work has focused on how

competition can be used to good effect in specific subjects such as engineering in middle school classrooms (Sadler et al. 2000), engineering in universities (Sirianni et al. 2003), computing (Cormack et al. 2006), and music (Burnsed and Sochinski 1983). Yet relatively little has been written about competitions in VET (Berry-Lound et al. 2017) and even less attention has been directed to the end of understanding better how competitions can be used to raise standards in vocational excellence.

The Olympics are synonymous with sporting excellence. In much the same way, WorldSkills Competitions (WSCs) are now synonymous with vocational excellence (for more information on WSC, see [www.worldskills.org](http://www.worldskills.org)). The WSC is recognized by many as the pinnacle of excellence in VET (EduCluster Finland 2013). Competitors are tested and measured in their performance in work task simulations and practical tests and are awarded points by the judges. In each skills area, the competitor with the most points over 500 is awarded gold, second most points is awarded silver, and the third highest points receives a bronze medal, similar to the sporting Olympics. In addition, any other competitor in that skill who achieves a score of 500 or over in the competition assessment, and did not achieve gold, silver, or bronze, is awarded a Medallion of Excellence. The WSC is organized by WorldSkills International (WSI). WSI is a nonprofit association that promotes VET internationally in traditional trades and crafts as well as in multiskilled vocations, such as Manufacturing Team Challenge, and those utilizing newer technologies and innovative services. Currently, the competition brings together around 1000 contestants mostly aged 16–22 from 53 countries, who gather every 2 years to compete publicly and demonstrate excellence in 50 skill areas (it is important to note that not every country competes in every skill). The skill areas are grouped into six skills sectors:

1. Construction and building technology
2. Creative arts and fashion
3. Information and communication technology
4. Manufacturing and engineering technology
5. Social and personal services
6. Transportation and logistics

For a more detailed history of WSC see [http://www.worldskills.org/index.php?option=com\\_content&task=view&id=17&Itemid=453](http://www.worldskills.org/index.php?option=com_content&task=view&id=17&Itemid=453).

These competitions have been held biennially for 70 years. The first national competition of the International Vocational Training Organisation (IVTO) took place in Spain in 1947. In 1950, Portugal joined and in 1953, five other European countries – Germany, Great Britain, France, Morocco, and Switzerland – participated in the event. These competitions were formerly called Skill Olympics and mirrored the Olympic Games with the main purpose to:

create a youth festival in which competitors would recognise their role in helping to construct the future. Individual excellence is recognised in sports and the arts, and for this reason it was felt that achievements in vocational education and training were deserving of the same. (Wilson 2000, p. 201)

Each participating country has an organization which brings together the squad and team and provides for and organizes the inherent training required of team members by training manager experts (TMEs – a training manager expert is the expert in that particular skill who trains the young person) for that country to compete at the WSC. In the UK, for example, TeamUK is managed by WorldSkills UK, an organization which brings together skills and careers experiences from across the UK (WorldSkills UK 2014). In each of the four countries (England, Wales, Scotland, and Northern Ireland), WorldSkills UK organizes local, regional, and national skills competitions in partnership with industry and educational institutions.

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## Vocational Excellence

Skills competitions provide a benchmark for high performance and an objective way through which to assess vocational excellence (James Relly 2016). Competitors, whether an individual or a team (for example, landscape design), complete “test projects” and are assessed according to criteria contained in the WSI “Technical Descriptions.” These descriptions define “the name of the skill, the competency specification and scope of work . . . the conduct and assessment criteria of the competition, and any skill-specific safety requirements” (WSI 2010, p. 34). Criteria include planning, technical accuracy, innovative thinking, and problem solving (WSI 2010). In addition, WSI have developed a set of international standards, the *WorldSkills Standards Specifications*, which “reflect the global occupations or work roles that are represented by the WorldSkills Competition” (WSI 2017). The specification of each skill has a framework. According to WSI (ibid.), the value of these frameworks is threefold:

- *As the reference points for the WorldSkills Competition, they establish the baseline from which to grow and reward authentic vocational performance.*
- *For WorldSkills members and more widely, they provide a benchmark for national and regional standards.*
- *As economies and markets become increasingly international, the specifications support young people and adults to survive and thrive in the modern world.*

Moreover, the specifications:

- *Cover the specialist, technical, and generic skills that comprise intermediate work roles across the world*
- *Set out what a capable practitioner must know, understand, and do*
- *Are prepared, with guidance, by technical and vocational WorldSkills experts*
- *Are consulted upon and updated biennially with industry and business worldwide*
- *Indicate the relative importance of each section of the standards, as advised by industry and business*

There is a specification for each skill represented at the WSC (see <https://www.worldskills.org/what/education-and-training/wsss/>) which is updated biennially after

consultation. Some evidence (Messenger et al. 2011) points to countries incorporating the standards into their apprenticeship programs as policy, and into the VET system more widely (Messenger et al. 2017); however, other countries seem to use the specifications purely for training their elite squad. Few countries have competitors, and VET systems, whereby their occupational training would place them at the level where they could compete on the world stage without extra training. James and Holmes (2013) provide the following illustration from the UK in their work on WSC and workplace learning environments.

### **Illustrative Example of the Development of Competitors for Team UK Development of Team UK**

Prior to trying out for TeamUK, some of the competitors are full-time college or university students, but many of them are, or have been, apprentices. So, while some of their skill development would have taken place within educational institutions, the vast majority of the training to the point of trying out for the UK squad would have occurred in the workplace. The WSC standards require demonstration of superior performance, which means participants undergo intensive training to ensure their skills, knowledge, and ability are raised to meet these standards of vocational excellence. Consequently, the competitors' skills and knowledge developed in their workplaces are built upon in the WorldSkills UK training.

However, due to the potentially different starting points for each squad member in terms of knowledge and skill, WorldSkills UK takes a number of factors into consideration to ensure the most suitable training profile for each potential Team UK member is developed. These factors are:

- The training matches each squad members' requirements at that precise point.
- The trainer has the understanding and skills to train to world standards with the appropriate briefing or has the ability to find suitable training.
- The environment enables, and requires, world standards to be practiced – training location is key.
- The training incorporates formative assessment and feedback to the squad member and training manager expert (TME).
- The training is varied and transparent in its settings, trainers, and material resources.

The final team competes against other countries, with the best performers receiving medals.

To understand better the pathways of the competitors towards competing at WSC, and their development of vocational excellence as part of this journey, the WorldSkills Foundation (WSF) funded a research project, *Modelling Vocational Excellence (MoVE)*, at the 2011 WSC. Prior to this project, there was little research



not only into skills competitions but also vocational excellence. What was available stemmed from Australia, Finland, and the UK (see *inter alia* Nokelainen and Ruohotie 2002, 2009; Nokelainen et al. 2008; Mayhew et al. 2009; James Relly 2016; Smith and Rahimi 2011).

The MoVE project, conducted by researchers from the University of Tampere (Finland), RMIT University (Melbourne, Australia), and the University of Oxford set out to investigate the cognitive, affective, and social dimensions of expertise, and the processes through which such expertise is most effectively acquired. To do so, two theoretical orientations were adopted (Nokelainen et al. 2012, pp. 5–6):

1. The first theoretical orientation draws on research into individual attributes and characteristics and the dimensions of intelligence, including Barry Zimmerman's research on self-regulation (Zimmerman 1998, 2000, 2006), Francois Gagné's research on development of talent (Gagné 2004, 2010), and Howard Gardner's research on multiple intelligence areas (Gardner 1983, 1999). Using these theoretical perspectives, the originator of the MoVE research, Professor Petri Nokelainen developed a theoretical model to explore the acquisition of vocational expertise. The model maps the development of vocational competence in terms of cognitive skills and affective abilities (expressed as Multiple Intelligences domains), work skills, influential individuals, and factors related to self-regulation (motivation, volition, and self-reflection). The major proposition derived from this aspect of the theoretical framework is that there is a relationship between key attributes and characteristics, and vocational performance. In the case of the WorldSkills International Competition, performance is measured by Competition results, and comparisons are drawn between the different perceptions of attributes and characteristics held by medal winners and other Competitors.
2. The second field of enquiry uses the work of Etienne Wenger, who pioneered the concept of communities of practice, and focuses on the settings in which vocational expertise is acquired. Wenger argues that learning involves participation in social settings and is a consequence of belonging to a group or community which has particular meaning in the lives of the learners (Lave and Wenger 1991; Wenger 1998). In other words, in addition to individual volition and cognitive development, learning involves interaction and communication. Wenger uses the concept of 'community of practice' to describe the social context of learning and identifies three dimensions of practice which characterize a 'community': mutual engagement; a joint enterprise; and a shared repertoire of routines, stories, and ways of doing things (Wenger 1998, pp. 73–85).

Wenger (following on from his work with Lave 1991) regards communities of practice as sites in which identity is formed and points out that learning is a process of identity formation. In this context, as well as leading to the acquisition of skill and knowledge, vocational learning is a process of professional identity formation. The specific communities in which vocational learning takes place thus influence the formation of identity, the values, and attitudes individuals adopt and the ways they

perform as professionals. Identity and practice are mirrors of each other. Being a particular type of professional – a bricklayer, a carer, a doctor, a mechanic – gives a certain focus (Wenger 1998, pp. 148, 152). The practices and values of particular professional communities are the framework for developing competence as a community member and as a professional. Via these communities, skills and knowledge developed through experience can be transferred between more experienced workers and newer entrants to the workplace.

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## Stakeholders in Vocational Excellence

The MoVE research showed that developing the skills and knowledge in the competitors so they are able to compete on the world stage involves many stakeholders. In addition, their participation and involvement contributes to the capacity building of the wider VET system. Individuals develop vocational skill and knowledge in the workplace, school and/or college through the direct and indirect guidance of more experienced people (Billett 1999); they are part of a community of practice influencing each other and the systems or communities of which they are member(s). The attributes, attitudes, and values of individuals and their interactions with others and with their environments underpin the development of vocational excellence in these systems.

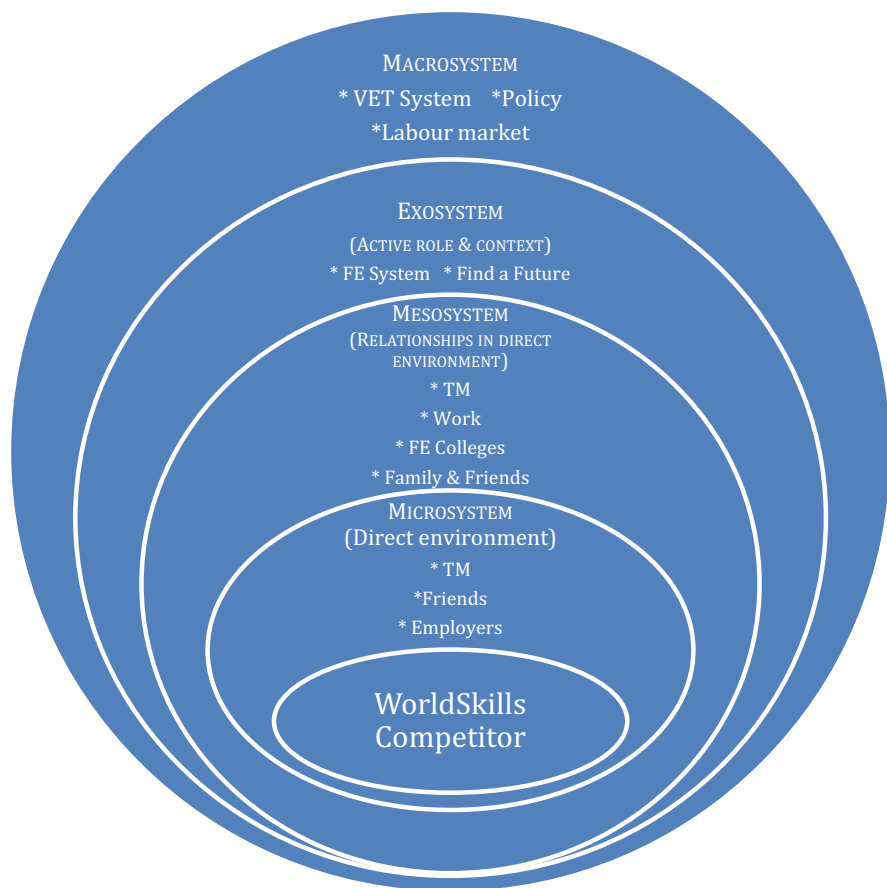
It is this premise that underlies the conceptual model (see Bronfenbrenner 1979) in the *Developing and Understanding Vocational Excellence* (DuVE) research conducted at the University of Oxford in conjunction with WorldSkills UK (James Rely 2016). The DuVE research consisted of six projects:

- Project 1: Modelling the characteristics of vocational excellence
- Project 2: Learning environments to develop vocational excellence
- Project 3: Benefits of developing vocational excellence
- Project 4: FE college participation in skills competitions: costs and benefits
- Project 5: WorldSkills contestants and entrepreneurship
- Project 6: Training managers: benefits and barriers to WorldSkills UK participation

The DuVE suite of projects (James Rely 2016) showed that WorldSkills competitors sit at the center of these communities (Nokelainen and Stasz 2016; Nokelainen et al. 2013a, b) and systems and are the main beneficiaries of participation in WSCs (Chankseliani et al. 2015a). However, they are supported by training managers (TMs) who assist competitors by strengthening and underpinning the learning and development of team UK members (Allen et al. 2015). They do this through their own professional knowledge and expertise and from drawing on the communities of which they are member(s) (Wilde et al. 2015). For example, fellow TMEs in the WorldSkills community share their knowledge. Thus, the knowledge and skills of TMEs working in a vocational education college can be reflected in the achievements of their colleges (identified in Project 4) and its curriculum development. The industry-employed TMEs bring their industry experience to the training

of the competitor. This real-world knowledge can help ensure that competitors, and college-based TMEs, are at the cutting edge of new technologies and processes (Project 6).

In addition, the young people who are selected to join Squad UK receive significant training in the lead up to team selection, and they return to their workplace or college with this skill and knowledge development, thereby diffusing knowledge and introducing their employers to new techniques and/or products (James and Holmes 2013). In that sense, the “reach” of the capacity building is wider than initially suspected – it extends beyond Team UK members as represented in Fig. 1. Employers in the research observed enhanced employee performance and enjoyed good publicity and higher prestige, with some companies even attracting more clients (Chankseliani et al. 2015a).



**Fig. 1** Communities of practice and systems of WorldSkills Competitors

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## Infrastructure and Support for Developing Vocational Excellence

The level of investment in the competitors for each of the country's teams is significant in terms of time and finances and involves infrastructure and support across a variety of systems. Achieving these results stems from the involvement of people from all levels, illustrated as above. What follows is based on research in the UK; similar research conducted in other countries is not evident.

While the research showed that some aspects of the infrastructure and support still needed development (James Relly 2016), there are many areas where the infrastructure and support around skills competitions is having an impact on the wider VET system in the UK. For instance, many vocational colleges have in-house competitions embedded in the curriculum, and some participate in local, regional, and national competitions, which can lead to WSC participation. The mechanisms through which this participation occurs have formed case studies (Doubleday 2016) from which others (colleges and employers) could learn. Some employers are building on the knowledge and skills of competitors to deliver in-house training (Chankseliani et al. 2015a).

Within these competitions, networks are developed and knowledge and skill shared. One such example is the Vocational Masterclasses (Find a Future 2015), which were led by people directly linked to Team UK. Participants in the classes were practitioners in the wider system. The program focused on developing new skills and techniques around competition activity and importing these into everyday teaching and learning practices akin to mainstream learning provision. Another is the use of the social networks for future employment. There were examples of competitors starting their own businesses and emulating the training they had received for their new employees (Chankseliani et al. 2015a). A key finding from the research for the development of vocational excellence within the wider VET system was that knowledge exchange between colleges regarding different ways of becoming involved in competitions acted as a means to support those educational institutions who are interested in becoming involved. In addition, facilitating knowledge exchange between colleges in order for them to learn how other colleges fund their participation in competitions is particularly valuable as this challenge is one all colleges face regardless of their relative levels of involvement.

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## World Class Standards

The vocational route is often compared to higher education, the so-called “golden route,” in terms of whether parity of esteem is possible. WorldSkills Competitions show this comparison to be a red herring: young people competing on the world stage need no comparators and demonstrate their expertise in their chosen fields on an international stage.

The vocational arena and the route from which these competitors have developed their knowledge and skill provide a solid base from which to progress from their work role to competing at the highest levels of vocational excellence at WorldSkills

Competitions. There is much good practice evident. Those young people who came from positive, supportive work environments and were given a wide variety of tasks to complete during their training in the workplace were more likely to make the final team selection (James and Holmes 2013). In addition, in the UK, there was evidence that some learning providers were using world class standards, derived from the WSC, and deploying these via competition scenarios and spaces to replicate WSC-type learning (Allen et al. 2015; Wilde et al. 2015). This offered positive experiences for students across different levels, i.e., from initial entry level through to young people vying for a place on Team UK. To ensure vocational excellence is developed at each of the levels, it is important that curriculum development incorporates WSC standards.

Moreover, many benefits of participating in skills competitions, from local through to international, were identified in the DuVE research projects (see [www.vocationalexcellence.education.ox.ac.uk](http://www.vocationalexcellence.education.ox.ac.uk)), leading to the development of vocational excellence and world class standards. The majority of competitors reported enhanced confidence and the development of communication skills and time-management capabilities. Career development and progression opportunities, particularly those related to self-employment, networking, and professional reputation, were also identified as important benefits.

The main gain from supporting the WSC for employers and industry related to exposure to new techniques or products, teamwork-related benefits, enhanced employee performance, good publicity, and higher prestige, attracting more business clients and improvements in recruiting new talent, all of which help in the development of vocational excellence.

The benefits to vocational colleges revolved around continuing professional development (CPD) opportunities for teaching staff, enhancing the quality of teaching and learning, contributing to positive publicity and reputation, accessing new equipment, networking, and opening doors to other opportunities.

Importantly, skills competitions have the potential to contribute to improving the attractiveness of VET by raising awareness about vocational occupations and helping young people understand that the vocational route can lead to a rewarding career.

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## Conclusion

WSI has a long history of promoting and staging competitions and European Commission policy encourages skills competitions as a way to enhance the image of vocational education (for example, Bruges Communiqué 2010) and strive for vocational excellence. However, there has been little research on WorldSkills Competitions and skills competitions in general as a means of achieving vocational excellence. The DuVE suite of projects and the MoVE project provides an actual research base to increase theoretical and practical understanding of vocational knowledge and skills development. It allows for an understanding of what does and does not work, and provides a platform for practical application of the research findings, for example, in terms of creating high-quality workplace learning provision

leading to vocational excellence (Chankseliani et al. 2016). The young people competing in WSC are high achieving. Understanding their knowledge and skills development, and the people involved in this development, through high-quality research allows provides a beginning to understanding better how vocational excellence can be achieved. These existing studies provide a research baseline for future research about vocational excellence.

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## Abstract

This chapter presents an overview of extant literature on competence proficiency scaling. To structure the field, the chapter distinguishes between three aspects of competence proficiency scaling: (1) methodological approaches to competence proficiency scaling and the methodological and conceptual critique of this phenomenon; (2) the contextual factors of competence proficiency scaling, including organizational and societal factors; and (3) the implications of competence proficiency scaling to the vocational and professional education and didactics.

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The chapter overviews a range of different approaches to competence proficiency scaling applied in the vocational education and training, higher education, and human resource management by synthesizing the perspectives to competence proficiency scaling from the different disciplines, such as education science, education sociology, work psychology, and human resource management and development. Particular attention is paid to the variety of the functions and application fields of competence proficiency scaling, such as assessment of competence acquired in the learning and work process, identification and hierarchical structuring of the requirements of performance in the occupational fields, and identification of the potential of competence development and progression in the occupational fields.

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**Keywords**

Competence · Competence proficiency scaling · Competence development · Proficiency criteria · Performance · Vocational education and training · Human resource management

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**Introduction**

Proficiency scaling is an inherent part of the processes of education, work organization and management, public administration, and other fields of social life, necessitating diagnosis, evaluation, measurement, and control of individuals' capacities and processes of learning and performance. The wide range of potential applications of proficiency scaling defines the complexity and heterogeneity of this phenomenon. Proficiency scaling is also an inherent element of competence-based approaches to education and training.

The relevance and importance of competence proficiency scaling is defined by the widespread implementation and development of competence-based approaches in different fields. It involves identifying, evaluating, and comparing levels of competence to ensure learning outcomes and curricula match required levels, planning and implementing learning and competence development processes, and guiding involved actors on the potential of competence development provided. Such a range of possible applications inevitably begs fundamental questions about the nature and content of competence proficiency scaling.

This chapter provides a systemic and holistic overview of competence proficiency scaling by (1) discussing the concept and methodological principles of this process; (2) outlining methodological and conceptual critiques; (3) considering contextual factors of competence proficiency scaling, including organizational and societal factors; and (4) discussing the implications of competence proficiency scaling for education and didactics.

The focus of this chapter is on scaling of vocational and professional competence, so issues of scaling of other types of competence, such as key competence or learning outcomes of general education, are not addressed.

## Conceptual and Methodological Principles

Proficiency scaling is a key feature of competence, defining and structuring core processes of competence design, development, and application. Proficiency scaling by itself is a highly complex process which refers to a range of factors, such as minimal requirements of performance defined by work characteristics and labor market needs, demands and requirements of work organization, gradients or steps of development of competence, or institutionally-developed, hierarchically structured pathways to acquire competence in education systems. Proficiency scaling measures demonstrated competence against defined levels according to specified criteria, usually originating from required work performance in the occupational field. The key object of competence proficiency scaling is an individual's performance. Competence proficiency scaling is a process for measuring and structuring the development of skilled performance, identifying stages of development by indicating acquired capacities of performer from one side and stages of more sophisticated capacities attained through stages of developing further skill from the other side (Dreyfus and Dreyfus 1980).

Different conceptual and methodological approaches to competence provide different goals and perspectives of competence proficiency scaling. A *behavioral approach to competence* focuses competence proficiency scaling on identifying factors of successful and effective performance (Le Deist and Winterton 2005). Here the main focus of competence proficiency scaling is on competence as a fundamental behavioral characteristic of the individual, which influences performance through relationships with work characteristics, functions, and organizational environment (Shavelson 2010). Such behavioral competence can be learned and reliably measured as well as aligned with the core competence of organization (Le Deist and Winterton 2005). However, the divergent practices of education, training, and human resource development employ different competence frameworks (personalized competence profiles, portfolios) to identify attained learning outcomes. Assessment often applies the logic of excellence measured against top performers using psychometric tests (Winterton 2009).

A *functional approach to competence* focuses competence proficiency scaling on occupational requirements expressed as occupational standards defined by stakeholder representatives (Le Deist and Winterton 2005). Assessment of competence and quality assurance is based on bureaucratic procedures, and the focus of assessment is on the ability to demonstrate performance to the standards required of employment. Assessment is mostly based on the logic of identifying a threshold of minimum performance or lowest common denominator (Winterton 2009).

From the perspective of a *multidimensional, holistic approach to competence*, the focus of competence proficiency scaling is on developing occupational and professional competence in different contexts (Le Deist and Winterton 2005). Comprehensive understanding of the structure and contents of competence includes knowledge, skills, and social competencies, in combination representing the capacity of an individual to act in the craft or occupation. This approach to competence

**Table 1** Methodological approaches to competence proficiency scaling

Conceptual and methodological approach to competence	Competence proficiency scaling		
	Focus	Important functions and processes	Dominant logics and approach
Behavioral approach	Competence as a fundamental behavioral characteristic of the individual, influencing performance through relationships with work characteristics, functions, and internal organizational environment	Competence development through learning and training, reliable measuring of competence by determining the factors of successful and effective performance, aligning individual competence with the core competence of organization	Logic of factors associated with excellence or above-average performance
Functional approach	Job requirements expressed as occupational standards	Elaboration of occupational standards by employers and social partners, assessment of competence against standards and by following bureaucratic procedures	Logic of threshold minimum acceptable performance or lowest common denominator
Multidimensional, holistic approach to competence	Developing occupational and professional competence in different contexts, considering individual and collective approaches	Applying holistic concept of contents of competence and stressing its universality and transversality in curriculum design, provision of education and training, and assessment	Progression logics and approach of highest common denominator

stresses the universality and transversality of competence, enabling the domination of a logic of progression and pursuit of the highest common denominator in competence proficiency scaling (Winterton 2009). The cumulative nature of knowledge and skills in the process of competence development also fosters growth of proficiency (Angelopulo 2000) (Table 1).

Development of competence levels and proficiency scaling occurs on different levels – individual, organization, and wider community – and is influenced by changes in the content and context of work performance at these levels (Mulder and Winterton 2017). Mulder and Winterton (2017) contrasted three methodological approaches: functional behaviorism, integrated occupationalism, and situated professionalism. These views provide rather different perspectives in conceptualizing the goal of competence proficiency scaling and defining its criteria as summarized in Table 2.

**Table 2** Methodological views of competence and their perspective on competence proficiency scaling

Views of competence (Mulder Winterton 2017)	The goals and functions of competence proficiency scaling	Definition of criteria for competence proficiency scaling
Functional behaviorism – curriculum is founded on behavioral analysis; education and training provides learning outcomes needed to deal with concrete and small tasks or functions	To identify minimal proficiency levels referring to the execution of specifically defined small tasks of activity	The main criteria are derived from concrete requirements of work tasks and corresponding typical behavioral reactions of performers in dealing with these tasks
Integrated occupationalism – knowledge, skills, and attitudes are addressed together in developing not only vocational/professional competence but also personal identity of the learners	To structure and evaluate integrated knowledge, skills, and attitudes in the performance of activity, as well as to provide the guidelines for personal and professional development (development of professional identity) in education	The main criteria are based on holistic learning tasks originating from core work processes that constitute the vocation or profession
Situated professionalism – the knowledge and competencies acquire meaning only in specific contexts or situations of work, which necessitates linking the content of teaching and learning with the work context	To provide the structure and references for acquisition and assessment of context- and situation-specific competencies typical of concrete professional activities	The main criteria are based on specific requirements of the content (e.g., specifications of work processes and tasks) and context of professional activity for the application of knowledge and skills in performance

Comparing methodological approaches to competence proficiency scaling reveals that different elements of competence have rather different weights in competence proficiency scales. Some competence proficiency scales are based on scaling cognitive and mental functions and applying knowledge in performance. A good example is the model of proficiency scaling suggested by Dreyfus and Dreyfus (1980). According to this model, development of a skillful performance is a result of successful transformation of four mental functions – recollection, recognition, decision, and awareness – by displaying them from a primitive to a more sophisticated form as summarized in Table 3.

This model of proficiency scaling is focused on the mental functions in defining the stage of development of the skillful performance, but it largely ignores many important contextual components of performance (e.g., social) as well as a wide range of specific contextual factors of work that directly influence this development. Spöttl and Musekamp (2017) note that the idea of a hierarchy of cognitive processes is increasingly being replaced by categorical structures. Levels of competence are giving way to empirically defined and proven work requirements, and hierarchical orders associated with didactic purposes are increasingly replaced by practical skills interwoven with generic knowledge (Spöttl and Musekamp 2017). Structuring of

**Table 3** Development of skillful performance (Dreyfus and Dreyfus 1980)

Skill level Mental function	Novice	Competent	Proficient	Expert	Master
Recollection	Non-situational	Situational <i>(achieved experience- based similarity recognition)</i>	Situational	Situational	Situational
Recognition	Decomposed	Decomposed	Holistic <i>(performer perceives similarity in terms of whole situations)</i>	Holistic	Holistic
Decision	Analytical	Analytical	Analytical	Intuitive <i>(unique decisions intuitively accompany situation recognition without a need of conscious calculation)</i>	Intuitive
Awareness	Monitoring	Monitoring	Monitoring	Monitoring	Absorbed <i>(the analytical mind is relieved from its monitoring role and permits performer to become completely absorbed in performance)</i>

competencies into levels defined in holistic way requires embedding these competences in work coherences, linking them to the respective domains and context of skilled work (Markowitsch et al. 2008). An example of such structuring is the steps of competence development from novice to expert based on articulation between occupational task areas and learning areas, as shown in Table 4.

Knowledge of itself presents a highly important element of competence proficiency scaling, especially when considered in terms of domains and context of application. Billett (2017) noted the importance of relationships between personal

**Table 4** Steps of competence development from novice to expert (Fischer 2014)

Learning areas		Occupational task areas	Modes of task execution
Complexity of applied knowledge	Logics of performance		
Systemic and deep occupational knowledge based on work experience	How to explain and treat objects of the occupation in a systemic way to solve situated occupational problems	Work tasks under unpredictable change	Indeterminate, experience-led execution of work tasks
Detailed and comprehensive functional knowledge	How things function and how to deal with the whole work process	Problem-based, specialized work tasks	Indeterminate, theory-based execution of tasks
Interrelated knowledge	Why and how things are specifically interrelated in the occupation	Systemic work tasks	Rule-based, systemic execution of work tasks
Guidance, orientation, and overview knowledge	How things are ordered and executed in the occupation	Simple occupational work tasks	Determinate and assisted execution of work tasks

capacities and qualities and domain-specific knowledge of occupation for manifesting competence, constituting expert performance, and discerning canonical, situational, and personal domains of occupational knowledge. Canonical occupational knowledge can be an important source of competence proficiency scaling since through particular procedures and values canonical knowledge shapes the ideals and goals of performance. Canonical knowledge can help define the core, stable, and objective criteria for competence proficiency scaling derived from work requirements. By contrast, the situational domain of occupational knowledge, by manifesting and expressing occupational expertise in terms of capacities enabling individuals to respond to domain-specific routine and non-routine problems within a situated domain, can be a source for precision and adjustment of criteria of competence proficiency scaling according to specific ways of executing work tasks. The personal domain of occupational knowledge addresses individualized attitudes and approaches to performance or individual styles of performance. Differentiation and hierarchization between different types of knowledge has been emphasized for vocational education and training curriculum design, particularly specialized, systematically revisable, emergent, and codified curriculum knowledge in formal education and tacit, uncodifiable, and nonspecialized knowledge acquired on the job (Young 2008; Young and Muller 2013).

One of the key methodological questions around competence proficiency scaling is the nature and universality of skill. To the extent that skill is a socially constructed phenomenon, the establishment of skill hierarchies and leveling also is a social phenomenon involving various stakeholders, which is one reason why this is such a contested terrain (Mulder 2017). Green (2013) notes there are no universal units of skill to facilitate objective comparison of the qualities of skills, so various proxies are

used, such as level of education for cognitive skills or prior work experience for job-specific skills. Qualitative diversity of work characteristics and individual discretion make it difficult to scale interpersonal skills (Green 2013). Scaling and measurement of skill involves methodological difficulties including, in the absence of direct measurement, the use of various proxies and limited scope for generalizing measurement because of high variance of skills and skilled performance, as well as dynamic evolution of work and associated skill needs (Green 2013; Handel 2017). Handel (2017) criticizes qualitative approaches to skills scaling based on analysis of attitudes, evaluations, and holistic judgments, which create doubts around interpretation of measurement scores, recommending explicit scaling survey instruments referring to specific facts, events, and behaviors with response options to discriminate between levels.

Professional expertise and experience are relevant in competence proficiency scaling, which is defined by knowledge, metacognitive knowledge, skills, social recognition, growth, and flexibility (Evers van der Heijden 2017). Level of expertise can also be defined by referring to the attained education level, work experience in the concrete field, and recognition of peers and colleagues (Kuhlmann Ardichvili 2015). According to Kuhlmann and Ardichvili (2015), experts can be distinguished from nonexperts by intelligence matched to the discipline, willingness to work hard, and fascination with the field of work, as well as desire to address complex and ambiguous situations. Professional expertise can be acquired through diverse vectors of development, such as acquisition of professional expertise in the hierarchical stages. Professional expertise is acquired and upgraded through experiential learning, practice, and coaching, with the influence of ergonomic, organizational, socio-economic, and institutional factors, including organizational support for learning (Evers van der Heijden 2017). Bereiter and Scardamalia (1993) suggest expertise is developed by continually addressing more complex problems, whose solutions enable progression from novice to advanced beginner and other stages of expertise. Mulder (2017) stresses differences and relationships between mastery and performativity, where the former defines the level to which competence is achieved, described by competence standards, while the second defines the degree of alignment of competence with performance characteristics.

Competence proficiency scaling is a complex process defined by a wide range of different factors, so requires holistic approaches. Holahan (2014) notices that the criteria for defining skillful performance and mastery in occupation are very diverse and can be attributed to the socioeconomic, cultural-historical, and individual-psychological stances of competence. Vonken (2017) suggests the multiplicity and complexity of competencies are caused by specifying competence through detailed description of performance and capabilities, when such capabilities are derived from performance. Ștefănică et al. (2017) also comment on the high heterogeneity of characteristics and criteria for competence proficiency scaling in technical occupations and corresponding curricula and relate this heterogeneity to the multiple origins of these criteria. An integrated, holistic approach to competence proficiency scaling based on the relationship between capabilities and task accomplishment entails multiple quantitative and qualitative dimensions (Hager 2017). Normative



assessment of skilled performance should be accompanied with assessment of qualitative characteristics like creativity, customer orientation, and attitude toward work, with reference to appropriate professional values.

When a vocational or professional competence is regarded as domain-specific and situated in the work process, measurement and proficiency scaling are defined by the requirements of concrete work processes for the application of knowledge and skills (Spöttl 2010). During vocational learning, when competence is being acquired, learners deal with different dimensions of work, learning tasks that are difficult to grasp, measure, and evaluate in terms of learning outcomes. The concept of core work processes that must be handled by competent individuals can help since these relate to systemically interrelated work tasks that are performed by applying professional vocational competence, or integrated knowledge, practical skills, and abilities (Spöttl 2010).

Another key methodological problem of competence proficiency scaling concerns differentiating between work requirements and cognitive dispositions typical for competent performance (Straka Macke 2010), which makes it difficult to test empirically theoretical knowledge underpinning competence. Competence levels needed to meet work requirements must be defined using restrictive mathematical scaling techniques and substantive qualitative analysis of work processes, comparing the performance of novice and expert (Straka Macke 2010). A good example of such modeling of competence proficiency scaling is a description of the competence levels developed in the KOMET project (Haasler 2010). This model distinguishes four levels of competence articulated by different regimes of application of knowledge and skills in work processes (starting with nominal competence and rising functional competence and conceptual and process competence to holistic formation competence).

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## Methodological Critique of Competence Proficiency Scaling

The methodological critique of competence proficiency scaling addresses many issues, starting with the methodological backgrounds of scaling, applied concepts, and the logics of defining the criteria of scaling and ending with the application of competence proficiency scaling in different contexts of education, training, and work.

Competence proficiency scaling refers to outcome-based approaches to learning which is dominated by the logics of assessment, separation of learning processes and outcomes, and usage of standardized instruments for assessing performance and proficiency (e.g., occupational standards derived from functional analysis). In criticizing outcome-based approaches to learning, Young (2009) argues that (1) observation and distinguishing performance necessitates expertise and knowledge in specific work contexts, so cannot be done by “neutral” researchers expert in functional analysis; (2) in seeking to make inferences on performance and competence proficiency, it is necessary to understand the learning process that leads to competence acquisition; and (3) separation of learning processes from learning outcomes

leads to higher concentration of learning outcomes at lower levels, where work tasks involve less judgment and ambiguity. The main focus of this critique is on the application of “reductionist” scientific management approaches of industrial standardization to the field of competence and qualifications, which relies on the assumption that “human performance can be measured with the same lack of ambiguity as the diameter of a screw or the resistance of a length of wire” (Young 2009, p. 19).

Colins et al. (2014) similarly concluded that competence-based approaches are unsuitable for facilitating high-level proficiency in sports, medicine, and coaching professions, arguing that competence-based models cannot address professional practice requirements like judgment, flexibility, and decision making. Instead, they propose an expertise-based approach with differential weighing of factors according to their importance for performance. Unlike competence-based approaches, an expertise-based approach is not oriented to the minimal benchmark requirements and facilitates evaluating the complexity of performance, including complexity and variability of contexts that render standardization of performance requirements impossible (Colins et al. 2014).

Other researchers highlight weaknesses of methodological approaches used in defining and describing competence levels that derive from a misalignment of these approaches with educational goals. For example, psychometric and qualitative descriptions of competence levels have methodological weaknesses, such as the challenge of identifying clear and objective criteria of levels for competence of different types, as well as difficulties of empirical and practical operationalization of the categorization of competence into functional-professional, social, and methodical competence (Bremer Saniter 2010). Arguing that the goal of vocational education and training is to enable a high level of autonomy in the identification, definition, and execution of occupational tasks, Bremer and Saniter (2010) suggest all activities that facilitate competence development consist of empirically identifiable and occupation-specific sets and combinations of tasks that can serve as indicators of the competence level: naïve and unaware execution based on everyday experience, performative rule-based acting in dealing with tasks and work problems, competent execution based on the selecting or generation of rules, and professional execution referring to needs of users and society (Bremer and Saniter 2010).

Becker (2014) also claims that abstract dimensioning of competence into categories of functional, social, and personal competence, or reference to literacy as a basic component of every competence, leads to the elaboration of competence descriptors that are divorced from reality. Vocational competence is rooted in the complexities of occupational context, which experts in curriculum design often struggle to understand. Becker (2014) proposes introducing work requirements in competence descriptors because purely analytical descriptions of competence dimensions, their operationalization, and resulting taxonomies cannot ensure proper reflection of the occupational tasks in the way that work objectives-based and subject-centered competence descriptors can make all dimensions of work process clear and understandable for all involved in the vocational education and training process.

Grollmann (2008) argued that referencing competence to levels often entails several dimensions of level criteria in parallel (especially in competence and qualification frameworks), and anybody attributed with a certain proficiency level on one dimension must also possess the attributes of other dimensions for that particular level, what is not necessarily the case in real life, where competence development does not necessarily entail such alignment (Grollmann 2008).

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## **Consideration of Organizational and Societal Factors in Competence Proficiency Scaling**

This section provides a brief overview of the effects of organizational and societal factors on competence proficiency scaling, including strategies of organizations, human resource management and development of occupations, as well as technological and organizational change.

Looking at competence proficiency scaling from the perspective of organizational and societal factors, the central focus is on work design and organization, which is shaped by strategies of enterprises, societal norms and state regulation, social agreements, and cultural attitudes. Organizational strategies for managing work and people represent an important source of competence proficiency scaling, since these shape skills demand in general, as well as structuring competence requirements and hence requirements of proficiency scaling. It is important at the outset to highlight differences between developing competence proficiency scaling in industry (demand side) and in the education system (supply side). Competence proficiency scaling in the education system (especially in school-based initial vocational education and training) involves specific pedagogical and institutional factors that are not directly influenced by competence demand in the sectors of economy. The level of competence developed in formal education also depends on the hierarchical position of related subsystems of education and associated qualifications. Different qualifications involve diverse methodologies of curriculum design, learning duration, educational pathways, and other aspects of educational provision. These differences, together with a mismatch between skills demanded in the economy and those supplied in education, contribute to differences in competence proficiency scales in the worlds of work and education.

Zarifian (2005), analyzing competence-based human resource management in organizations, identified two main pillars of application: (1) enterprise strategy, treating a competence-based approach as an essential factor for success; and (2) relationships between employees, prescribed and real work situations that employees encounter, and prospects for professional mobility. However, in everyday human resource management practices, important elements of competence demonstrated by employees remain unnoticed and unrewarded, while opportunity to master such elements is restrained. For Zarifian (2005), it is logical therefore that if enterprises genuinely seek to enable employee competence development, they should treat competence areas not as prescribed requirements but as fields of learning and development through executing occupational tasks.

Zarifian (2009) further argued that competence hierarchies reflect the prescriptive and normative side of work, originating from instrumental visions and approaches to work process. Referring to research on applying competence-based approaches in enterprises, Zarifian (2009) proposed a model of competence where competence proficiency scaling “operates” through three fundamental elements: freedom to act, responsibility, and the dynamics and unpredictability of the work context. Freedom of initiative to act, a basic precondition of competence, cannot be eliminated by hierarchy, but it can be constrained or facilitated according to how work is organized (Boxall and Winterton 2015). Scaling responsibility for acting is interdependent of scaling of autonomy in activity, and arbitrary decisions on limits of responsibility are made by managers and other stakeholders. The more deeply responsibility is internalized, the higher is the level of competence and professional conscience, since initiative taking implies stronger ethical responsibility. The most competent individuals are thus those who can assume responsibility spontaneously or culturally possess attitudes of caring for others. Accordingly, such competence is more likely to be developed and manifested where there is higher unpredictability of events and changes in work context (Zarifian 2009). From this perspective, competence means demonstrating effective performance in dealing with events and changes and showing creativity and initiative, so the potential for competence development is limitless and can never be completely attained. The aspirational nature of *entelechy* captures this conceptually (Winterton and Cafferkey 2017).

Coulet (2011) identified the normative nature of competence as used in human resource management, defined by reference to the culture of performance evaluation based on social judgment and identifying capability in executing work in constructive, coordinated, and hierarchical ways. Competence frameworks and other instruments of competence-based human resource management also involve dimensioning work content and task execution, where the level of competence is predefined by prescribed tasks and assessed by comparing actual with prescribed execution of tasks. Use of competence in human resource management practices inevitably involves reference to hierarchical aspects of activity, such as required levels of performance in terms of volume and scope of work tasks, autonomy, and other issues (Coulet 2011).

Clot (2014) disagrees with separating the social prescription of work and its actual execution, between task and activity and between work organization and individual performance promoted by some researchers in ergonomics and industrial psychology, arguing that between prescribed work organization and individual performance, work is reorganized by occupational groups. This process is affected by the social genre of work, or professional genre, which consists of shared obligations of employees that are not covered by prescribed work organization (Clot 2014). The genre of activity consists of shared norms of work performance, which constitute part of professional identity in the community of practice, adjusting prescribed requirements of work and thereby facilitating individual styles of work. The development of professional expertise involves continuous stylization of genres of activity, and this differentiation influences competence proficiency scaling in several ways. Firstly, norms that regulate competence proficiency scaling are affected by prescribed work norms originating

from managerial and ergonomic norms, human resource management practices in the enterprises, and so on. These norms of competence scaling also create specific conditions for developing the genre of work, when they are internalized by professional communities through collective patterns of competence development. The genre of activity also provides internal criteria for scaling of proficiency related to autonomy in, and complexity of, execution of work tasks. Here the genre has a power of approval of competence proficiency scaling inside the professional community. Personal styles of work performance help internalize norms of work induced by competence proficiency scaling in such fields as autonomy and responsibility. When norms of competence proficiency scaling comply with the personal style of work performance, they are more readily accepted; otherwise there is a conflict and refusal to accept imposed limitations. Therefore, overall acceptance and adoption of norms of competence proficiency scaling at work largely depend on the fit of these norms to individual styles of work performance and competence proficiency requirements established by the collective genre of work.

Technological changes also influence the development of competence proficiency scaling, and extant literature on the Fourth Industrial Revolution suggests significant implications for changes in demand for skills and qualifications. There is a widespread expectation of a polarization of labor market skills needs with the erosion of middle-level vocational qualifications through digitalization and automation of work (Kreinsen and Ittermann 2017; Lee and Pfeiffer 2017; Spöttl 2016). The development of hybridized high-skilled academic learning outcomes and VET competence is also anticipated with a growth in interdisciplinary knowledge and transversal competencies (Spöttl 2016), with increased emphasis on higher flexibility and individualization of VET provision, leading to additional qualifications (Hartmann et al. 2017).

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## Competency Proficiency Scaling, Education, and Didactics

Debates on competence and assessment reveal different perspectives on education (Pellerey 2010). The introduction of competence in education represented a strengthening of the functionalist approach, viewing education as primarily directed to preparing individuals for the labor market. The European Commission strategies of employment and education are largely aligned with this perspective. Another direction is more oriented to fundamental needs of individuals and society, and this is more evident in strategic documents of UNESCO, for example, the Delors Report (1996), where education is seen to guarantee the right of every person to a dignified life contributing to social cohesion.

Among various ways of understanding competence (Di Fabio 2002; Le Deist and Winterton 2005) are those that consider the complexity of dimensions in the educational process and shift attention from abstract concepts of competence to competent individuals, who, in dealing with real-life problems, use knowledge acquired in their authentic personal style. According to such models, competence enters to the actor by transforming the “being able to do” into expressively

manifested “being able to be,” when instead of possessing competence one becomes, and is, competent (Damiano 2004).

From this perspective, competence is not an object that can be transferred from one person to another, but a deeply personal characteristic or attribute. Competence indicates the totality of personal qualities that are recognized and attributed to individuals when they demonstrate capacity to mobilize their own internal resources (factual and procedural knowledge, skills, motivation, etc.) and external resources (other actors, instruments, opportunity for the execution of activity) to address tasks and problems of professional activity and life in general. Therefore, competence cannot be reduced to the totality of capabilities expressed in terms of knowledge and skills, nor can it be related exclusively to contextual requirements of the socioeconomic context because it represents the fundamental ethical and moral nature of a person, as well as a disposition toward reality. A competent person is autonomous and responsible, knowing his or her own resources and personal vocation, facing proactively often unknown tasks (occupational and other). In this sense competence is not totally structured and predetermined, because it also applies to unpredicted or unpredictable situations.

There is an ethical dimension of exercising competence and assessing its level. In assuming that exercising competence in an activity involves the uniqueness and integrity of a person, it seems unavoidable to consider the moral consequences in terms of responsibility and not just ability to execute separated tasks. The Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for Lifelong Learning also defines competence by referring to autonomy and responsibility that are fundamentally ethical dimensions enabling the wholeness of a person.

While it has been argued that autonomy and responsibility are characteristics of the work situation (Winterton 2011) rather than individual attributes, clearly individuals need particular competencies to work in conditions of responsible autonomy. When considering the competent actor, instead of competence, assessment should be focused on the actor, which cannot be done simply with tests or other quantitative measures of assessment (Lichtner 2004), because it involves an irreducible subjective component.

Articulation between learning and engagement in professional activity is a key factor in competence proficiency scaling, which emerges and develops at the intersections of different dimensions of professional activity and learning (Pastré 2011). From this perspective, competence proficiency scaling is defined by (1) the state of separation or integration between learning and exercising professional activity, (2) the relationship between goals of learning and work, and (3) the ratio of theoretical know-how to practical skills. On this basis, Pastré (2011) distinguished four main proficiency levels: apprentices and students, novices in the profession, working professionals, and professionals participating in continuing vocational training (Table 5).

For higher-level competence, knowledge and skills are acquired in sequential order, where the epistemic model is being shaped before the operative model – knowledge is acquired before practical skills – while at lower levels acquisition of theoretical knowledge and practical skills can take place simultaneously (Pastré 2011). Articulation among the complexity of work, the level of conceptualization of activity by a performer, and their mobilized strategy of action is also important in

**Table 5** Competence proficiency levels in articulating the learning and professional activity (Pastré 2011)

Competence proficiency levels	The state of separation or integration between learning and exercising professional activity	The goals of learning and work	Ratio of theoretical know-how to practical skills
Students and apprentices ( <i>les élèves</i> ). Example: students and graduates of VET schools and higher education establishments	Have no real work experience (except for students in dual training). Need to acquire both basic and specialized theoretical professional knowledge and practical skills	To acquire competencies needed for starting independent performance at work	Predominantly basic theoretical knowledge and basic practical skills
Novices ( <i>les novices</i> ). Example: newly employed graduates of VET schools and higher education establishments	Starting work in a particular occupation, learning, and work is integrated and leads to the acquisition of competence through experiential learning and conceptualization of work practices	To widen and deepen professional competence by learning on the job and conceptualizing work practices with the help of acquired specialized know-how	Possession of basic theoretical professional know-how and basic practical skills, lack of specialized professional competence demanded by concrete work processes
Working professionals ( <i>les professionnels en place</i> )	Professional work and learning activities (predominantly experiential learning) are integrated and executed autonomously	To improve work performance and to adjust to the changing requirements of workplaces	Stable balance between theoretical knowledge and practical skills defined by the requirements of the performed activity
Professionals involved in competence development through continuing vocational training ( <i>les professionnels en formation de perfectionnement</i> )	Continuing professional training and learning processes are oriented to provision of competencies needed to improve and advance work performance/productivity and attain the goals of enterprises. Learning is integrated with individual and collective performance of work	To fill in existing competence gaps and to develop higher-level individual and collective competence needed to attain enterprise strategic goals	Dynamically changing balance of theoretical knowledge and practical skills depending on the content of developed/acquired competence



defining competence proficiency levels. For simple work tasks, individuals apply basic rules from their repertory, deploying trial and error. For more complex tasks, performance necessitates conceptualizing different work operations and technological processes, starting from pragmatic concepts and finally integrating pragmatic and theoretical concepts by considering conditions and context of activity, as well as applying complex, integrative strategies of action.

In light of the above, the scale of proficiency cannot be seen as the sole instrument for assessing competent individuals. A scale with proficiency levels can be used both as a measuring instrument and in a processual way by combining different perspectives of analysis to restore the complex holistic and integrated image of the competent actor (Tacconi 2015). Proficiency scaling can employ triangulation, which in revealing the complexity of reality requires combining different perspectives of observation to reconstruct the object of analysis in an articulated and complex way (Castoldi 2013). Once a rubric for assessment is defined that explicitly indicates meanings attributed to competence and specifies expected levels of mastery in relation to a particular person, group, or tasks, at least three perspectives are possible: (1) a subjective perspective, considering meanings attributed by the actor; (2) an intersubjective perspective, taking into account the system of expectations expressed by the social context; and (3) an objective perspective, referring to executed tasks. However, the use of rubrics is open to criticisms that are not very different from those leveled at competence proficiency scaling (Tenam-Zemach and Flynn 2015).

The subjective perspective leads to self-assessment processes where actors evaluate their experience with respect to the development of a certain level of competence (the competency proficiency scale can be used as a self-diagnostic assessment tool, like a reflective practitioner journal). The intersubjective perspective leads to third-party evaluation processes that involve evaluation of performance by others belonging to the professional community within which competent actions are manifested (the competency proficiency scale can be used as an observation tool along with other tools like field notes). The objective perspective leads to evaluation processes of products and other observable evidences; from observable performance, it is possible to deduce a certain level of mastery of a given competence (the most accredited instruments are so-called authentic tasks; here competency proficiency scaling as describing various levels of expected mastery can be used as an evaluation tool). As a result, the reliability of the evaluation is not based on assumed “objectivity” of the scale but on the possibility of using the scale to validate intersubjectively the judgment made.

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## Conclusion

This chapter identified the complex and multifaceted nature of competence proficiency scaling by examining the phenomenon through the perspectives of underlying concepts and methodologies as well as perspectives of application in education, training, and development.



Competence proficiency scaling executes a wide range of functions, such as assessment of competence acquired in the learning and work process by referencing it to defined levels of required performance, identification and hierarchical structuring of requirements of performance in occupational fields by defining levels of performance and mastering of work processes, as well as defining the potential of competence development and progression in occupational fields.

Competence proficiency scaling is applied in a wide range of processes related to education, training, and human capital management. In education and training, competence proficiency scaling is important for structuring competence and learning outcomes in curriculum design, as well as in organizing training and didactics. Equally, competence proficiency scales are essential instruments in assessment of competence. In the field of human resource management and development, competence proficiency scaling is an essential measure in recruiting, planning, and executing training, as well as assessment of performance. From a macro-level perspective, competence proficiency scaling is used in measures and instruments designed for structuring qualifications and systems like national and sectoral qualifications, frameworks, and occupational standards (Spöttl 2014; Tütlys and Spöttl 2017).

Finally, it is pertinent to outline some important challenges in the field of competence proficiency scaling and to provide some ideas for an agenda of research in this field. Two areas of future challenges of competence proficiency scaling are suggested, related to technological and organizational change and the development of the global labor market.

The profound and accelerating dynamics of technological and organizational change at work have diverse and unpredictable implications for future competence needs, presenting a challenge for the applicability and sustainability of established competence proficiency scales. The Fourth Industrial Revolution is significantly changing the nature and structure of competence needs in all sectors and occupational fields. Such changes necessitate new solutions to revise the methodological approaches, institutional settings, and instruments of competence proficiency scaling to meet changing labor market needs. These developments invoke the need to design and develop more holistic approaches to competence proficiency scaling that include a wider range of ergonomic, technological, organizational, socioeconomic, psychological, and educational aspects of the provision, acquisition, and development of competence, to exploit the enabling potential of the Fourth Industrial Revolution and to reduce its threats (Schwab 2016). Data analytics and use of computer-assisted video monitoring have the potential dramatically to improve the quality of competence proficiency scaling, for example. The development of these new approaches will inevitably be accompanied by important changes in the conceptualization and understanding of competence and its potential.

Another major challenge in competence proficiency scaling is related to the development of the global labor market and globalized space of educational provision. Increased mobility of workers and learners, as well as global migration trends, increases the importance of international comparability and transferability of competence. How can competence proficiency scales contribute to international comparability of competence and qualifications? So far, competence proficiency scaling

has been strongly influenced by specific national or sectoral interests of the parties involved, leading to the fragmentation of competence proficiency scales and making it difficult to establish comparability and common, internationally relevant denominators in measuring competence. To what extent can “internationalization” of competence proficiency scaling help address problems of labor market integration of migrants in destination countries or the problems of “brain drain” in emerging market economies and developing countries?

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# Skills Competitions for Promoting Vocational Excellence

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## Abstract

Over the last decade, skills competitions in vocational education and training (VET) have increased in popularity and visibility. The most well-known global event is the biennial WorldSkills Competition (WSC), which is organized by WorldSkills International (WSI) and involves competitors from 77 member countries covering 50 skill areas (e.g., plumbing, hair dressing, robotics). Academic research on international vocational skills competitions provide an excellent opportunity to investigate the micro- and meso-level factors related to vocational excellence. This chapter focuses on the role of skills competitions in promoting vocational excellence, introducing relevant research, and discussing the seminal findings on individual vocational development and the attractiveness of VET.

## Keywords

Skills competitions · WorldSkills · Vocational excellence · Vocational talent development · Attractiveness of VET

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## Introduction

Rapidly changing labor market requirements in nonacademic sectors have created worldwide challenges for both vocational education and training (VET) students and the workforce, preventing them from developing and maintaining the relevant skills. Research has shown a positive relation between participation in VET programs and smooth transitions from school to work (Caroleo et al. 2017). To better understand the mechanisms of different VET systems, research has focused on investigating the interplay between institutions and work life, with regards to curriculum (e.g., Biemans et al. 2009; Bohne et al. 2017), attractiveness (e.g., Chankseliani et al. 2016), and excellence (e.g., Acquah and Malpass 2017). Studying stakeholder values, objectives, and preferences also offers insights into the structures that enable or restrict the development of quality VET programs (van der Sluis et al. 2014). In a broader context, a globalized labor market allows skillful workers to gain employment abroad but, at the same time, calls for comparative studies of the VET systems in different countries with the aim to remove any barriers to such development (for a discussion of the European Qualifications Framework, see Brockmann et al. 2008).

In addition to studies concentrating on the structural, economic, and policy barriers to VET participation and completion, as well as the subsequent transition into the workforce, it is also important to understand the individual characteristics of each VET system. By identifying the factors hindering vocational talent development in the preliminary stages of VET, the future workforce has a better chance at fulfilling their potential. According to Tyson ([forthcoming](#)), two major research themes can be identified in the current research on vocational excellence: investigations of the individual characteristics related to the development of vocational competence (e.g., Nokelainen et al. 2013) and a focus on the neo-Aristotelian perspective of developing practical wisdom and virtues relevant to the vocation (e.g., for a discussion of “vocational identity,” see Klotz et al. 2014; for discussion of “Bildung and practical wisdom,” see Tyson 2015, 2017).

The interplay between these two themes is essential, as successful vocational performances require various competencies (i.e., unified sets of knowledge, skills, and views that one can employ in real contexts; see Mulder 2014) that can be mapped onto a holistic competence model (Le Deist and Winterton 2005). In this model, *cognitive competence* includes knowledge and understanding, *functional competence* includes practical know-how, and *social competence* includes behavior and attitudes. The fourth component of the model, *meta-competence*, supports the acquisition of cognitive, functional, and social competence (i.e., “learning how to learn”). Following Klotz et al. (2014) argumentation, all these competencies are required for successful vocational performances, as vocational identity and excellence are developed through voluntary and engaging (meta-competence), inclusive (social competence), and practical experiences in work processes (cognitive and functional competence).

Recent research indicates that one viable strategy for promoting VET is to increase its attractiveness through vocational skills competitions (Virolainen and Stenström 2014). It has also been suggested that skills competitions may have multiple benefits on the national, organizational, and individual levels (Wilson 2000). Acknowledgement of such competitions in higher education policies (e.g., EC 2010) indicates that they are no longer “the best kept secret” in the field of VET. Building an understanding of micro- and meso-level operations, such as the individual factors related to the development of vocational excellence in different learning environments, also contributes to the knowledge of macro-level issues (e.g., the “excellence” of VET).

Over the past decade, starting from the 2005 WorldSkills Competition (WSC) in Helsinki, there has been a massive increase in the popularity of international skills competitions, which is based on the rising popularity of national skills competitions. For example, in Finland, the vocational career path was “the second choice” for most young people from the seventies to the nineties (Tasala and Alhojärvi 2017); traditional vocations, such as cook or plumber, did not hold a high status compared to academic professions. The VET quality was also deemed low. In the early nineties, Finland’s Ministry of Education decided that various stakeholders, such as professional-sector representatives, social partners, relevant civil organizations, and education and training providers, should collaborate more closely to increase the quality and attractiveness of VET (Tasala and Alhojärvi 2017). To address these issues, the Ministry began supporting Skills Finland in organizing national “Taitaja” skills competitions for upper secondary students of vocational education. Over the following years, the concept was gradually developed and marketed to vocational education institutions. Its breakthrough is represented by the 2001 Taitaja skills competition in Lahti, in which over 20,000 spectators, primarily young people, observed 200 competitors compete for several days in 28 skill areas. Up to the time of this writing, approximately half a million young students from schools all over Finland have visited Taitaja skills competitions with their study counselors to gain a better understanding of the nature of different professions and to spectate the top performances of young, skillful workers in various trades (Skills Finland 2017).

As the second major theme of research on vocational excellence is discussed in detail elsewhere in this book, the present chapter focuses on the first theme (i.e., the processes related to individual development of vocational excellence), particularly the role of skills competitions in promoting vocational excellence. The essential questions of this research area include how VET teachers develop their expertise and update their professional knowledge (e.g., Andersson and Köpsén 2017; Kunst et al. 2017), as well as how both institution- and apprenticeship-based VET students gain competencies that are relevant to their careers (e.g., Behle 2017; Motta et al. 2017). It is also essential to investigate, from multiple perspectives, how in-service professionals in different fields retrospectively assess the value of VET for their skills and career development (e.g., Pylväs et al. 2015). The following sections introduce relevant research in the field and discuss the seminal findings related to individual vocational development and the attractiveness of VET.

## Competitions in Education

Stanne et al. (1999) suggested that competitions have a variety of purposes in different fields; social comparison theorists posit that the purpose of competition is to evaluate the level of competence, whereas behavioral-oriented cognitive evaluation theorists suggest that the purpose of competition is to win extrinsic rewards. According to social comparison theory, individuals are driven to improve their performances and minimize the differences between their and others' performances (Festinger 1954; Garcia et al. 2013). Garcia et al. (2013) pointed out the theory's proposal that individual and situational factors can increase competitiveness, especially by raising those related to social comparison. They noted that there are individual differences in competitiveness, presuming individuals compete on dimensions that are relevant or important to the self. Relational factors, such as similarity and closeness, are also important because individuals are inclined to compare themselves to those who are similar, whether in terms of performance or characteristics, and close relationships intensify this comparison. Situational factors, such as zero-sum competitions in which the winner takes it all, further increase competitiveness (Garcia et al. 2013).

Cognitive evaluation theory (CET) aims to explain the effects of extrinsic motivators (e.g., competition rewards) on intrinsic motivation (Gagné and Deci 2005). The theory assumes that social and environmental factors promoting feelings of autonomy and competence enhance intrinsic motivation, whereas rewards that are perceived as controlling an individual's behavior may undermine intrinsic motivation. The theory also proposes that individuals need social relatedness via secure and satisfying connections with others (Gagné and Deci 2005; Ryan and Deci 2000). Deci et al.'s (1999) meta-analytic review concluded that positive feedback enhances intrinsic motivation but, interestingly, concrete rewards tend to have a negative effect on intrinsic motivation. An intrinsically motivated person engages in action if it is interesting, pleasing, or challenging, not for external rewards or pressures (Ryan and Deci 2000). Furthermore, individuals can be intrinsically motivated to engage in some activities but not others (Deci et al. 1999). It has been assumed that the nature of the competition, the duration of preparation for the final event, and the age or maturity of the participants all affect how a competition elicits intrinsic and extrinsic motivation (Ozturk and Debelak 2008).

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## Skills Competitions in VET

The history of international skills competitions dates to 1950, when the first Skills Olympics were organized between Portugal and Spain with the participation of 12 young, skilled workers from both countries (Wilson 2000). Originally, the purposes of the competition were to raise the status and standards of vocational careers and to reward individual excellence in various trades (WorldSkills International [WSI] 2010). Currently, the goals of the WorldSkills program have remained the same, but also stress how important vocational skills are in achieving economic growth and improving our world (Messenger et al. 2017).



The global, biennial WSC is organized by WSI, involving contestants from 77-member countries and regions and covering 50 skills (Messenger et al. 2017). Each country may enter one competitor per skill area. The upper age limit to compete is usually 22, except in the areas of Information Network Cabling, Manufacturing Team Challenge, Mechatronics, and Aircraft Maintenance, in which the competitors must not be older than 25. An international panel of judges assigns a score (0–600 points) to each competitor after four competition days. The best competitors in each skill area are awarded with gold, silver, and bronze medals. Competitors who score 500 points or more in their skill area are awarded with the Medallion for Excellence. The skill areas are grouped into six sectors: (1) Construction and Building Technology, (2) Creative Arts and Fashion, (3) Information and Communication Technology, (4) Manufacturing and Engineering Technology, (5) Social and Personal Services, and (6) Transportation and Logistics (WSI 2010). In 2008, a similar biennial skills competition, EuroSkills, was established in Europe. EuroSkills currently has 28 member countries, and the 2016 competition featured 500 competitors in 44 skill areas.

From a research perspective, the WSC provides an objective way to assess vocational excellence and represents an opportunity to better understand the factors contributing to the development of high-level vocational skills (Nokelainen et al. 2013). In Finland, only the winners in each skill area of the regional competitions are permitted to participate in the national skill competition, and only the gold and silver medalists in each skill area of the national skill competition are eligible to represent Finland in the WSC. The initial team selection is conducted through interviews with the team leaders, as well as both manual- and mental-skill trainers. Each competitor has a manual-skill trainer, usually a vocational instructor, who is an expert in the field. The Finnish WSC team has one or two mental-skill trainers who have degrees in education, religion, or psychology. Team members are monitored during the one-year training period, which differs significantly from Finland's traditional, institution-based VET model, as it is primarily based on workplace learning. The final composition of the team is announced about 3 months prior to the international competition, and each member is selected based on their performance during the training program.

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## Research on Skills Competitions and Vocational Excellence

International academic competitions were thoroughly investigated during the last decade (e.g., Campbell and Walberg 2011; Nokelainen et al. 2007), but only recently has there been research on international vocational skills competitions (e.g., Chankseliani and Relly 2016; Nokelainen 2010; Nokelainen and Ruohotie 2009; Wilde and Relly 2015). Instead of focusing solely on the competitions, such research has emphasized the wider training experience that includes individualized programs in training organizations, such as vocational institutions, and workplaces (Pylväs and Nokelainen 2017). Both qualitative and quantitative data were collected on vocational excellence and WorldSkills competitors. Besides conducting surveys and interviewing

participants, data collection included a wider community of stakeholders, such as employers, family members, friends, college tutors, university lecturers, training managers (Chankseiani et al. 2016), and employers and colleagues in past workplaces (Pylväs and Nokelainen 2017). In addition, data from the WSC (e.g., the final competition scores) were used in the analyses (e.g., Nokelainen [forthcoming](#)).

## Modeling of Vocational Excellence (MoVE)

Academic research on the WSC started in a 2007 Finnish project titled “Modeling of Vocational Excellence” (MoVE). The study was conducted in the Research Centre for Vocational Education at the University of Tampere. MoVE was the first research project to address the individual attributes that characterize the development of vocational excellence through skills competitions (Messenger et al. 2017). Based on a similar approach to the development of expertise (Chi 2006), MoVE focused on investigating both the characteristics and developmental processes of individuals who were determined to have achieved vocational excellence (Nokelainen et al. 2008; Nokelainen and Ruohotie 2009; Nokelainen et al. 2009). By focusing on the quality of vocational performances in skill competitions, MoVE departed from mainstream vocational research, which has followed a deficit pathway in that it primarily concentrates on the structural, economic, and policy barriers to vocational participation and completion (Messenger et al. 2017).

The theoretical framework of MoVE was based on an adaptation of Gagné’s (2004) Differentiated Model of Giftedness and Talent (DMGT), which differentiates innate gifts from systematically developed talents. The DMGT comprises six components: (1) chance (i.e., genes), (2) gifts (i.e., intellectual, creative, socio-affective, sensory-motor, and other natural abilities), (3) intrapersonal characteristics (i.e., physicality, motivation, volition, self-management, personality), (4) environmental conditions (i.e., the milieu, important persons, provisions, events), (5) developmental processes (i.e., informal and formal learning and practicing), and (6) talents (i.e., systematically developed skills). Apart from the DMGT, the Developmental Model of Vocational Excellence (DMVE) used in several Finnish studies (Nokelainen 2010, [forthcoming](#); Pylväs et al. 2015) applied Multiple Intelligences theory (Gardner 1983, 1993) to operationalize “natural abilities” (i.e., chance and gifts), the sociocognitive theory of self-regulation to operationalize “intrinsic characteristics” (Zimmerman 2000, 2006), and the role of domain- and nondomain-specific factors to operationalize “extrinsic conditions” (Greenspan et al. 2004). The developmental components of vocational excellence (i.e., the individual’s initial interest in learning a vocational skill, perseverance during the learning process, and mastery of the skill) was operationalized through Bloom’s (1985) model of talent development and Ericsson’s (2006) concept of deliberate practice.

The first phase of the research (2007–2008) investigated the characteristics of Finnish WorldSkills competitors with the aim to predict vocational excellence. The results, which were extracted from interviews with the competitors, their personal trainers, their vocational representatives, and their parents ( $N = 30$ ), showed that

the most important characteristics related to vocational excellence are self-reflection, volition, cognitive skills, and social skills (Nokelainen and Ruohotie 2009; Nokelainen et al. 2009). Volition was considered the most important for all three stages of skill development (i.e., initial interest, perseverance, and mastery). The roles played by domain-specific stakeholders (e.g., vocational instructors and WSC trainers) were also important throughout all three stages, but having encouraging instructors was found to be especially vital in the early stages of skill development.

The second phase of the research (2009–2011), “Actualizing Vocational Excellence” (AVE), continued to work toward a comprehensive understanding of factors influencing the development of exceptional vocational talent. Both qualitative (structured theme interview) and quantitative (survey) instruments were developed for AVE to collect new data. The results, which included data from interviews with 26 past WSC medalists, were congruent with earlier findings, indicating that volition, self-reflection, and cognitive skills play an important role in all three stages of developing vocational talent (Nokelainen 2010, 2012). The results from surveys with 64 Finnish WSC training participants showed that the most successful competitors (i.e., the medalists) are characterized by their linguistic and interpersonal abilities, alongside a belief that effort was more important to their success than ability (Nokelainen 2010, 2012). Their goals for participating in the competition were also more performance-approach and less performance-avoidance than their less successful peers (see Midgley et al. 2000). A concluding remark in both the qualitative and quantitative studies was that supportive home and school atmospheres had positive effects on the development of vocational talent.

The third phase of the research (2012–2014), “Pathways to Vocational Excellence” (PaVE), included a long-term investigation of the effects of vocational skills competitions on career development via retrospective interviews of past Finnish WSC medalists who had entered the workforce. The results, which were extracted from 51 semistructured interviews with Finnish WSC medalists or diploma winners ( $N = 18$ ), their employers ( $N = 16$ ), and their colleagues ( $N = 17$ ), showed that, in addition to vocation-specific knowledge and skills, the development of vocational excellence requires problem-solving, creative, social, and self-regulatory skills (Pylväs and Nokelainen 2017). Further, the findings revealed that formal vocational education, combined with deliberate practice and training and based on expert mentoring, improves the long-term career development and vocational expertise of past WSC winners.

## MoVE International

In 2009, the WSC research entered the international arena with the addition of the University of Oxford, WorldSkills UK, RMIT University, and WorldSkills Australia (WSA), thereafter called the “MoVE International” research project (Messenger et al. 2017). In 2010, based on Finnish research instruments, researchers from RMIT University, WSA, and the Dusseldorf Skills Forum conducted a survey of 254 competitors and 122 judges and trainers participating in the WorldSkills

Australia National Competition (Smith and Rahimi 2011). In this study, both participant groups were asked about their WorldSkills journeys and how their experiences had influenced, and may influence, their careers. The results showed that most competitors enhanced their skills and enjoyed measuring their skills against other competitors and an accredited set of standards.

In 2011, 76 members of the WorldSkills UK London team completed an adapted version of the Finnish survey on the characteristics of vocational excellence (Nokelainen et al. 2013). The most notable pattern in the results indicated that motivational factors (an aspect of intrinsic characteristics) are most important for WSC medalists, who reported the lowest levels of competitiveness and had concerns about appearing incompetent to others.

The MoVE International research team administered a survey during WSC London 2011, yielding 413 valid responses from competitors of 38 countries (Nokelainen et al. 2012). The results showed that the medalists rated their bodily/kinesthetic (practical) and interpersonal (social) capabilities higher than did other competitors. They also reported higher self-ratings in ethical sensitivity, entrepreneurial abilities, mastery goal orientation, and self-regulation.

## Developing and Understanding Vocational Excellence (DuVE)

The UK “Developing and Understanding Vocational Excellence” (DuVE) project suite was established in 2012, intending to use evidence-based research to further develop and ground high-quality WSC skills and practices (James 2016). The project suite focused on (1) modeling the characteristics of vocational excellence, (2) the best learning environments for developing vocational excellence, (3) the benefits of developing vocational excellence, (4) further education college participation in skills competitions, (5) WSC contestants and entrepreneurship, and (6) the benefits and barriers to WSC UK participation.

In 2009, the UK Economic and Social Research Council’s (ESRC) Centre on Skills, Knowledge, and Organizational Performance (SKOPE) at the University of Oxford conducted a survey study on the workplaces of the 2009 and 2011 WorldSkills UK teams ( $N = 124$ ), investigating the role of the learning environment within the workplace in the formation of high-level vocational expertise (James and Holmes 2012). The results showed that “expansive workplaces” (Fuller and Unwin 2003) provided several key elements in the development of vocational excellence (e.g., acknowledgement as a worker and learner, mentoring, career progression, and time to work through tasks).

In 2014, Chankseliani and Relly interviewed 30 entrepreneurial and 10 non-entrepreneurial WorldSkills competitors to determine whether the competition experience contributed to enhancements in social, psychological, and human capital (Chankseliani and Relly 2016). The findings indicated that participation in the WSC supported entrepreneurship by providing opportunities for competitors to develop their social networks, psychological characteristics, and technical and business-interaction skills.

Wilde and Relly (2015) interviewed 36 UK training managers responsible for preparing young people to compete in the WSC. The results showed that the training managers' professional growth was supported by the opportunities to network with domestic and international colleagues, their enjoyment of the training process and competition, and the enhancement of their skills and knowledge. Although some negative aspects emerged (e.g., the intense time commitment), their main conclusion was that the benefits of the role outweighed the difficulties.

In a departure from previous studies, which focused on the individual aspects of developing vocational excellence, Chankseliani et al. (2016) interviewed 39 past WorldSkills competitors and 71 of their associates (e.g., employers, family members, friends, and training managers) to determine the role of skills competitions in improving the attractiveness of VET. Three potential factors emerged from the findings: (1) raising awareness of outstanding performances in various vocational occupations, (2) demonstrating the success and financial benefits of vocational careers, and (3) creating a positive image of young people who choose vocational careers.

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## Conclusion

After considering all this evidence, can we conclude whether skills competitions promote vocational excellence? Large-scale international assessments (e.g., PISA, TIMSS) in compulsory schooling have proven the potential of both research and educational policy development in modeling and measuring competencies (Schleicher 2017; see also Carnoy et al. 2016 for more critical view). Although similar studies have been proposed in the context of VET (e.g., Achtenhagen and Winther 2014), their implications have not yet been actualized. Meanwhile, international vocational skills competitions provide an excellent opportunity for academic research to investigate the micro- and meso-level factors related to vocational talent development. The research indicates, quite unanimously, that WSCs and training have a positive effect on young peoples' vocational competencies and career success (Chankseliani and Relly 2016; Chankseliani et al. 2016; Pylväs and Nokelainen 2017; Smith and Rahimi 2011). The findings also demonstrate benefits for the experts and training managers who are involved in the process (Wilde and Relly 2015).

The WSC and its related training programs contain specific components that are not present in the VET curricula of many countries. International research on the WSC (e.g., Wilde and Relly 2015; Pylväs and Nokelainen 2017) shows that VET students need opportunities to strengthen their learning and self-regulatory skills within the sphere of vocational education, with the help of their instructors, and to recognize the potential advantages of collaborating with professional experts.

Perhaps most difficult to prove is the connection between skills competitions and an increased attractiveness of VET. The underlying premise of the WSC is that developing vocational excellence may raise the attractiveness and standards of the whole VET system. According to Wilde and Relly (2015, p. 95), "there is a significant tension between the concept of so-called elite skills competitions and

the concept of raising standards and skill levels across the board.” They mentioned several serious problems in the UK VET system, claiming that the winning of gold medals in the WSC should not be used to conceal these problems. Regardless, Chankseliani et al. (2016, p. 596) argued that “by establishing a positive societal image of young people, [skills] competitions may contribute to raising the attractiveness of VET to the degree that it becomes a respected, high-status learning pathway in its own right.”

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## Abstract

This chapter reviews current research into educating for vocational excellence. It distinguishes between two conceptualizations of excellence, the world skills and the neo-Aristotelian, and pursues research connected to the latter. The neo-Aristotelian approach to excellence characterizes it as a combination of practical wisdom and virtues, sometimes with further additions. The review identifies three major trends in this research: one focusing on establishing conceptual frameworks for cultivating vocational excellence, one focusing on the development of virtues in practice, and the final one developing out of a narrative approach to practical wisdom and excellence. It identifies possibilities for more systematic combinations of these different approaches. The lack of more systematic research in the field is also discussed, especially regarding comparative and evaluative inquiries, the exception being, perhaps, the field of narrative medicine. The conclusion is that the research field is comparatively young, most work being post 2000, but that there has been significant growth since then. The review lays a foundation for both future inquiry and practice development to proceed with

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greater self-awareness and understanding of the potentials inherent in the excellence aspect of vocational education and training.

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**Keywords**

Vocational excellence · Practice · Practical wisdom · Praxis · Virtue ethics · Reflective practice

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## Introduction

It is generally agreed that excellence is something to strive for in vocational education and training (VET), although the term itself is sometimes used without further explanation. If one takes a closer look at the research and practice on vocational excellence, two approaches stand out. The first is often called modeling vocational excellence and is connected to world skills competitions (see ► [Chap. 33, “Vocational Student Organizations and Student Success”](#)). The other perspective is more connected to research and writing based on Aristotle and Alasdair MacIntyre (e.g., Kemmis and Smith 2008; Kristjánsson 2014; Tyson 2018). In this view excellence is about developing virtues and goods relevant to the vocation together with a capacity for wise deliberation (*phronesis* or practical wisdom). It is this broadly neo-Aristotelian perspective that will be considered in the following.

An important aspect of neo-Aristotelian views on excellence is the emphasis on virtues or dispositions, i.e., excellence is not something that can be educated for simply by studying rules, guidelines, and codes of conduct. Although, as the review below suggests, there is not a lot of research into how such education in the virtues of a vocation might actually be structured and practiced, one of the prominent scholars in the field, Kristjánsson, remarked on this recently (2014, p. 152):

[O]ne would expect library shelves to be stacked with books on ‘education for *phronesis*’. However, I have yet to find a single book, or even a single journal article, written by an Aristotelian moral educator, that gives pride of place to *phronesis* education. It is not as if the topic is simply passed over in silence; most sources on Aristotelian moral education do record Aristotle’s emphasis on *phronesis* (see, for example, Carr 1991; Curren 2000; Kristjánsson 2007; Sanderse 2012). However, the actual cultivation of *phronesis* is typically given short shrift – by repeating the same Aristotelian truisms – or absorbed into a more general discussion of virtue development.

This is not to say that no such education occurs within VET. On the contrary, it can be assumed that significant elements of it take place at work and in schools without being systematically articulated and published. It can also be assumed that individual workplaces and schools have constructed their own particular ways of educating for excellence irrespective of the terms used to describe that aspect of education (i.e., without using an explicitly neo-Aristotelian vocabulary). What seems largely absent then is a systematic documentation of such initiatives by the research community. Also absent is a recognition that leaving this aspect of VET to a tacit process of enculturation in a vocation places a good deal of trust in that process. There are masters who are not paragons of virtue who still teach apprentices. There

are institutional cultures that harbor sexism, racism, rampant greed, and other vices. Systematic research into ways in which education for vocational excellence has been enacted can thus contribute to making a largely local and tacit practice shared and articulated across contexts.

Finally, what is the context of vocational excellence as part of the wider discussion regarding competencies developed in this chapter? Day (2017), in his review of competence-based education and teacher professional development, mentions the alternative views developed by Amartya Sen and Martha Nussbaum centered on the concept of capability. Day writes (2017, p. 173):

A distinctive feature of Sen's 'human capability' approach is that it focuses upon, 'the *state* of the person, distinguishing it both from the *commodities* that help generate that state, and from the *utilities* generated by the state' (Sen 1993, p. 43). In terms of teachers and teaching . . . this is important for the ability to stimulate, motivate, engage and interact is key factor in influencing students' learning and achievement.

If a key purpose of school education is to enrich the lives of students (Flores-Crespo 2004, p. 45) by, for example, promoting critical reflection and active engagement in their own learning and, through these, the ability to exercise personal autonomy rather than passive compliance, then fostering 'capability' in teachers also, rather than 'functionalism' only [the more competence oriented approach] becomes important.

The focus on agency and flourishing in the capability approach suggests that it is more immediately related to an emphasis on education for vocational excellence than at least some of the views developed in the discourses on competence. It also aligns more with educational concepts such as *Bildung* (Tyson 2016a) where an emphasis is placed on the pedagogical potential inherent in a task or skill. This potential is such that beyond the immediate acquisition of a particular competence there are any number of possible connections to fields of knowledge, experiences, and related activities that the teacher can include in designing and enacting the curriculum. This, in turn, calls attention to a view on effectiveness and efficiency in education that is less about achieving exact outcomes as quick and cost-effectively as possible and more about considering these elements together with other more values-oriented matters. This is not a luxury or a superstructure that can be dispensed with at will, but rather a core element of vocational education aiming at the development of excellence.

Having considered this initial context, the main task of this chapter is to review relevant research in an attempt to provide a summary of the current stand regarding studies in how to educate for vocational excellence from a, broadly speaking, neo-Aristotelian perspective.

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## Research Review

In the following review, emphasis has been on research from the field of vocational education and training. Research from the field of teacher education and school-based character education has not been included other than in passing, but it should be noted that a significant number of works exist in that field (cf., e.g., Biesta 2015;

Kreber 2002; Kristjánsson 2013a, b, 2014). One further issue that makes it difficult to draw up boundaries when reviewing research is the field of narrative medicine where the number of works published is comparatively large. This has therefore been discussed in what can only be called a preliminary way. Those works also rarely focus explicitly on education for vocational excellence but often discuss issues that have an extensive implicit overlap. They also highlight a related difficulty: many studies are contextualized as studies of excellence in vocational *practice* and not as work that can contribute to the *education* for vocational excellence. However, they may still be relevant as sources for understanding ways in which to structure educational measures. To explore this would necessitate a separate review. A similar difficulty is that there is an overlap between education for reflective practice and for practical wisdom (e.g., throughout Kinsella and Pitman 2012). This overlap has not been addressed here in more than a cursory way. It can be assumed then, that there is research in the field of Schön-related reflective practice that does not deal with wisdom but would still be relevant to consider. Finally, most studies in the field are concerned with education for practical wisdom and virtuous action (*praxis*), mainly because they are located in a research context concerned with ethics. This leaves the wider field of what constitutes excellence and how to educate for it comparatively unexplored (for an exception, see Tyson 2015, 2018).

Apart from articles, the main published works in the educational field (excluding narrative medicine) are *Phronesis as professional knowledge, practical wisdom in the professions*, by Kinsella and Pitman (2012); *Towards professional wisdom, practical deliberation in the people professions*, by Bondi et al. (2011); and *Enabling praxis, challenges for education* by Kemmis and Smith (2008). It should be noted that these collections only rarely speak directly to the more practical topic of how to educate for vocational excellence. Related publications, but even less concerned with issues of how and with what means, are Green (2011), Hager and Halliday (2009), Higgins (2010), and Sockett (2012). Finally, the field has been the focus of at least two dissertations: Swartwood (2013a) and Tyson (2017). Both dissertations are concerned with developing a conceptual framework for cultivating practical wisdom, the latter also using this framework as the basis for some empirical studies.

There are several trends in this research on education for vocational excellence that can be distinguished. The major trend is establishing a conceptual foundation for education toward vocational excellence. This rarely involves any empirical studies and thus tends to remain suggestions. A further trend focuses on educating for the goods and virtues aspect of excellence and is mostly concerned with ways in which workplace-based learning can be structured in order to promote such education. Finally, a third trend is more focused on the practical wisdom/phronesis aspect of excellence and is largely, but not exclusively, narratively oriented. These trends will be discussed in that order in the following.

However, the contention is also sometimes voiced that practical wisdom and the various virtues cannot be taught at all but only learned through experience (e.g., Kemmis 2012, p. 148f.). The objection by Kemmis is rooted in the argument that practical wisdom arises from the practice of the virtues rather than preceding it, thus undermining any pre-practice educational activity aiming at cultivating wisdom.

Kemmis writes (*ibid.*, p. 158): “those who have phronesis gain it through (successful and unsuccessful) experiences in which they have aimed to ‘do’ praxis . . . [i.e.] the good.” This argument, that practical wisdom arises from the learning that actions afford, is a version of Aristotle’s own dictum that only the old and experienced can have wisdom since the young are simply too inexperienced. To alleviate this, and to argue for the importance of case narratives of excellence, several works in the narrative field (e.g., Frank 2004; Tyson 2017) have suggested that such cases in which the experiences of others are recounted are at least in part an educational way of dealing with Kemmis’ argument. This is also a concession that Kemmis himself makes. Still, his argument remains a forceful reminder that any education for vocational excellence needs to involve practice (or what Kemmis calls praxis in the Aristotelian sense), i.e., (ethical) action, and cannot remain satisfied with various forms of critical reflection. It should also temper expectations as long as the present lack of empirical studies focusing on evaluating educational measures remains.

A further issue to bear in mind is that although the perspectives presented below are all more or less united in their neo-Aristotelian point of view, there is far from a consensus regarding how the various concepts borrowed from him are to be understood. This is especially the case with phronesis or practical wisdom where the differences can be quite large (cf. Ellett 2012; Kristjánsson 2005; Noel 1999a). This will be briefly considered below but cannot be fully explored in this chapter.

Finally, the importance of educating for vocational excellence in the sense of promoting the development of virtues and wisdom has been most extensively discussed with regard to the people professions, especially teaching and care (e.g., Bondi et al. 2011; Kinsella and Pitman 2012), and does not extend to cover VET as a whole. A major reason is the obvious relevance of practical wisdom in vocational fields concerned mainly with human interactions such as care and education. The empirical explorations of Tyson (2015, 2016a, 2018) bear this out to some degree. The narratives of excellence from practitioners in various craft-related works are less often overtly ethical in the way narratives from practitioners in healthcare or teaching tend to be. However, this underscores the remark made previously that the narrow focus on excellence as ethical education risks bypassing other aspects of excellence that have remained more tacit or marginal until now. It also suggests that the infrequent occurrence of such ethically charged narratives in other fields of VET than the people-oriented ones might well be the result of those fields underemphasizing the importance of ethical excellence. The potential of involving such perspectives more actively in VET that is not first and foremost about human interactions should not be overlooked.

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## Conceptual Frameworks for an Education Aiming at Vocational Excellence

The most extensive work in this field appears to be Swartwood (2013a, b, who also discusses Annas 1995, 2011, the other major proponent of a similar perspective, extensively). His approach in developing a conceptual framework for what he calls

“cultivating practical wisdom” is “modeling wisdom on expert decision-making skill” (Swartwood 2013a, p. 7). In making the analogy between learning a complex skill expertly such as firefighting or military tactics and cultivating wisdom, Swartwood relies heavily on “Naturalized Decision-making” research (ibid, p. 12). The model he uses is “Recognition-Primed decision” which describes experts as making decisions based on “a combination of intuition and more conscious analysis of a situation” (ibid, p. 12). A central argument for the value of this model is that it provides suggestions for how to educate given that we already have significant research into the education and training of, e.g., expert firefighters. Swartwood lists the following six “strategies for developing wisdom” (ibid, p. 58):

Deliberate practice and feedback toward wisdom. This is in recognition of the fact that wisdom or expertise does not develop out of mere experience alone but requires some more systematic attention to practice and feedback from practice.

The seeking of wisdom-relevant experiences. In particular seeking experiences that offer a high degree of variance and challenges. Included in this is also a familiarity with the experiences of others. This strategy aligns with the argument of Tyson (2017) discussed below.

Trying new solutions and methods. This strategy is concerned with a continuous effort to expand one’s repertoire of solutions and methods in dealing with issues thereby preventing one from settling for solutions where the quality of outcomes is lower.

Practicing attentional control. This represents a further way in which to expand one’s situational awareness, namely, by more or less systematically trying to achieve perspectives that go beyond one’s immediate habits. In effect, developing a flexibility in one’s ability to attend to various elements or aspects of a situation.

Practicing critical reflection is focused on expanding one’s mental models of situationally relevant actions as well as selecting among them. Among Swartwood’s examples of how to achieve this are asking oneself what it would take to change one’s mind and keeping an eye out for discrepancies or contradictions in one’s beliefs.

Consulting the wise, i.e., seeking out good coaches for oneself to facilitate the development of wisdom.

Studies, reports, or evaluations discussing ways in which these strategies have been employed in educating for vocational excellence (as distinct from, e.g., military tactics or firefighting) have not been found, and this seems to be an area in need of further inquiry. One exception might be the work of Tyson (2017) to the degree that it overlaps with some of the strategies suggested.

Regarding the function of the strategies as a conceptual framework, Swartwood identifies one of the objections to the skill model as that in which the virtues are understood rather as dispositions than skills (for other critiques, see Hacker-Wright 2015; Kristjánsson 2014). The main difference is that a skill can be put to use in a situation or not on a rather voluntary basis, whereas a disposition indicates a motivation to act that would require some important reason for it not to result in actual action. One recent argument for virtues as dispositions is by Sockett (2012), and it is illustrative to compare his suggestions for how to cultivate and educate the virtues with that of Swartwood. A major difference is that Sockett spends a significant portion of his work enumerating and discussing the various virtues thereby achieving a much greater differentiation than Swartwood who is focused more

exclusively on practical wisdom. When it comes to educational measures, Sockett considers the matter more directly in connection with teacher education institutions and the issues they face with assessing something as contentious as a person's virtue. The result is a more in-depth consideration of reflective practice, especially in how to work with students' self-assessment, thus overlapping with the fifth of Swartwood's strategies. It is notable that there is no overlap with the other strategies that Swartwood enumerates, but it would require a separate inquiry in order to fully explore what Sockett and other "virtues as dispositions" scholars might have suggested as educational measures. It therefore remains unclear if there are practical and pedagogical consequences from regarding wisdom and virtues (i.e., major elements in excellence) as analogous to complex skills or as dispositions.

Another conceptual framework has been briefly worked out by Kinsella (2012) and focuses on the close relation between phronesis and reflective practice proceeding from the work of Schön (1983, 1987). In it she outlines a number of "criteria for phronetic judgment" (Kinsella 2012, p. 47ff.). These criteria are described not as being exhaustive or normative but rather as an explorative discussion to use as a guide for further research and practice. The first three are taken from Schön: pragmatic usefulness, persuasiveness, and aesthetic appeal. To these she suggests adding: ethical imperatives, dialogic intersubjectivity, and transformative potential. Schön's criteria focus in a general way on how practitioners judge situations in practice. Is the approach taken useful in relation to practice? Does it appear persuasive and does it have what can be termed aesthetic appeal? Kinsella's additions focus on the necessary ethical elements that need to be part of a phronetic judgment as well as the need for reflection to be more explicitly dialogical meaning that it cannot remain solely about one's own judgments but needs to include the experiences and judgments of others sharing one's practice context. The final criterion Kinsella adds is "attention to the transformative potential within the practice situation." Kinsella continues (ibid, p. 49):

Rather than looking solely for pragmatic fit within the traditions of practice, one might also consider the power of imagination and the transformative potential of a situation. Such a perspective embodies the idea of the practitioner as a transformative intellectual.

Similar to Swartwood's strategies, these criteria can be used as a basis for educational strategies and curriculum design, and they seem well positioned to be considered together with his strategies in order to elaborate on some of them. For example, the last, transformative criterion, has been the implicit focus in Tyson's (2016b) exploration of narratives of successful conflict resolution among students training to become after-school care teachers in Sweden. There a group of narratives are discussed as a way of enriching the pedagogical imagination of both teachers and practitioners and this in turn as a way of recognizing and expanding on the transformative potential of conflict situations in a particular practice.

Finally, in the field of sustainable tourism, there has also been some conceptual work done by Tribe (2002a) and Jamal (2004). Tribe's approach builds heavily on Schön's (1987) suggestions on how to educate reflective practitioners advocating for

the inclusion of an ethical tourism practicum in the curriculum for sustainable tourism. He writes (Tribe 2002a, p. 320):

The purpose here is to develop aspects of *phronesis* – disposition, experience, practical knowledge and an intuitive sense of the good for tourism. It is by reflection on good and bad actions that ethical tourism action is developed and the very openness of *phronesis* requires supervision and discussion so that bad practices are not accidentally acquired, repeated and reinforced.

He goes on to outline three activities that can support this: using case studies, role-play, and work placement. Jamal (2004) continues from the foundation laid by Tribe in discussing the importance of having clear principles regarding the *telos* or purposes of a practice (in his case sustainable tourism). Such principles need to be taught in order to provide aim and orientation to *phronesis* in practice. He also raises some issues that widen the scope of excellence (Jamal 2004, p. 539):

Further questions arise with respect to praxis: How much liberal education is needed to equip an ethical-tourism practitioner for ‘liberal action’ (Tribe 2002b)? How much race, ethnic and feminist studies for developing a critical sense of knowing, and awareness of aspects such as the ethics of care, and (eco)feminism? What breadth and depth of interdisciplinary perspectives?

Here the conceptual discussion on what is needed in an education for excellence is connected to wider issues of liberal education and related studies. Similar connections have been made by With (1994) in relation to the intersection of the vocational and the liberal and by Tyson (2016a, c) in relation to the educational concept of *Bildung* and the vocational, neither with an explicit view to excellence but both implicitly relevant to such education.

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## The Education of the Virtues or Praxis

In this field, empirical research has concerned itself with ways in which the virtues of a practice can be promoted through education. It proceeds from the conclusion by Aristotle that a virtue such as honesty, bravery, or charity can only be strengthened through practice. One does not become more honest by being told about honesty or reading important stories on honest conduct. One becomes more honest by acting honestly. This does not detract from the value of hearing stories about honesty or discussing ethics, but such activities do more to enrich one’s practical wisdom in deliberating on *how* best to act honestly (thus they belong more to the narrative approach discussed below). The conceptual work referenced above returns to this issue repeatedly but far less has been done from an empirical educational perspective (Kristjánsson 2014). One exception is Brennan Kemmis (2008) who has suggested the practicum of VET teacher students (in a broader sense the workplace-based element in VET) as the place where the virtues can be promoted. She references Hamilton and Lempert’s (1996, see also Corsten and Lempert 1997 for a more



extended discussion) longitudinal study on the development of moral reasoning among apprentices where the following environmental factors were important to such development (Brennan Kemmis 2008, p. 205):

Involvement in manifest (instead of repressed or transferred) social problems and conflicts of interest

Free (instead of standardized, one-way, or manipulative) communication

Participation in cooperative decision making (instead of subordination, rivalry, or mere talk)

Abiding empathy, love, care, and recognition (instead of indifference, hatred, rejection, depreciation, or contempt)

Informed about the social impact of individual and collective behavior and action (instead of unfounded rules prescribing or proscribing certain actions)

Substantial involvement in contradictions between individual expectations, interpersonal rules, social norms, and cultural values that preclude one-sided solutions (instead of either enforced harmony or lack of common maxims)

Ascribing of responsibility for one's own life and (subsequently) for others according to one's growing capabilities instead of either distrustful strict control or uncontrolled laissez-faire)

This may well be a significant approach given that it is hardly possible to create educational situations where one has planned for the need to practice most virtues, e.g., the need to be honest (that would raise some important ethical questions in itself).

However, there is also the possibility of focusing more on how VET teachers promote excellence among their students/apprentices, including what they perceive to be excellence in their vocational practice. In the field of care, Myrick et al. (2010a, b) have recently discussed this based on the way nursing students are paired one-to-one with a nurse in a practice environment (see Sellman 2009 for some theoretical misgivings). This has also been part of the approach of Tyson (2015, 2016a, 2018) where the focus has been on having VET teachers and students tell narratives of educational actions aiming at promoting excellence. Such narratives, as argued in Schön's work on reflective practice (1987), can function as contributions to the pedagogical repertoire of VET teachers. The main contention is that such narratives can serve to expand the ways in which VET teachers can imagine future educational action given that personal experience in promoting excellence is, at best, still rather narrow and mostly tacit. This narrative approach will be discussed further below.

Vokey and Kerr (2011), based on Shulman (2007), argue for the establishment, in educational practices, of communities committed to the development of practical wisdom. How such communities are to arise and what they might be doing remains largely unsaid. Perhaps a concrete example is described by Swinton (2011) in his discussion of the wisdom cultivated in the L'Arche communities. These are an international organization of faith-based communities in support of people with intellectual disabilities. Swinton suggests (ibid, p. 166) that one way of working from the basis of the L'Arche practice without necessarily retaining the faith-based element of it would be to proceed from the concepts of hospitality and friendliness. In effect then, the kind of communities that Vokey and Kerr envision would primarily be formed around such common ideals and a committed pursuit to enact them.

A similar way of dealing with this could perhaps be that suggested by Tyson (2018) in connection with MacIntyre's (2011) ideas of practices and traditions (as well as more directly connected to Shulman and his case-based approach). In MacIntyre's view most vocations represent distinct practices with at least in part distinct goods and virtues (i.e., a distinct excellence) that one is initiated into as a practitioner. Tyson (2018), based on some initial empirical research, suggests that vocational practices are embedded in larger cultural practices, the various crafts, for example, in a larger one of craftwork or architecture, and the various caring professions in a larger one of healing or medicine. From this perspective, the emphasis becomes one of exploring the various cultural and vocational narratives informing a practice and making more explicit which ones embody the ideal goods and virtues of it. Becoming familiar with them would in turn constitute an important part of an education for excellence. Exploring such narratives from a research perspective, especially those that have remained largely oral and personal, would also contribute to an enrichment of the practices and their capacity to imagine concrete ways in which their goods and virtues have been experienced and taught.

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## Narrative Approaches to Practical Wisdom

The general development of practical wisdom through exemplary narratives is something that has been argued for by several authors (e.g., Gallagher 2014; Gillespie 1996; Noel 1999a, b; Nussbaum 1990; Pendelbury 1995; Wall 2003; Worth 2008). However, these arguments are not vocational and thus tend to bypass the issue of vocationally relevant case narratives. Within the field of narrative medicine (Begley 2006; Carnevale 2007; Charon et al. 2017; Charon 2006; Frank 2004, 1995), a similar connection of central elements in care with practical wisdom and narratives has been made, and this seems to be the area where the most systematic work has been done in educational practice. This includes a master's degree program in narrative medicine taught at Columbia University which contains much of the language characteristic of discourse in vocational excellence without actually using the concept as such. Another narrative perspective has been developed recently by Tyson (2015, 2016a, 2018) with a more didactical or curriculum emphasis.

Tyson's approach can be considered as taking the suggestions made by Kinsella and Pitman in their concluding chapter and exploring their ramifications (2012, p. 169):

The power of story and narrative for conveying what phronesis [excellence] might look like suggests that they might be used to introduce phronesis into pre-induction, induction and continuing education stages of professional preparatory programs. The development of storied case studies that reveal examples could be instructive in terms of the cultivation of phronesis in the professions. In addition, if phronesis is best learned through experience, preceptors and educators in professional programs might be sensitized to phronesis (through education and research) and encouraged to begin to reflect, document and communicate

when phronesis occurs. Also worthy of attention is case study research that investigates and documents individual and collective experiences of phronesis in professional practice.

The research of Tyson (2015, 2016a, b, c, 2018) has been concerned with establishing a conceptual framework for using case narratives from vocational practice and vocational education centered on excellence as well as with the empirical collection of such cases. Such narratives, it is argued, can contribute to the development of novel curricula, educational tasks, and case-based training. An example could be to give apprentices or other learners the task of interviewing respected masters or other professionals asking for narratives of excellence in relation to their biographies. Furthermore, the narratives can also be used as a basis for enriching the practical wisdom of practitioners. Central to the approach is the focus on narratives that describe unusually wise, rich, successful, or paradigmatic cases taken from the biographical experiences of practitioners. This is meant to accelerate development and to surface what practitioners themselves consider the ideal goods and virtues of their practice. By documenting this it becomes easier to critique practice because it establishes a kind of baseline or ideal horizon from which to proceed both in comparison with variations across similar practices and in reflecting on the state of the ideals themselves.

The approach includes a number of cases collected to illustrate and drive the argument. These range from the full educational biography of a skilled craftsman, bookbinder, engraver, and gilder Wolfgang B., to brief case narratives from teachers, caregivers, craftspeople, and others engaged in various vocational practices. Part of the work collecting these cases was done in the context of courses in programs for VET teacher education. The teacher students, already trained in their respective vocations, were tasked with writing a case about unusual excellence from their own education or practice. This was framed as a way for them to begin articulating what excellence in their field of practice can be and how they can use this kind of narrative approach in their own work as teachers (mainly at the upper secondary level). It was also considered as a way of conducting education and research simultaneously. At this point the research overlaps largely with established practices on the use of cases and case narratives in higher education (e.g., McDrury and Alterio 2002; Mezirow and Associates 1990; Moon 2010) and as such links up with them to engage with the potential of using them in education for vocational excellence. It also links to the argument by Shulman (2004), developed already by 1987, that much of the practice wisdom of teachers remains undocumented since its codification would mean establishing a case literature similar to that of traditions such as medicine or law. Shulman was expecting this to become a central theme for the following decades but as far as can be determined only a few volumes have been published (Shulman and Colbert 1987, 1988; Shulman et al. 2002). This promising empirical approach thus remains largely untapped, perhaps because Shulman was not specifically interested in excellence but in a large array of matters that are covered by his concept of pedagogical content knowledge. Furthermore, the lack of specific interest in cases of unusual richness or wisdom probably diminished the value of them for practitioners.

Returning at last to narrative medicine and other more general approaches to educating for vocational excellence in care, this is the field where the most extensive practical work seems to have been done and published. Kristjánsson (2015) provides a useful up-to-date discussion in the field of medical ethics and phronesis arguing that although a wide-ranging discussion has emerged in academic writing on the subject, it is much less clear to what extent this has filtered down to professional ethics education (ibid, p. 317f.). Kaldjian (2010) discusses teaching practical wisdom in medicine with a focus on how it enriches clinical judgment. In the article, practical wisdom is subdivided into five core elements, and a case is presented where these elements are related to the process of forming a judgment by the physician. This represents an educational approach to teaching practical wisdom that has much in common with some of the more philosophical writing in which practical wisdom is conceived as a process of reflective deliberation (for a similar approach in the context of a business school, see Antonacopoulou 2010). Other approaches hold to a more perceptual understanding of practical wisdom where it is a capacity that can also, or only, function in the immediate moment (cf. Kristjánsson 2015).

In the field of narrative medicine, Carnevale (2007, p. 580) writes about the value of counter-stories when faced with the often irreconcilable dilemmas of medical practice. Although the discussion is brief, the suggestions hint at the possibility of creating a specific case literature centered on various narrative roles, such as inauthentic/authentic heroism, to allow systematic reflection on the dramatic narratives one often finds oneself part of. To the extent that phronesis is a narrative kind of knowledge, this could be a powerful way of structuring it. Aspects of this have also been developed extensively by Frank (1995, 2004) as he outlines a typology of narrative types that caretakers tell. In *Asking the Right Questions About Pain* (2004), Frank goes on to discuss exactly some of those deeper issues that are connected to understanding actual cases as connected to some of the elements in fictional ones in ways that can enrich our wisdom in dealing with the actual. Examples of further work are the aforementioned Charon et al. (2017) and Charon (2006) as well as Bolton (2006) and Haigh and Hardy (2011). Fundamental to the approach as a whole is the combination of reading illness narratives and other literature together with writing about one's own experiences in treating the ill. This writing is then directed toward deeper reflection on one's emotional reactions, empathy, thoughts, etc., in order to develop core aspects of excellence in care. Given the comparatively extensive nature of the field, it remains a truncated part of this review. It seems clear that the arguments presented in narrative medicine on the potentials in teaching phronesis and excellence through narratives are both important and promising also for other fields of VET.

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## Conclusions

As a field of research, this is a fairly undeveloped area, whereas as a practice it has deep roots. The one exception in the VET field is perhaps medicine and care where research is more extensive. A common feature of many studies is the reliance on, or reference to, Schön's work on reflective practice (1983, 1987). This is hardly a

coincidence but rather points to the central role that reflection plays in the development and exercise of excellence, especially practical wisdom. However, from a meta-perspective it could be a valuable contribution of further explorations in how to educate for vocational excellence to undertake a more critical evaluation of what Schön's perspectives on reflection can contribute. Perhaps their popularity is such that they risk obscuring other perspectives simply by being the first at hand and by being fairly well established.

Of the approaches described, the narrative ones seem to be the most developed in educational practice, not least because they intersect with long established practices of using narratives and cases as parts of education. However, this leans heavily toward teacher and nursing/medicine education which both tend to be part of academic VET. It does not mean that there is no narrative work being done elsewhere, only that this does not seem to be the subject of much research and systematic writing. The issue warrants both further research and more systematic educational practice. The other approaches where the focus is more on workplace-based participation have developed some conceptualizations on ways in which excellence can be cultivated. However, in empirical research, especially of the comparative kind, evaluating such efforts is scant. Combinations, with concepts and perspectives from both narrative- and practice-based approaches seem rare (again with the possible exception of medicine/care), and the groundwork laid in this chapter can hopefully encourage a more systematic exploration of the potentials inherent in doing this.

To conclude then, there exist a good number of suggestions and described practices but little to no comparative or evaluative research. Empirical studies that are more descriptive exist but are rarely connected to other, potentially related, studies. There is also, or at least seems to be, a dearth of studies from a curriculum or didactics perspective. From a practice perspective, there is also little in the way of systematic work integrating different approaches to education for excellence. What the review does make clear is the recent growth of interest in the issue, as well as the plurality of ways that institutions, scholars, and practitioners have engaged with it. The foundation exists at this point then, for both inquiry and development to proceed with greater self-awareness and understanding of the potentials inherent in this aspect of vocational education and training.

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## Abstract

Across the globe the term “twenty-first century skills” has become the focus of schools for preparation for work and the center of attention for industry leaders to maintain a competitive advantage in our ever-changing, technologically advanced world. Definitions of twenty-first century skills vary, but include lists of similar competencies and proficiencies commonly termed employability skills, soft skills, and hard skills. Career Ready Practices have been identified by the National Association of State Directors of Career and Technical Education Consortium/National Career Technical Education Foundation as skills required in 16 career and technical education career clusters that students should know and be able to do upon completion of a program of study. International perspectives of cross-cultural competencies and global awareness have been jointly recognized by the Organisation for Economic Co-operation and Development, a collaborative of 34-member countries which comprise 80% of world trade and investment. As we enter the fourth industrial revolution, to increase productivity and effectively address skills for the future, the international philosophy has become based not on “lifetime employment” but rather on “lifelong employability and lifelong

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learning.” Many agree that communication skills are the number one competency required to be a successful wage earner. Several lists of twenty-first-century skills are reviewed and presented in summary format to assist the reader in understanding what currently exists in the literature base to better define work readiness in the twenty-first century.

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**Keywords**

Twenty-first-century skills · Academic skills · Competencies · Dispositions · Employability skills · Fourth revolution · Hard skills · Knowledge · Soft skills · Technological skills · Work readiness

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## Introduction

Conventionally, school has served four purposes: academic development of intellectual skills and knowledge, vocational preparation for work, social preparation to be a citizen, and personal knowledge to develop as an individual (Goodlad 1984). The mission of vocational education continues to change as the needs of society have progressed beyond the local community and into the global economy throughout the twenty-first century. Today’s age of technological advancement and high-performance work systems requires wage earners to have the ability to solve problems, think critically, design innovative solutions, and bring about creativity in their work. Commonly referred to as the innovative age or the age of creativity, the twenty-first century has become a time for discovery and modernization (Trilling and Fadel 2009). The skills required by wage earners are primarily developed throughout their years in education. Work readiness can be determined by the individual, the school (secondary and post-secondary), and the employer (Casella 2017).

The global atmosphere of work in the twenty-first century has changed rapidly causing a surge of new skills necessary to conduct regular business. The major changes of the new millennium can be summarized by six major factors, including advances in technologies, globalization, need for a culturally diverse workforce, team-based organizational structures, speed of change, and flatter organizational structures (Casella 2017). Employers all around the globe are seeking experienced employees with “twenty-first-century skills” in order to remain competitive in the world economy. Most recently a new set of skills, twenty-first-century skills, has become a popular term for what was previously referred to as “soft skills” and/or “hard skills.” Soft skills typically include personal and interpersonal qualities, whereas hard skills refer to the technical knowledge and expertise one possesses (Robles 2012). Regardless of the terminology, as technology emerges during the fourth industrial revolution (Schwab 2017) and continues to advance in the twenty-first century, wage earners must be prepared with the proper employability skills to be productive and competitive citizens in the workplace (Stone and Lewis 2012). The question therein lies, “Are current graduates prepared and ready to work in the new innovative/creative age in which they live?” (Fabris 2015).

When nearly 400 employers in the United Kingdom were surveyed to respond to the question “Are new graduates ready?” the following responses were cited (CareerBuilder.co.uk 2015):

- Too much emphasis on book learning instead of real world learning – 53%
- I need workers with a blend of technical skills and soft skills – 42%
- Not enough emphasis on internships, work experience, and apprenticeships – 13%
- Entry-level roles within my organization are more complex today – 17%
- Technology is changing too quickly for academics to keep up – 12%
- Not enough students are graduating with the degrees my company needs – 12%

Only 23% of those UK employers surveyed “believe that academic institutions are adequately preparing students for vacant roles in their organisations. More than half (54%) said universities are preparing students for ‘some roles, but not all,’ and 19% do not believe they are preparing them adequately at all” (CareerBuilder.co.uk 2015).

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## Defining Competence in Twenty-First-Century Skills

How is competence defined? What does it mean to be proficient? What is a skill? “The ability to do something well” is how the *Oxford Dictionary* defines a skill. Correspondingly, competence is referred to as “the ability to do something successfully or efficiently.” Originally the term “competence” dates back to ancient times and has been traced back to Greek, Latin, French, English, and Dutch sources (Mulder 2016). The term “competency” is used to identify standards of performance which serve as indicators in various professional roles to evaluate an individuals’ competence. See *Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education* (Mulder 2017) for an in-depth discussion about thoroughly defined perspectives of various competence frameworks. Proficiency is defined as “a high degree of skill or expertise.” A theory of performance is the foundation for the notion of competence (Boyatzis 2008). Richard Boyatzis, an organizational theorist, intertwines the meaning of competency with skill by describing competency as an “underlying characteristic of the person that leads to effective or superior performance” (Boyatzis 2008). The ability of an individual to possess a variety of essential “skills” has become a significant focal point during the twenty-first century as the global economy has become more technologically advanced and demanding.

Public education has been challenged with the responsibility to prepare students for work. The need for wage earners in skilled, technological careers related to science, technology, engineering, and math (STEM) has increased as the description of the American workforce has changed and evolved into the twenty-first century (Lynch 2000). In order to be prepared to address many of the global economic challenges of the twenty-first century, wage earners are required to have a combination of academic, employability, and technical skills (ACT 2010). For competency to be exhibited, the ability to transfer and apply the combination of skills learned in

school to an occupation has now been replaced with the former capability to recall information through rote memorization (Carnevale 2013). Minimally, advanced technical training or in most cases post-secondary education has become a critical requirement for wage earners to be qualified for many of the occupations that have industrialized in the twenty-first century (Lynch 2000).

Employability skills, more commonly referred to as “soft skills” prior to the twenty-first century, can be defined as the necessary skills a wage earner should possess to be successful in any type of career. Examples of employability skills can include responsibility, self-management, and integrity (Stone and Lewis 2012). Basic academic and thinking skills such as creative thinking and problem solving along with personal qualities (dependability and honesty) have been characterized as foundational skills essential for all occupations (SCANS 1991). Conversely, the skills requisite to a specific career are defined as “hard skills” or job-related technical skills (Stone and Lewis 2012). Employability skills, as such, refer to the skills required of an individual to be seemingly fit for work or in other words referred to as the fundamental skills needed to get a job (Mishra 2014). Research has indicated that in order for wage earners to be successful in a job, soft skills tend to be more relatively important than hard skills (Klaus 2010; John 2009). Business organization leaders report soft skills number one with regard to importance for entry-level success on the job (Wilhelm 2004). The top ten soft skills identified by 57 executives in 2012 were communication, courtesy, flexibility, integrity, interpersonal skills, positive attitude, professionalism, responsibility, teamwork, and work ethic (Robles 2012).

The inventory of employability skills was somewhat diminutive during the industrial age. Skills required for work included punctuality, following instructions, recognizing the authority of the supervisor, and working on monotonous tasks for long periods of time (Huitt 1999). Now the list of competencies or twenty-first-century skills has magnified and has been defined by a number of sources over the past decade. The ability to communicate and think like an expert in complex situations; teamwork and collaboration; grit; perseverance; global awareness; financial, economic, business, and entrepreneurial literacy; and civic, health, and environmental literacy have become prevalent competencies required of wage earners to be successful in a twenty-first-century career (Duckworth et al. 2007; Partnership for 21st Century Skills 2009; Stone and Lewis 2012). Additionally, the need for global/cultural awareness emerged and is defined as “the ability to understand global issues; learn from and work with people from diverse cultures; and understand the cultures of other nations, including the use of non-English languages” (Partnership for 21st Century Skills 2009, p. 2). Information and communication technology literacy (ICT) was also included in the Partnership for 21st Century Skills (2009) learning model and defined as “the ability to use technology to develop 21st century content knowledge and skills, in the context of learning core subjects. Students must be able to use technology to learn content and skills — so that they know how to learn, think critically, solve problems, use information, communicate, innovate and collaborate” (p. 5).

Competence in working on “real-world team projects” where skills such as experience from engagement in internships, teamwork, leadership, project management, cross disciplinary, community engagement, and international experiences

materialized as important skills required for the twenty-first-century workforce in a 2011 report focused on a comparative analysis of soft skills (Crawford et al. 2011). A common collection of standards, the Common Career Technical Core (CCTC), which focuses on developing career-ready individuals, has been adopted by many career and technical education (CTE) leaders in the United States. Competencies termed “Career Ready Practices” identified by the National Association of State Directors of Career and Technical Education Consortium/National Career Technical Education Foundation (2012, pp. 2–3) included a list of 12 skills required for each of the 16 CTE career clusters that identified what students should know and be able to do upon completion of a program of study. The 12 Career Ready Practices include the following:

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively, and with reason.
5. Consider the environmental, social, and economic impact of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership, and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Given that the main purposes of a CTE program are to provide career exploration and planning, to enhance academic achievement and motivation to learn more, to acquire generic work competencies and skills useful for employment, and to establish pathways for continuing education and lifelong learning (Lynch 2000), CTE programs are well suited to prepare students for work in the twenty-first century (Conley 2014; Conroy et al. 1998; Stone and Lewis 2012; Zinser 2003). CTE programs also offer important benefits to students by providing them with the opportunity to participate in career and technical student organizations (CTSOs). Examples of CTSOs include the National FFA Organization (FFA), SkillsUSA, Distributive Education Clubs of America (DECA), Future Business Leaders of America (FBLA), Family Career and Community Leaders of America (FCCLA), Technology Student Association (TSA), and Health Occupations Students of America (HOSA) (see ► Chap. 33, “Vocational Student Organizations and Student Success”). Work-based learning (WBL) has also been embedded into the curriculum of CTE programs and serves as an effective approach to develop career-ready individuals (Stone and Lewis 2012).

A comprehensive list of skill clusters was identified by Crawford et al. (2011). The skill clusters’ inventory consisted of communication skills, decision making/problem solving skills, self-management skills, teamwork skills, professional skills,

experiences, and leadership skills. Many of the skill clusters identified by Crawford et al. (2011) align with the 12 Career Ready Practices outlined by the National Association of State Directors of Career and Technical Education Consortium/National Career Technical Education Foundation (2012).

In 2016, DiBenedetto and Myers developed a Conceptual Model for the Study of Student Readiness in the twenty-first century that summarized the work of nine seminal studies conducted in the United States (ACT 2010; Crawford et al. 2011; Conley 2014; CTE Technical Assistance Center of New York 2013; NASDCTEc 2012; Partnership for 21st Century Skills 2009; SCANS 1991; Soland et al. 2013; Stone and Lewis 2012). Table 1 provides a detailed summary of the nine seminal studies.

**Table 1** Studies included in the conceptual model for the study of student readiness

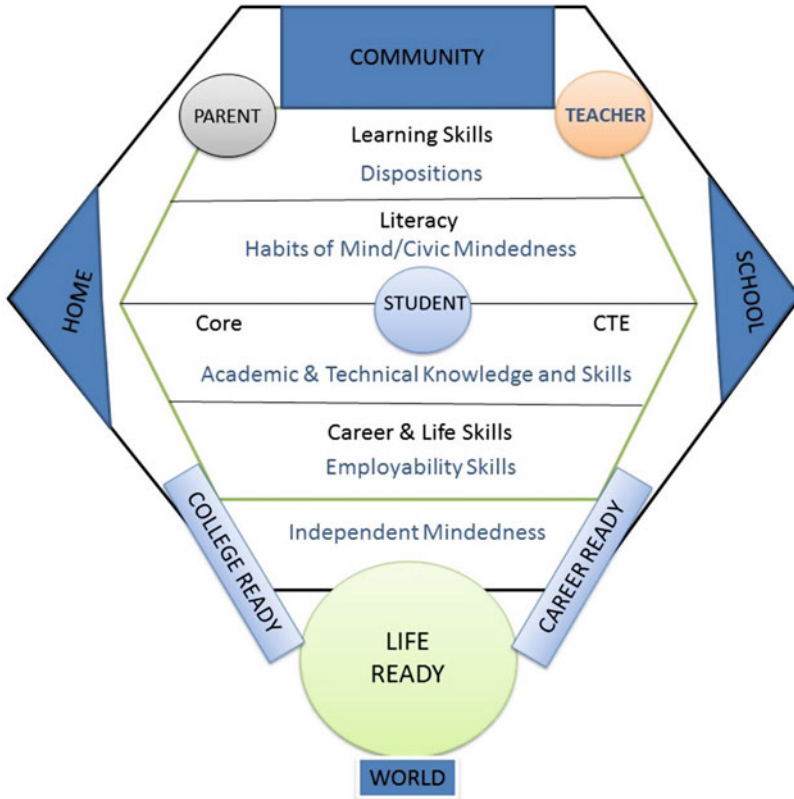
References	Skill terminology	List of knowledge, skills and dispositions
Stone and Lewis (2012)	SCANS-based, twenty-first-century interdisciplinary themes	Critical thinking, creative thinking, problem solving, responsibility, proficiency, self-management, integrity/honesty, learning and innovation, life and career, information, media, technology, global awareness, financial, economic, business, and entrepreneurial literacy, health, civic, and environmental literacy
Crawford et al. (2011)	Skill clusters	Problem solving, collaboration, grit, work habits/ethic, time management, technology, self-management, leadership, teamwork, innovation, creative thinking, engagement in lifelong learning, self-direction, related work or internship, teamwork, project management, cross disciplinary, community engagement, international engagement
Partnership for 21st Century Skills (2009)	Twenty-First-Century Learning Model	Critical thinking skills, problem solving, collaboration, contextual learning, reasoning: inductive and deductive, time management, people skills/social responsibility, communication, technology, health, leadership, responsibility, innovation, adaptability, creativity, personal productivity, self-direction
Conley (2014)	College and Career Readiness	Critical thinking, collaboration, contextual learning, grit, time management, goal management, organizational skills, social responsibility, integrity, technology, economic, civic, self-management, proficiency, motivation, adaptability, creativity, engagement in lifelong learning, self-direction, confidence

(continued)

**Table 1** (continued)

References	Skill terminology	List of knowledge, skills and dispositions
CTE Technical Assistance Center of New York (2013)	Career Readiness and Career and Technical Education	Critical thinking, problem solving, collaboration, contextual learning, self-direction, responsibility, self-management
NASDCTEc (2012)	Career Ready Practices	Critical thinking, problem solving, employ research strategies, career decision making, social responsibility, diversity, integrity, self-management, communication, technology, health, environmental, economic, civic, global competence, cross-cultural awareness, leadership, teamwork, social awareness, perseverance, creativity, engagement in lifelong learning
ACT (2010)	Work Readiness Standards and Benchmarks	Collaboration, integrity, communication, adaptability
Soland et al. (2013)	Twenty-First Century Competencies	Critical thinking, collaboration, grit, communication, global competence, leadership, motivation, creativity, engagement in lifelong learning, self-direction
SCANS (1991)	Workplace Know-How	Problem solving, reasoning, employ research strategies, career decision making, time management, people skills, social responsibility, ethical responsibility, integrity, communication, technology, economic, global competence, diversity, systems thinking, self-management, leadership, teamwork, responsibility, self-esteem, creativity, engagement in lifelong learning, self-direction

Figure 1 presents the Conceptual Model for the Study of Student Readiness in the twenty-first century (DiBenedetto and Myers 2016). The purpose of the conceptual model for the study of student readiness was to provide a common list of twenty-first-century skills that were rooted by the development of nine constructs that were identified and organized by those nine seminal studies. The nine constructs include career skills, dispositions, experiences, incidental learning skills, interdisciplinary topics, knowledge skills, learning skills, life skills, and social skills (DiBenedetto and Myers 2016). Table 2 provides a list of the skills categorized into the nine constructs identified by DiBenedetto and Myers as the knowledge, skills, and dispositions required of US high school students to be career ready in the twenty-first century.



A Conceptual Model for the Study of Student Readiness in the 21st Century

**Fig. 1** A conceptual model for the study of student readiness in the twenty-first century

**Table 2** Knowledge, skills, and dispositions required of high school students to be career ready in the twenty-first century

Constructs	Knowledge, skills, and dispositions
Learning skills	Contextual learning Critical thinking Initiative Perseverance/grit Problem solving Reasoning Self-direction
Life skills	Accountability Goal management Organizational skills Problem solving Social/cross-cultural skills Time management

(continued)



**Table 2** (continued)

Constructs	Knowledge, skills, and dispositions
Career skills	Career decision making Job search skills Productivity Responsibility Work habits/ethics
Social skills	Understanding diversity Ethical responsibility Honesty Integrity Social responsibility
Knowledge competencies	Decision making Innovation Proficiency Personal productivity Teamwork
Incidental learning skills	Adaptability Confidence Decision making Flexibility Leadership People skills Productivity Proficiency Initiative/self-direction Teamwork
Dispositions	Creativity/creative thinking Engagement in lifelong learning Flexibility Innovation Motivation Perseverance/grit Personal productivity Responsibility Self-direction/self-discipline Self-esteem
Experiences	Career-related work experience/internship Community engagement Cross-disciplinary connections International engagement Leadership Project management Teamwork
Interdisciplinary topics	Agriculture Civics Communications Economics Environment Global awareness Health Technology

## International Perspectives of Cross-Cultural Competencies and Global Awareness

The Organisation for Economic Co-operation and Development (OECD) was established in 1961 with a mission dedicated to promoting and improving global development. The OECD originated through the shared vision of the United States, Canada, and 18 European countries. Currently, 34 countries from around the world work together to “build a stronger, cleaner, fairer world” (OECD 2011 p. 8). Collaboratively those 34 OECD member countries comprise 80% of world trade and investment focused on confronting the issues facing the world economy with a mutual obligation to sustainable growth, employment and trade, and the well-being of all citizens. The OECD country members and membership year include Australia (1971), Austria (1961), Belgium (1961), Canada (1961), Chile (2010), Czech Republic (1995), Denmark (1961), Estonia (2010), Finland (1969), France (1961), Germany (1961), Greece (1961), Hungary (1996), Iceland (1961), Ireland (1961), Israel (2010), Italy (1961), Japan (1964), Korea (1996), Luxembourg (1961), Mexico (1994), the Netherlands (1961), New Zealand (1973), Norway (1961), Poland (1996), Portugal (1961), Slovak Republic (2000), Slovenia (2010), Spain (1961), Sweden (1961), Switzerland (1961), Turkey (1961), the United Kingdom (1961), and the United States (1961) (OECD 2011).

Work of the OECD has recognized traditional industries that are now being challenged by technology integration to create new jobs to maximize career opportunities in areas where innovation and advancement has changed the existing platform of productive methods of work. Reports developed by OECD such as the Innovation Strategy (OECD 2010), Job Strategy (OECD 1996), and Skills Strategy have assisted policy makers in determining and assessing critical skills required of wage earners. To increase productivity and effectively address skills for the future, the philosophy has become based not on “lifetime employment” but rather on “lifelong employability and lifelong learning” (OECD 2011 p. 21). Overall the goal is to produce a better educated global population to increase success and establish a just, all-encompassing world. Global competition for capable and proficient wage earners is increasing, and skills are becoming progressively more valuable in all labor markets.

The OECD’s Programme for International Student Assessment (PISA) has become a comparative measure of assessment for member countries to evaluate performance in education. With regard to problem solving, an important twenty-first-century skill, a 2003 PISA report revealed only 20 percent of all students in OECD countries were able to analyze a situation, make decisions, and manage multiple conditions simultaneously, indicating the majority of students worldwide are not prepared for the current-day workplace of the twenty-first century. Data from the 2006 PISA report indicated a major decrease in student achievement from the 2003 data (Bybee 2009). In an assessment of 40 countries, US students ranked 35th in mathematics and 31st in science. US students’ lowest scores were reported as problem solving items in all tested disciplines (Darling-Hammond and McCloskey 2007). The 2006 PISA data supported the concern that US education has fallen behind the level of other countries (NCEE 1983).

The Great Eight Competency Framework, which is an example of the outcome of research conducted by David Bartram (2005) on human behavior, outlines sets of behaviors (competencies) that reflect employee effectiveness in twenty-first-century organizations. The Great Eight predominately relates to careers in management and includes (1) leading and deciding, (2) supporting and cooperating, (3) interacting and presenting, (4) analyzing and interpreting, (5) creating and conceptualizing, (6) adapting and coping, (7) organizing and executing, and (8) enterprising and performing (Bartram 2005). More recently and also specific to the needs of Europe, the Digital Skills and Jobs Coalition brings together collaborative efforts of companies, social partners, nonprofit organizations, and education providers with a mission to enhance digital skills. In 2016 the e-Competence Framework (e-CF), a common framework for information and communication technology (ICT), was published as the European standard reference for 40 competencies identified for the ICT workplace. Several stakeholders including ICT professionals, vocational education institutions, and market analysts, to name few, were brought together to create the e-CF.

What essential skills are employers from all over the world seeking from wage earners to be qualified to work in the ever-changing global environment? Are there differences in opinion among employers, countries, and universities, or is there a cohesive set of skills that wage earners can set goals to acquire? The summary which follows will provide some insight and perspective on many of the inquiries that arise about the list of skills in question.

Essential skills for a global work environment have been categorized by Sensenig (2009) as adaptability, communication, rapport building, conflict resolution, curiosity, and ambition. Similarly, Carnevale and Smith (2013) define competitive requirements of the twenty-first-century world economic system to include productive investment, quality, variety, customization and convenience, speed and continuous innovation, and social responsibility. Hence the skills required of wage earners must match the role of the economic system and include those identified by many others (Bardia 2010; Crawford et al. 2011; Dutta 2008; Sensenig 2009). Some argue that communication skill is the most important competency required to be successful in the global marketplace (Bardia 2010; Dutta 2008). A company's level of success can be directly related to their employees' ability to effectively communicate both internally and externally (Bardia 2010). Intercultural communication requires an ability to interact with a variety of culturally diverse individuals allowing for understanding and empathy with regard to the need to overcome cultural barriers that exist in a global environment. Spatial, temporal, and cultural differences exist among a group of employees, and culturally diverse teams must be able to collaborate in order to reach company goals (Dutta 2008). Cultural intelligence can be defined as a personal attribute that has been developed through experience with diverse groups that allows an individual to adapt to new cultural environments. Acquiring and exhibiting cultural intelligence has also been reported as an important twenty-first-century skill required to work in the global marketplace (Simpson 2016).

## Future Impacts on Society: The 4th Industrial Revolution

The term revolution is defined as “a sudden, radical or complete change; a fundamental change in the way of thinking about or visualizing something” (Merriam-Webster). Contemplating the future, it is important to learn from the past and recognize how revolutions have come about and impacted society. From 1760 to 1840 the first industrial revolution brought about change from human muscle energy to mechanical power. The second industrial revolution occurred throughout the late nineteenth and twentieth centuries and modernized business and industries’ means of mass production. Mainframes, personal computers, and the World Wide Web/Internet transformed the 1990s as the third industrial revolution emerged. We now begin to embark upon the fourth industrial revolution, one that builds upon the technological advancements of the third by creating a fusion of technology focused on digitalization and sensitive to ethical norms. The innovation of “smart machines” focused on digital, physical, and biological elements is causing a sweep of change and a reduction in roles for workers (Schwab 2017).

The World Economic Forum indicates that the fourth industrial revolution requires an identity change where the way everyone communicates, produces, and consumes will become digitalized and business models will be freshly defined to adapt to the continuous, rapidly paced changes that are and will continue to occur (Schwab 2017). The education system will need to adjust to the rapidly changing pace as well. Throughout the United Kingdom, the United States, and European Union, employer reports indicate universities are not sufficiently preparing graduates for the workforce. The skills frequently mentioned as needed but not possessed by college graduates are interpersonal/people, creative thinking, and problem solving (Career Builder.co.uk 2015).

A major concern of employers has been that the education system is focused too much on emphasizing book learning rather than real-world learning. Problem-based, experiential learning also commonly referred to as inquiry-based or “purpose learning” should be utilized as the pedagogy to alter curricula to foster graduates to pursue a problem or mission rather than simply select a major. According to the World Economic Forum, the ten most important skills needed to thrive in the fourth industrial revolution include cognitive flexibility, negotiation, service orientation, judgement and decision making, emotional intelligence, coordinating with others, people management, creativity, critical thinking, and complex problem solving. Interestingly the World Economic Forum identified a list of skills that closely mirrors the “Career Ready Practices” identified in 2012 by the National Association of State Directors of Career and Technical Education Consortium/National Career Technical Education Foundation. Interdisciplinary efforts that span across a variety of fields and move toward combining social and technical skills and knowledge will be required to prepare graduates to be equipped with a combination of technical and employability skills to succeed throughout future revolutions.

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## Conclusion

Over time the list of “skills” required for a wage earner to be successful in the workforce has evolved to meet the changing demands of the twenty-first-century global economic system. Although the terminology has some variance (employability skills, soft skills, hard skills, competency, and proficiency), the actual abilities that a wage earner must possess to be successfully employed in the twenty-first century have advanced to include global/cultural awareness, intercultural communication, cultural intelligence, grit, perseverance, teamwork, social responsibility, and flexibility, to name a few. The thought of lifetime employment has transformed to lifelong employability and lifelong learning in order for wage earners to stay abreast of the changes and advancements required to maintain their jobs. People will no longer work in one role for one company for the majority of their careers. The characteristics of those of the millennial generation do not match those of their ancestors, and they will hold a variety of jobs throughout their lives (Lee et al. 2017).

Industries worldwide face similar challenges as the organizational leaders seek to find the most highly qualified graduates from around the globe. Competition to find and maintain wage earners who meet the skill requirements of the twenty-first century will continue to be reliant on the education system and how wage earners are prepared for work in a technologically advanced world. The majority of the future workforce currently entering school will eventually culminate with them working in entirely different and most likely new jobs that do not yet exist. As the momentum of the fourth industrial revolution continues to impact society, lifelong learning in an educational system willing to continuously change and adapt to the needs and skills necessary for success will be crucial worldwide.

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# Intercultural Competence: Toward Global Understanding

# 68

Laura Pylväs and Petri Nokelainen

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## Abstract

Globalization and its driving forces have led to attempts by both scholars and practitioners to deepen our understanding of people’s abilities and strategies to act and interact with others in global, diverse, and complex environments. Education has aimed to keep pace with global socioeconomic changes in order to educate future citizens and members of the workforce. In addition to global competence, conceptualizations of intercultural (communication) competence are widely used not only in the context of education but also in the context of work and organizations. While consensus on the conceptualization of this issue is still lacking, several attempts have been made to deepen the understanding of both the theoretical trajectory and the ongoing state of conceptualization of intercultural competence over the past decades. Emerging approaches, however, have also created some contextual imbalances, for instance, between research on higher education and vocational education and training or Western versus non-Western perspectives. This chapter discusses some of the current debates on and approaches to intercultural competence in the context of education and work.

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**Keywords**

Intercultural competence · Global competence · Education · Work · Culture · Diversity

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**Introduction**

Globalization and its driving forces have led to attempts by both scholars and practitioners to deepen our understanding of people's abilities and strategies to act and interact with others in global, diverse, and complex environments. The ability to productively collaborate across cultures, distances, and various contexts can be considered a critical resource for both social and economic development (Popov et al. 2017). From a societal standpoint, new forms of citizenship, including cultural rights for citizens from diverse racial, cultural, ethnic, and language groups, are expected to emerge in a global society (e.g., Banks 2008). From an economic perspective, the internationalization of business and migration has led to an increase in cross-cultural encounters and interest in intercultural communication - while practical problems have also boosted developments in the field (Van de Vijver and Leung 2009). Global companies are looking for innovative team players whose competencies are transferable to multiple locations and who think in terms of diversity, want to learn, and value freedom of choice (Trompenaars and Woolliams 2009). While earlier studies situated learners in specific settings that were focused on skills and knowledge acquisition (tightly defined and delineated for training), over the past two decades, the emphasis has rather been on the need for a multi-skilled and flexible workforce that is able to work anywhere and at any time on a range of tasks (Cairns and Malloch 2011). Thus, we have witnessed the development of the autonomous and reflective individuals who have a full set of skills to address the needs of their organization (Trompenaars and Woolliams 2009).

Education has aimed to keep pace with global socioeconomic changes in order to educate future citizens and members of the workforce. The OECD (2016) applies the multidimensional concept of *global competence* in terms of maximizing economic gains, care for the environment, social harmony, and establishing acceptable levels of security, health, and education. Global competence is defined as "the capacity to analyze global and intercultural issues critically and from multiple perspectives, to understand how differences affect perceptions, judgments, and ideas of self and others, and to engage in open, appropriate and effective interactions with others from different backgrounds on the basis of a shared respect for human dignity" (OECD 2016, p. 4). Broadly, global competence is included among the new abilities that members of the workforce need to operate successfully in a world of growing diversity and complexity (Popov et al. 2017). Graduates should not only be professionally competent but also experienced in working teams that can be virtual, multidisciplinary, and multicultural that implies the application of collaborative learning (Popov et al. 2014a, b, 2012). To make this complex learning goal tangible, it has been broken down into separate and measurable learning

objectives (OECD 2016; Deardorff 2006, 2009, 2015). Thus, the OECD Education 2030 Framework (2016) proposes deconstructing the macro domain of global competence into the following measurable “dimensions”: *skills* (analytical and critical thinking, ability to interact respectfully, appropriately, and effectively, empathy and flexibility), *knowledge and understanding* (knowledge and understanding of global issues, intercultural knowledge and understanding), *attitudes* (openness toward people from other cultures, respect for cultural otherness, global-mindedness, and responsibility), and *values* (valuing human dignity and cultural diversity).

This understanding of global competence illustrates the awareness of the broad demands on the students and workers of the twenty-first century. Furthermore, interculturalism also informs the mainstream discourse on education, and intercultural considerations influence educational policy-making on a large range of topics; Many states, particularly Europe, have seen the awakening of theoretical and educational interest in interculturalism due to political developments, for instance, the expansion of the European Union (Coulby 2006). Scholars are increasingly developing theoretical models for acquiring and evaluating *intercultural competencies*, looking for connections between interdisciplinary subjects, and researching the development of intercultural competencies in foreign relations, immigration, politics, education, commerce, and healthcare (Reid 2013). Indeed, the development of intercultural competence is emerging as a central focus as well as an outcome of many internationalization efforts (Deardorff and Jones 2012). This chapter discusses some of the current debates on and approaches to intercultural competence in the context of education and work.

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## Variation of Cultures

According to Spitzberg and Chagnon (2009), terms such as *intercultural competence*, *intercultural sensitivity*, *intercultural effectiveness*, and *intercultural adaptation* can be traced back to the 1970s and 1980s when the need for interculturally competent government, educational, and business representatives was widely recognized due to social and economic developments in the aftermath of World War II. A need emerged for a widely accepted model for training and assessment of intercultural “readiness” (Spitzberg and Chagnon 2009). Since then, the literature has produced a large number of frameworks for, definitions of, and approaches to intercultural competence (Van de Vijver and Leung 2009). While consensus is still lacking, several attempts have been made to deepen our understanding of the theoretical trajectory and current state of conceptualization related to intercultural competence.

Many of the conceptualizations, theories, and models of intercultural competence examine *adjustment* (becoming well fit to an environment), *assimilation* (blending with or becoming similar to the host culture), and *adaptation* (microlevel adaptation, referring to interdependence and alteration of behavior in episodes of interaction, or macro-level adaptation, referring to making adjustments to the host

culture across episodes and contexts of interaction within that culture) (Spitzberg and Chagnon 2009). In any work of intercultural competence and cross-cultural communication and conflict, there is a need to acknowledge the variety in existing cultures and explore the underlying assumptions and existing biases about cultures and the ways in which one approaches the concept of intercultural competence (Deardorff and Jones 2012). Further, the ability to comprehend diversity and cultural differences in values, beliefs, and behaviors shared by groups (defined by, e.g., nationality, ethnicity, or any other grouping that generates identifiable patterns) of interacting people depends on understanding the culture itself (Bennett and Bennett 2004).

The commonly used constructivist approach to intercultural competence is based on Berger and Luckmann's (1966) definition of culture. While objective culture typically refers to institutional aspects of culture, such as economic and political systems, and to products of a culture (e.g., art, music), subjective culture refers to the experience of the social reality, "the worldview" of a society's people, formed and informed by a society's institutions (Bennett and Bennett 2004). Bennett and Bennett (2004) reminds that although knowledge of objective culture is important, subjective culture is the key to understanding the juncture between global and domestic diversity. An understanding of subjective culture may create a climate of respect for diversity – understanding and appreciation for different subjective cultures – thus providing access to the differing cultural experiences of others and enabling mutual adaptation (Bennett and Bennett 2004). Hofstede's (1980, 2011) well-known cultural dimensions theory defines culture as an aggregate of shared belief systems between different social groups, usually demarcated at a geographical or national level. He originally identified four dimensions of cultural variability: (1) power distance (small vs. large), related to the different solutions to the basic problem of human inequality; (2) uncertainty avoidance (weak vs. strong), related to the level of stress in a society in the face of an unknown future; (3) individualism versus collectivism, related to the integration of individuals into primary groups; and (4) masculinity versus femininity, related to the division of emotional roles between women and men. Three decades later, based on extensive analysis of data from the World Values Survey (Minkov 2007), Hofstede's model was augmented/complemented with two additional dimensions (Hofstede et al. 2010): (5) long-term versus short-term orientation, related to the choice of focus for people's efforts, with the future, the present, or the past, and (6) indulgence versus restraint, related to gratification versus control of basic human desires related to enjoying life (Hofstede 2011). According to Hofstede (2009, p. 85), a community, which can range from a few people (e.g., a married couple) to all the people in the world, constitutes a "moral circle," that is, "a group of which the members expect to live by a shared standard of moral rules," and understanding these moral circles is crucial to investigating intercultural competence. Even if the dimensions are considered meaningful only in combination, understanding cultural dimensions leads to a greater awareness of acceptable behaviors and thus adoption of such behaviors in moral circles (Hofstede 2009).

## Theoretical Constructs of Intercultural Competence

While consensus on the conceptualization of intercultural competence is still lacking and various theoretical frameworks have many differences, they also have many similarities. Overall, according to Spitzberg and Chagnon (2009, p. 5), all theoretical explanations of human activity attempt to cope with the complexities of *process*, which “broadly implies systemic aspects of ongoing or continuous change over time, functional interdependence, equifinality (different paths to the same outcome), and multifinality (one path to multiple outcomes)”. Chen (2017) elaborates that even if competence can be considered a state that does not change quickly in every moment and retains a certain degree of stability, it should not be considered a stable characteristic of a person either; most scholars orient to perceiving competence as an inherent but also changeably ability, which provides individuals with the potential to motivate themselves to learn and to move up the ladder of human development (Chen 2017; Fang 1980). Furthermore, intercultural competence is often discussed together with the multidisciplinary concept of *intercultural communication*, which draws heavily on psychology, anthropology, and sociology (Bennett and Bennett 2004). According to Bennett and Bennett (2004, p. 149), in the complex world of diversity, the concept of intercultural competence puts particularly useful emphasis on the development of intercultural communication: “intercultural competence is the ability to communicate effectively in cross-cultural situations and to relate appropriately in a variety of cultural contexts.” Based on linguistic traditions, Fantini (2009, p. 458) defines intercultural (communication) competence as “complex abilities that are required to perform *effectively* and *appropriately* when interacting with others who are linguistically and culturally different from oneself,” effectively reflecting the view of one’s own performance in the target language-culture, and appropriately reflecting how natives perceive such performance (Fantini 2009). Even if many other scholars also agree that competence is an ability to interact and discuss effectiveness versus appropriateness in the evaluation of communication, more and more researchers have recently advocated that ethics (e.g., mutual respect, sincerity, tolerance, and responsibility) should be included when conceptualizing intercultural competence (Chen 2017).

Hammer (2015) discusses the paradigmatic state of research and theory in relation to intercultural competence and distinguishes the mainstream *cognitive/affective/behavioral paradigm* (CAB) from the *alternative developmental paradigm*. The traditional and dominant CAB paradigm, which has been developed over the past 50 years, is essentially compositional and focuses on identifying personal characteristics and examining such personal variables as tolerance of ambiguity, open-mindedness, and behavioral flexibility. The developmental paradigm, which largely emerged after 1989, draws attention to the developmental progression individuals make in moving from less diverse intercultural understandings to a more complex way of understanding and responding to patterns of cultural difference between the self and the other (Hammer 2015).

Spitzberg and Chagnon (2009) conducted extensive meta-analyses of relatively well-defined and comprehensive models and theories of intercultural competence.

Based on the potential similarities between the models, the authors divide the studied models of intercultural communication competence into five types: compositional, co-orientational, developmental, adaptational, and causal process. *Compositional models* refer to the hypothesized components of competence (without specifying the relations between them) that are considered as productive or constitutive in competent interaction. *Co-orientational models* have a special focus on the particular criterion of communicative mutuality and shared meanings. *Developmental models* emphasize the time dimension of intercultural interaction by specifying stages of progression or maturity through which competence is hypothesized to evolve. *Adaptational models* acknowledge multiple interactants in the process and emphasize the interdependence of these interactants by modeling the process of mutual adjustment. *Causal process models* refer to fairly specific interrelationships among components and are the most easily formalized or translated from or into testable propositions. The models are typically presented in the form of a path model. Spitzberg and Chagnon (2009) note that the introduced types of models are not mutually exclusive. To illustrate some of the features that underlie these theoretical contributions, the following section briefly introduces three well-known theories of intercultural competence.

Deardorff's (2006, 2009) process model of intercultural competence is based on research conducted via the Delphi technique, an iterative process used to achieve consensus among a panel of experts, in this case, leading intercultural experts from the United States. The model focuses on *internal outcomes* and *external outcomes* of intercultural competence, based on the development of specific *attitudes* (particularly respect, openness, and curiosity), *knowledge* (particularly cultural knowledge, i.e., holistic, contextual understanding of a culture, including the historical, political, and social contexts), and *skills* (particularly critical thinking skills) inherent in intercultural competence. According to this grounded theory-based model, the development of intercultural competence is an ongoing process (Deardorff 2006, 2009). The overall external outcome of intercultural competence is defined as "effective and appropriate behaviour and communication in specific intercultural situations, which can be further detailed in terms of appropriate behaviour in specific contexts (appropriate behaviour being assessed by the other involved in the interaction)" (Deardorff 2009, p. 479).

Byram's (1997, 2009) model of intercultural communicative competence emerges from foreign language teaching. The components of the model are knowledge, skills, and attitudes, complemented by values. The foundation of intercultural competence is in the *attitudes* of the intercultural speaker and the mediator. Intercultural attitudes refer to curiosity, openness, and readiness to suspend beliefs about other cultures and about one's own culture. *Knowledge* refers to knowledge of social groups and their products and practices in one's own and in one's interlocutor's country and knowledge of general processes of societal and individual interaction. *Skills* refer to the ability to interpret a document or event from another culture, explain it, and relate it to documents or events from one's own culture. Moreover, it includes the ability to acquire new knowledge, attitudes, and skills under the constraints of real-time communication and interaction. *Values* refer to critical cultural awareness, an ability to evaluate critically and on the basis of explicit criteria, perspectives, practices, and products in one's own and other cultures and countries (Byram et al. 2001).

Bennett's (1993) constructivist developmental model of intercultural sensitivity (DMIS) was created as a framework to explain the observed and reported experiences of people in intercultural situations. It is based on longitudinal observation data focused on students participating in intercultural workshops, classes, exchanges, and graduate programs (Bennett and Bennett 2004; Bennett 1993). Instead of referring to the cognitive and behavioral skills used when dealing with cultural differences ("competence"), *sensitivity* is applied to understand one's ability to notice and experience cultural differences (Holm et al. 2011). The model relies on the assumption that "as one's experience of cultural difference becomes more sophisticated, one's competence in intercultural relations increases" (Bennett and Bennett 2004, p. 152). Thus, the model focuses on the development of cognitive structure instead of changes in attitudes and behaviors. The DMIS includes six stages that indicate a particular worldview configuration, and certain kinds of attitudes and behaviors are typically associated with each configuration (Bennett and Bennett 2004). The first three stages of the model, *denial*, *defense*, and *minimization*, are defined as "ethnocentric" stages that take place when the individual's own culture is experienced as central to reality. The emphasis is on ways of avoiding cultural difference, by raising defenses against it, or by minimizing its importance. The next three stages, *acceptance*, *adaptation*, and *integration*, are defined as "ethnorelative" stages that focus on the individual's ways of seeking cultural difference, either by accepting its importance, by adopting a perspective to take it into account, or by integrating the whole concept into a definition of identity. Several internationally validated scales to operationalize the stages of DMIS have been developed over the past two decades, for example, the Intercultural Development Inventory (IDI; see Hammer et al. 2003), the Intercultural Sensitivity Index (ISI; see Olson and Kroeger 2001), and the Intercultural Sensitivity Scale (ICSS; see Holm et al. 2011).

Chen and Starosta (1997) argue that intercultural competence and intercultural sensitivity (IS) are two different concepts and that the latter is a prerequisite of intercultural competence. DMIS provides the theoretical framework for understanding and assessing individuals' cognitive growth process when encountering cultural differences, whereas IS refers to "an individual's ability to develop positive emotion towards understanding and appreciating cultural differences" (Chen and Starosta 1997, p. 6). Their model of IS (1997, 2000) focuses on six elements that are essential to developing positive emotions that lead to understanding and appreciating cultural differences: self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement, and non-judgement (or suspending judgement). The internationally validated Intercultural Sensitivity Scale (Chen and Starosta 2000) measures these elements with 24 items.

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## Diversity and Working Life

During the second half of the twentieth century, the theoretical construct of *competence* was introduced in various domains and a competence-based approach to education gained much interest, in particular to better integrate education and work (Mulder and Winterton 2017; Le Deist and Winterton 2005). Much of the competence literature suggests that competence is comprised of knowledge, skills,

and attitudes, which closely interrelate with the conceptualizations of intercultural competence (Deardorff and Jones 2012). For instance, Spitzberg and Chagnon (2009) identify 264 components of well-defined and comprehensive models and theories of intercultural competence, noting 64 cognitive/personality traits, 77 affective/attitudinal dimensions, and 127 behavioral/skill factors (Hammer 2015). Recent research also suggests that self-regulation is needed to acquire competencies (Nokelainen et al. 2017), thus creating a link between self-regulative skills and development of intercultural competencies. Intercultural communication, on the other hand, interrelates with such terms as “interaction skills,” “communication,” and “soft skills” that are often used in work contexts to illustrate the aim of two or more people to build social connectivity or support the achievement of shared tasks in order to make their workplaces successful (Chydenius and Gaisch 2016).

Every day, people around the world must engage in unfamiliar cultural and linguistic practices in the workplace in order to solve problems, sell products or concepts, negotiate terms and prices, or simply to get the job done (Ladegaard and Jenks 2015). Moreover, workplace practices are often carried out in a second or third language and with people who not only have different cultural values and norms but also may have little knowledge of, or specific training to deal with, cultural, linguistic, and religious diversity (Ladegaard and Jenks 2015). Thus, the interest in diversity theorizing also extends to the context of organizations and workplaces. Chen and Du (2014), who have examined the concept of intercultural communication as an organizational process, state that the conceptualization of intercultural communication competence and related theories are often developed with an eye toward the clients, consumers, or business partners, that is, from the perspective of external parties and external stakeholders. The authors argue, however, that members of a given organization should rather be seen as tangible elements in the organizational process, as they also represent diverse cultural and ethnic backgrounds and thus are capable of expert intercultural communication on the part of the organization.

Further consideration should also be given to the power/status disparity between communicating parties (Chen and Du 2014). One critique, highlighted by Ladegaard and Jenks (2015), of existing paradigms and analytical frameworks in intercultural communication is that they do not sufficiently encompass the lives and experiences of people in multilingual, multicultural (global) workplaces, particularly in Asian and African settings. Martin and Nakayama (2015) also criticize the fact that existing research and training in intercultural competence is often seen through a Eurocentric lens. They also pay attention to its focus on individual characteristics, motivation, and skills. The authors propose rather a dialectical perspective on intercultural communication in the workplace that would emphasize larger societal issues, such as access to power, resources, and education that gives people more or less influence in the construction of reality (Martin and Nakayama 2015). Employees’ (unequal) access to power and resources thus becomes essential for our understanding of the dynamics of intercultural communication and competence in the workplace (Ladegaard and Jenks 2015; Martin and Nakayama 2015).

Kamp and Hagedorn-Rasmussen (2004) reflect diversity management in working life. Diversity management is a workplace management concept that emphasizes the



value of differences among people in organizations. It calls on managers to take advantage of a diverse workforce to create sustainable competitive advantages. This concept has been an important issue among scholars of organization studies in recent years. The discourses differ in their approach to human resources (e.g., human capital, cultural capital, learning and synergy, and social justice), and they are conducive to different conceptions of difference and otherness (Kamp and Hagedorn-Rasmussen 2004). Multiculturalism, a concept interrelated to intercultural competence, has also gained interest in the context of working life, particularly with regard to migration. Meer and Modood (2012, p. 192) note that while advocates of interculturalism wish to emphasize its positive qualities in terms of encouraging communication, recognizing dynamic identities, promoting unity, and challenging illiberality (qualities that feature, and are on occasion foundational to, multiculturalism as well), multiculturalism presently surpasses interculturalism “as a political orientation that is able to recognize that social life consists of individuals and groups, and that both need to be provided for in the formal and informal distribution of powers, as well as reflected in an ethical conception of citizenship, and not just an instrumental one.”

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## Theoretical and Contextual Limitations

Certain contextual limitations must be considered when examining diversity and the current conceptualizations of intercultural competence. The relative underrepresentation of vocational and professional education institutes in the research literature is noticeable (Popov et al. 2017). Tran (2013) discusses the key principles of vocational education and training (VET) pedagogy and VET teaching and learning in response to internationalization, emphasizing the critical need for pedagogical practices in vocational education. More attention must be devoted to the development of the skills, knowledge, and attributes that enable both international and domestic students alike to adapt to different workplace contexts and changing work practices as well as to develop cross-border skills mobility. Compared to other educational sectors, VET providers must demonstrate compliance with the competency-based requirements of training packages, which makes the system more complex (Tran 2013). Teräs and Lasonen (2012) also note that VET should have a stronger focus on diversity and multicultural education, as it is one of the main reeducation channels through which immigrants can gain employment. Based on empirical findings, they suggest that VET teachers preparing immigrant students for working life should consider the wider cultural meaning of a vocation or profession, reflect on variations in intra- and intercultural practices, and discuss with students the stereotypes and attitudes they may encounter. In contrast, Coulby (2006) emphasizes the low priority given by intercultural education to higher education and argues that the discourse of intercultural education is overwhelmingly concerned with schooling, whereas most of the studies discussing issues related to global competence have been done in the context of higher education.



From a wider perspective, Spitzberg and Chagnon (2009) reflect the challenge of conceptualizing intercultural competence and the potential ethnocentricity of models; most of the models and related assessments of intercultural competence have been developed in Western or Anglo contexts. According to the authors, expanding and strengthening discussions and research in other parts of the world may open up new possibilities for rethinking the relevance of non-Western perspectives on intercultural competence and the cross-cultural generalizability of these models. For instance, Western concepts of competence are still largely viewed as individual, and many of the developed models define skills and knowledge as being possessed by an individual, despite the fact that they assume a partner (Spitzberg and Chagnon 2009). Spitzberg and Chagnon (2009, p. 44) note that one of the fundamental theoretical challenges in the future is the question of *where competence is located*. Moreover, Western curriculum and pedagogical tradition has been criticized for its tendency to construct international students as “the other” while actively denying and suppressing any emerging hybridity (Tran and Nyland 2013; Doherty and Singh 2005). Coulby (2006) conveys concern about some fundamental theoretical weaknesses of intercultural competence and researchers’ awareness of current developments in economics, political studies, or history that are needed to understand developments of complex phenomena. The authors argue that the discourse on normative concerns (e.g., human rights, gender equality, progressive pedagogy) has been widely accepted without embracing the phase of postmodernist analyses, increasing the risk that the known literature is perceived in too narrow a focus. In terms of understanding the economic and epistemological roots of prejudice, it is possible that other approaches, such as postcolonial discourse theory, might have much to offer in intercultural education (Coulby 2006).

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## Conclusion

This chapter has introduced some current debates and developments dealing with the theoretical and conceptual foundations of intercultural competence. Various conceptualizations of intercultural competence are widely used in the context of education, as well as in the context of work and organizations. However, conceptual development of overlapping, complementary, and incompatible models is still ongoing, and we lack sufficient empirical work in which the proposed models are compared and tested (Van de Vijver and Leung 2009; Spitzberg and Chagnon 2009). Van de Vijver and Leung (2009) remind that as long as intercultural competence is not considered predictive of success in intercultural encounters, it is unlikely that intercultural competence will reach the level necessary for test measurements. The authors suggest that the next step is to test the presented frameworks and approaches to intercultural competence and engage in more fundamental study of this complex construct. The ability to assess intercultural competence depends on the clarity of both its definition and its conceptualization (Fantini 2009). Fantini (2009) reminds us that when selecting an instrument to assess intercultural competence, one must understand exactly what each instrument measures, ensure that its purpose is compatible with the goals and objectives being

addressed, and remember that a single instrument alone is usually inadequate for measuring all aspects of intercultural competence. Moreover, when analyzing studies dealing with research on intercultural competences, Reid (2013) notes several factors that strongly influence development of competences, such as age, profession, social and cultural background, motivation, and variation of environments. Finally, as discussed in the previous section, the conceptualizations of intercultural competence have also created some contextual imbalances, for instance, between research on higher education versus VET and Western versus non-Western perspectives. These imbalances must be considered in future research. The newest formats and strategies that incorporate, for example, portfolios, logs, observations, interviews, and performative tasks, may afford an opportunity to collect more valuable data on intercultural competence than has been done until now (Fantini 2009). Furthermore, future research in the field needs to deepen the ontological and epistemological understanding of various constructs used by different disciplines to enable researchers to better theoretically ground their approaches to intercultural and global understanding.

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**Part VII**

**Measuring Learning and Instructional  
Performance**

***Esther Winther***



# A Conceptual Framework for Authentic Competence Assessment in VET: A Logic Design Model

# 69

Viola Deutscher and Esther Winther

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## Abstract

Authentic assessment of competence remains a central target of VET research; adequate measurement approaches clearly are rare though a prerequisite for accountable systems to authorize access to vocational activities, as well as for international qualification acknowledgment. The chapter outlines a conceptual framework of authentic assessment as well as respective evaluation methods. Though authentic assessment

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is broadly discussed in scientific literature, coherent definitions and frameworks with respect to the assessment of vocational competence are scant. However, drawing on different streams of authenticity research, it can be suggested to operationalize “authentic competence assessment” by six major key characteristics:

1. Authentic modes of assessment
2. Relevant item sampling
3. Complexity of tasks
4. Staged embedding
5. Process orientation
6. Social interaction

The chapter substantiates these characteristics, places them in a logic assessment model, gives practical implementation examples (commercial domain), and finally introduces adequate evaluation methods by which this framework can be accounted for.

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**Keywords**

Vocational education · Authenticity · Assessment · Framework · Quality

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## Relevance and Research Purpose

Explicit or implicit measures of vocational competence are relevant to many facets of vocational education and training (VET) and thus constitute an ever-growing research field. They pertain to national educational factors, such as the relevant information and instruments for managing the quality of the vocational educational systems and developing adequate support programs. Increasingly, they also appear in national and international policy agendas (e.g., OECD 2016). That is, international comparisons and the acknowledgement of qualifications, as well as the encouragement of lifelong, informal learning, require adequate measurement concepts and innovative evaluation methods. To meet these multiple expectations, vocational assessments have to be meaningful in the sense that they capture real-life situations in a credible way. Though authentic assessment of competence thus is a central target of VET research, coherent definitions and frameworks with respect to the assessment of vocational competence are rare (for exemptions, see, e.g., Achtenhagen and Weber 2003; Gulikers et al. 2004), even though such frameworks are indeed a prerequisite for accountable systems to authorize access to vocational activities, as well as for international qualification acknowledgement.

The chapter draws on existing literature on authentic competence assessment in order to synthesize major criteria or key characteristics for an authentic representation of work-related abilities. In contrast to existing frameworks (e.g., Gulikers et al. 2004), these major criteria (1) explicitly target vocational education and (2) will be placed in a logic assessment model that connects the criteria to the assessment design process.

Moreover, (3) the logic assessment model provides adequate evaluation methods by which this framework can be accounted for in order to allow for a practical implementation and validation of authenticity characteristics in a design process.

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## The Definition of Authentic Competence Assessment

According to Custer et al. (2000), appropriate measures of real-world learning include authentic assessments in which students apply skills and knowledge to solving authentic problems. But what are appropriate measures and what is meant by “authentic” problems? In order for an assessment to be effective, it should be harmonically embedded in curriculum and instruction (Pellegrino 2012). The principal argument for authentic curricula, instruction, and assessment is that transfer is more likely to occur, when real, instructional, and assessment settings are nearly identical and follow a constructivist and sociological approach on learning (Schell 2000, p. 16). In order for an assessment to be close to reality, authenticity does not exist per se but has to be modeled as a didactical job by the assessment designer, also called the “authenticity paradox” (Achtenhagen and Weber 2003, p. 190). Savery and Duffy (1995) argued that authentic assessment can be defined as the similarity between the cognitive demands of an assessment and the cognitive demands of the real-world situations on which the assessment is based. Accordingly, authentic assessment in the vocational domain refers to learners applying the same skills and knowledge to solve problems in an assessment as they would apply to real work problems. While this is certainly true, it can be argued that the concept of authentic assessment goes far beyond the validity of cognitive demands. For example, Gulikers et al. (2008) define authenticity more broadly as the resemblance to “students’ (future) professional practice” (p. 401). In this respect, authenticity refers to several dimensions of an assessment, also including aspects like, e.g., the fidelity of assessment conditions (Reeves and Okey 1996) or the context of tasks (Herrington and Herrington 1998).

For a definition of authentic assessment in vocational settings, it is moreover necessary to connect this broader approach to the definition of vocational competence. The concept of vocational competence describes “the capability to perform by using knowledge, skills, and attitudes that are integrated in the professional repertoire of the individual” (Mulder et al. 2006, p. 82). Against the backdrop of these two definitions (authenticity and competence), authentic competence assessment can be defined as the:

degree of fidelity of all relevant characteristics of an assessment design that have to be adhered to in order to align assessments with work reality and to allow vocational learners to apply their knowledge, skills, and attitudes effectively to solve real work-problems.

This definition is only to be seen as a general description, as it so far leaves open what the relevant characteristics of an assessment design consist of, which serve as prerequisites for vocational learners to apply their knowledge, skills, and attitudes



like they would in a real work situation. Therefore, the next paragraph will operationalize relevant characteristics of an authentic assessment design by drawing on existing authenticity research.

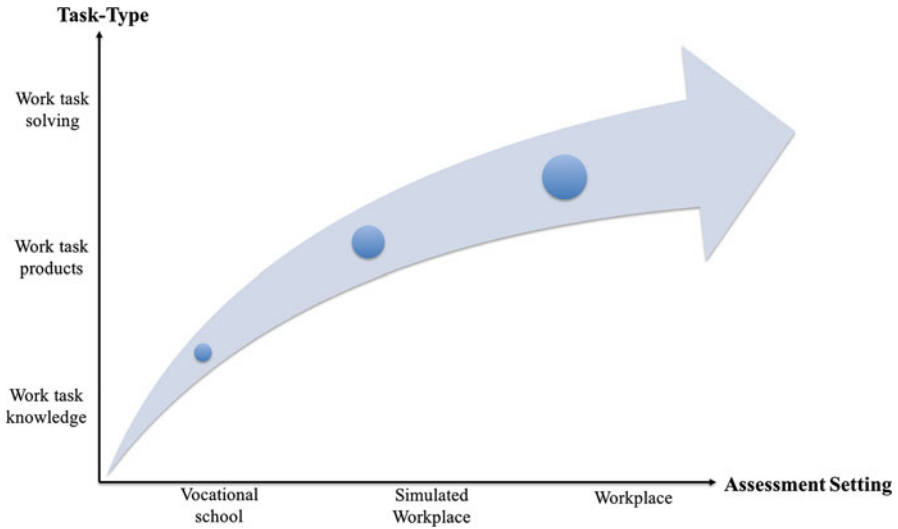
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## **Relevant Design Characteristics for Authentic Competence Assessment**

It is noteworthy that the design characteristics for authentic competence assessment also include design principles of general learning assessment theory (e.g., construct validity, reliability, objectivity, instructional sensitivity), which are extensively discussed in assessment literature (for an overview, see, e.g., AERA/NCME 2014). The chapter will therefore not draw on general assessment standards but focus on aspects of vocational assessment that are additionally relevant in order to validly assess vocational competences. We justify these criteria as follows, substantiating them with literature in the field:

### **Authentic Modes of Assessment**

For example, Gulikers et al. (2004) stress the importance of a high fidelity of an assessment's test environment, which they refer to as the "physical context" (In the framework of Gulikers et al. (2004), this dimension also includes the representation of information and material, which is here subsumed in the logic assessment model within characteristic 4. "Staged Embedding.") (p. 74). This assessment characteristic describes how well the test environment reflects reality (Alessi 1988; Brown et al. 1989; Herrington and Oliver 2000) and for the case of vocational assessments how well the general assessment setting reflects the surrounding of the real workplace. Here two dimensions of the test environment that determine the authenticity of this aspect can be distinguished (see Fig. 1): First, the assessment can take place in different settings. It can be administered at a vocational school or another testing institution (e.g., as a paper-pencil test) or directly at the workplace and therefore at the natural surrounding where competence is demonstrated. As a compromise, it could also be administered as a computer simulation of a typical workplace. Second, the task types presented in the test environment can focus on either knowledge at the workplace (typically multiple-choice or short tasks), on work products (e.g., a chair for a carpenter or a business letter for an industrial apprentice), or on the solving of work tasks (observing the process of problem solving at the workplace, via log data in simulation or the solving approach in a paper-pencil task). Ideally, competence is captured most authentically in a natural surrounding (a workplace) by observing the process by which a product is created or a problem is solved. However, there may be good reasons in a VET system to choose other settings of assessment and task types. For example, high-stakes testing for the purpose of certification requires a certain degree of standardization and comparability between persons. Both properties can hardly be obtained in natural settings with very open task types.



**Fig. 1** Modes of vocational assessment

## Relevant Item Sampling

Different researchers emphasize that authentic tasks are at the core of any valid assessment and therefore should play a particularly crucial role for an evaluation of authenticity (Wiggins 1993; Newmann 1997; Achtenhagen and Weber 2003; Gulikers et al. 2004). The tasks chosen in a VET assessment are authentic if they resemble the activities required at the workplace. They should therefore be perceived by test takers as “representative, relevant and meaningful” in the sense that they resemble the criterion task carried out in professional practice (Gulikers et al. 2004, p. 71). Moreover, the distribution of relevant tasks over different fields of action of a vocational domain, i.e., the proportion of different contents, should reflect curricular relevance in terms of weighing (see Klotz and Winther 2017), meaning that activities that are given a large focus in the vocational curriculum and during vocational instruction should be presented proportionally within the assessment.

## Complexity of Tasks

Some authors argue that with respect to the complexity of tasks, there should be an emphasis on higher-level thinking and more complex learning (Custer et al. 2000, p. 13; Wiggins 1993). However, especially with respect to VET, not every task in an assessment has to be highly complex. The extent of complexity is authentic as long as it reflects the complexity of the relevant criterion task at the workplace (e.g., Gulikers et al. 2004). Such tasks can at times be relatively unchallenging and require a rather low level of cognitive and/or manual complexity. Moreover, they might be

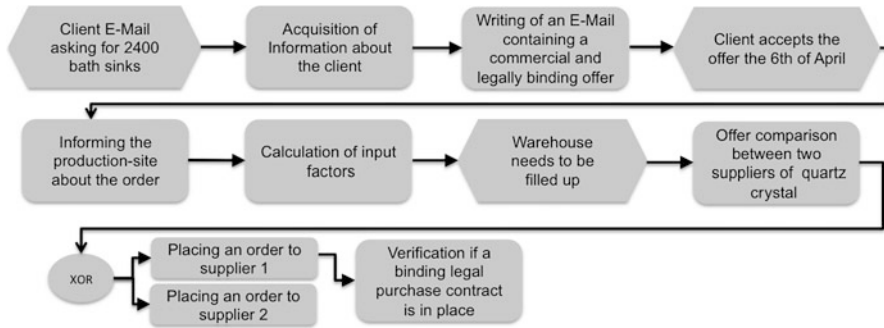
simple in the sense that the real vocational problem is well structured, with little solving steps and/or only one correct answer (Cronin 1993; Gulikers et al. 2004). Still those not complex activities should be considered authentic and not necessarily be excluded from an assessment. However, as recent commentary suggests (e.g., Schmidt 2000; Winther 2010), current test practices often fail to give students sufficient room or potential to apply their knowledge to solve complex problems in a working context. Therefore, an assessment should represent the complexity of a real work surrounding which usually contains a certain (domain-specific) amount of complex tasks.

### **Staged Embedding of Tasks in a Close-to-Reality Surrounding**

Test environments for vocational education are authentic if they model a realistic vocational setting in which all tasks are embedded (e.g., Shavelson and Semnara 1968). This could, e.g., for the commercial domain, consist in staging all tasks in a model company or for the medical domain in a model hospital. A close-to-reality surrounding facilitates the transfer of vocational competence in assessment situations – and vice versa. This characteristic deals with the staging of information and materials that are presented in the model environment. The quality of the presentation of material and the amount of detail presented as the context of all tasks determine the degree of authenticity. The additional material provided has to be used by learners to solve tasks in the assessment, as it otherwise just produces unnecessary cognitive load. Moreover, the number and kinds of information available to testees should equal the number and kinds of information at the workplace (Segers et al. 1999). In this respect, the surrounding also tends to be more authentic, if it contains relevant and irrelevant information (Herrington and Oliver 2000), as it is usually the case in a workplace situation, where learners have to filter, e.g., documents or websites for the necessary information to solve a problem.

### **Process Orientation**

Another characteristic of authenticity in vocational assessments can be found in the sequencing of the assessment tasks (e.g., Hacker 2003; Preiß 2005). Typically, events and resulting work tasks take place in a “natural order” at the workplace. The order of the tasks administered to the vocational testees should not be arbitrary but follow the logic of workplace processes. Accordingly, process orientation in vocational assessments can be defined as the modeling of a chronological sequencing of tasks according to the natural occurrence of vocational events. For example, for the commercial domain, tasks can be arranged according to the production chain or according to standardized processes in single departments, like human resource management or controlling. Here, learners also have to integrate preceding information on the operating work process. For example, with regard to our sample sequence of an operating process, given in Fig. 2, learners have to anticipate that the cheapest



**Fig. 2** Sample sequence of an operating process in the commercial domain

subcontractor for the acquisition department would not meet the goods and services department's production deadline, fostering a cross-department thinking. Also, the apprentices have to deduce information from foregoing client relation events. For example, if an offer had already expired at its acceptance date, no binding contract would be in place.

## Social Embedding

A (vocational) learner is most willing to demonstrate competence if attached emotionally (CGVN 1997). Against this backdrop, apart from staging tasks in a realistic model environment, they moreover should be staged in a social context. At most workplaces, social interaction takes place constantly as working and learning both take place in a community of practice (Lave and Wenger 1991) – though it is notable that not every single vocational activity requires social interaction. Therefore, if a real (work) task demands social interaction, the assessment should as well involve social interaction (Gulikers et al. 2004, p. 74). Social interaction can generally be defined as the process by which we act and react to those around us (Goffman 1959). There are different qualities of social embedding in a vocational assessment that can be interpreted as a taxonomy of authenticity with respect to social interaction. First, it is possible to put learners at the center of test events. The vocational testee is then not observing from a distal perspective but is an integral part of the storytelling. Second, it is feasible to let the learner be approached by the vocational test environment. The vocational learner then has to solve a task as a reaction to the social test environment in a game-like process. Third, it could be necessary for solving a task to let the learner actively approach others (e.g., writing an e-mail). Finally, it is technically possible in certain assessment modes to let the learner interact with the test environment and/or other testees. Again, also with respect to this characteristic, there may be good reasons to not fully adhere to the highest level of this taxonomy. This again depends on the purpose of the vocational assessment. For example, if the purpose of the assessment is vocational certification of an individual, the possibility of group collaboration on tasks is to be excluded. Again, depending on the purpose

**Table 1** Taxonomy of social embedding in (vocational) assessments

Taxonomy of social embedding in assessments	
Social Placement	Place the learner at the center of action “You have been employed with Ceraforma Keramik since the beginning of this year. Ms. Kenk, the team leader, and Mr. Friebel and Ms. Hoffmann, the new trainees, are your colleagues in the horizontal team. You are asked to help them by solving the following tasks”
Social Reaction	Let the learner solve tasks as a reaction to the social environment The industrial apprentice receives an e-mail by his superior Ms. Kenk, informing him about changing currency rates and asking him to adapt the price lists in the company’s pricing system
Social Action	Let the learner solve a task by actively approaching others The industrial apprentice receives a voicemail informing about a no sufficient quantity of quartz crystal on stock to execute an order. His task is to order 25 tons of new quartz by contacting various suppliers via e-mail
Social Interaction	Let the learner interact with the test environment and/or others The industrial apprentice receives a voicemail informing about a no sufficient quantity of quartz crystal on stock to execute an order. His task is to order 25 tons of new quartz by contacting various suppliers via e-mail. An intelligent test environment or other assessment participants respond to his request by asking for additional information in the order

of the assessment, it is possible to integrate social feedback on the solving of tasks on the last three stages of the taxonomic model. Table 1 gives an overview of the different qualities of social embedding in vocational assessments and substantiates these with examples for the commercial domain.

## The Logic Assessment Model

A conceptual framework for authentic competence assessment should not only list relevant characteristics but also refer to the assessment design process in order to give feasible guidance for practical implementation. This paragraph therefore substantiates the sequencing of the six relevant criteria identified by placing them in a logic assessment model that connects the authentic design criteria to the assessment design process.

The assessment design process starts with deciding for the mode of an assessment. Based on the assessment purpose, appropriate assessment settings and task types have to be considered and evaluated with respect to their cost-benefit ratio in terms of economic cost and testing time. According to the evidence-centered assessment design approach by Mislevy et al. (2003, p. 4), the starting point of any test and item design then consists in an initial substantive analysis of a domain. Here, experts in a field have to reduce vocational reality in a didactical assessment model of a given domain (Stachowiak 1980). Testimonials of relevance are ideally captured in activity-oriented vocational curricular or can be obtained via workplace observations in less formalized professional areas. The domain analysis should preferably focus on vocational activities, i.e., of working processes rather than on vocational contents, though of course vocational activities do require a

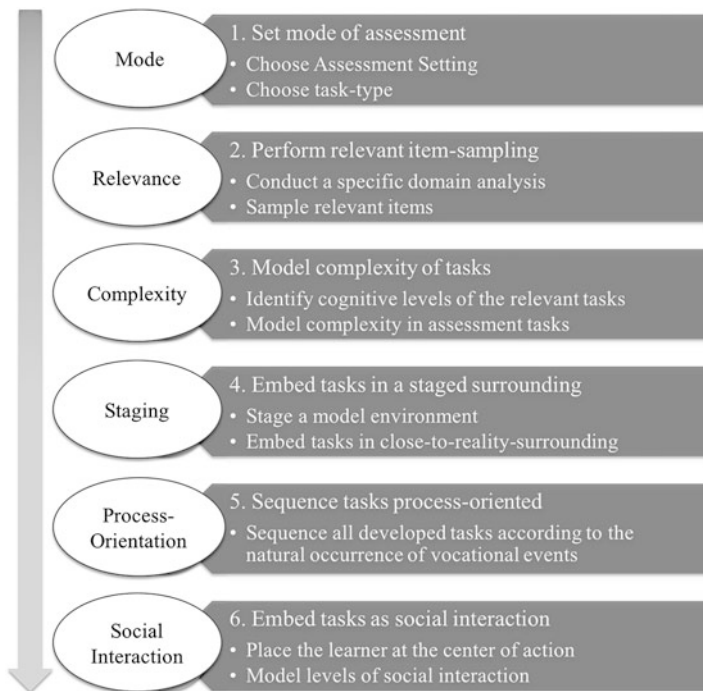
substantive body of content knowledge. Then, during item sampling, tasks have to be identified that are relevant for the workplace (Stachowiak 1980; Achtenhagen and Weber 2003). The sampling of the tasks moreover has not only to consist in relevant tasks but should ideally also reflect curricular weighing (see Klotz and Winther 2017) in order to not just pick and choose content areas unsystematically. Once meaningful items for an assessment have been identified, the complexity of these items (e.g., in terms of cognitive taxonomies, vocational specificity, or amount of information processing required) has to be identified and afterward translated in respective test tasks. The levels of complexity represented in the assessment should represent the complexity of real work surroundings and therefore ideally also roughly reflect the curricular and instructional weighing of complexity (see Klotz and Winther 2017). The modeled tasks then have to be embedded in a staged model environment in order to anchor vocational activities in a realistic workplace. This step of the assessment design process pays particular attention to a realistic anchoring of information. For this purpose, close-to-reality model environments and respective materials that are necessary for task solving are developed. After developing the test tasks, step 5 of the logic assessment model “process orientation” consists in sequencing the tasks. The sequence in which the tasks are administered to the vocational testees should reflect a possible occurrence of vocational events and activities at a workplace. The final phase of the vocational assessment design process consists in the modeling of social interaction in a vocational assessment. This step is placed at the end of the design process as it depends also on the model environment (e.g., company size, structure of employees, hierarchies, etc.) and as only social interaction is to be modeled for the purpose of assessment that directly accompanies vocational work processes (instead of, e.g., private chats) (Fig. 3).

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## Evaluation

In order for this vocational assessment framework to be accounted for and to allow for a practical implementation and validation, evaluative methods are required. Hence, this paragraph deals with a summary of methods, which have been used in recent literature to establish and improve authenticity in vocational assessments.

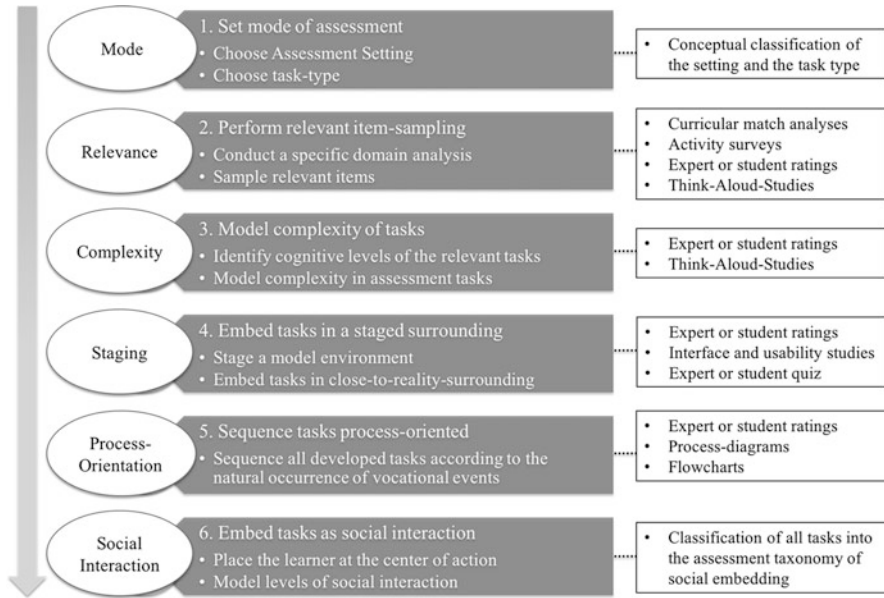
It is notable that authenticity in vocational assessments has to be evaluated by taking into consideration the respective purpose of the assessment for vocational education. Especially the distinction between the purpose of certification and admission to a (regulated) community of practice and rather formative purposes like the regulation of learning and teaching processes (e.g., self-assessment or feedback for vocational teachers and trainers) might justify reason to restrict certain aspects of authenticity. Moreover, when searching for methods for an evaluation of authenticity, close attention should be paid on the perspective of evaluation. For example, Gulikers et al. (2008) argue that authenticity is in the eye of the beholder and that different stakeholders of VET have different perceptions of authenticity. Particularly, they find that teachers rate most assessment characteristics as more authentic than learners do. Therefore, the perspective of the vocational learner should be included, where possible, in an evaluative framework for authentic vocational assessment.



**Fig. 3** The logic assessment model

With respect to the first authenticity characteristic “mode,” a conceptual classification of the assessment setting and the task typed administered given in Fig. 1 might describe the authenticity of the chosen assessment mode. With respect to the aspect of “relevance,” curricula match analyses, which compare the contents of the assessment with the contents in a VET curriculum in terms of their nature and their proportion, constitute a possible approach (for applications, see, e.g., Deutscher and Winther 2017). However, activity-based VET curricula are not available with respect to all vocations and all competences. Other options exist in qualitative interviews and quantitative ratings of relevance by either experts or vocational learners or in activity surveys administered at the workplace (for applications, see, e.g., Gulikers et al. 2004, 2008; Klotz et al. 2015) or in a think-aloud evaluation of task relevance perceived by learners (Kopriva 2001). “Complexity” could again be evaluated by expert or student ratings (for applications, see, e.g., Gulikers et al. 2004, 2008; Hartig and Jude 2007; Klotz et al. 2015). However, a deeper approach to evaluate complexity can be seen in qualitative think-aloud studies that determine the respective cognitive steps during task solving (Kopriva 2001). For an evaluation of the aspect of “staging,” again qualitative and quantitative ratings could determine the degree to which the modeled environment and the situational embedding are felicitous. The staged environment could also be evaluated by matching the staged learning environment against a set of criteria (rubric method) of the workplace to





**Fig. 4** Evaluative framing

determine the degree of convergence and additionally by user interface and usability analyses for computer-based assessments, e.g., in the form of think-aloud analyses (see, e.g., Sangmeister et al. 2018). A more experimental approach could be implemented by an expert or student quiz, in which “staged” and real company descriptions and materials are administered and have to be distinguished. “Process orientation” could again be evaluated by experts in a field or vocational learners, rating the closeness of the task sequencing in comparison to operating processes at a real work site. In some vocational fields, standard operating processes are also documented in process diagrams or flowcharts, which could also be used to validate the sequencing of assessment tasks. With respect to the final authenticity characteristic of “social interaction,” a conceptual classification of the social interaction modeled into the taxonomy of social embedding given in Fig. 1 might describe the authenticity of the chosen assessment mode. Figure 4 summarizes evaluative possibilities for all of the six authenticity characteristics and respective design steps.

## Conclusion and Discussion

The ambition of this chapter was to conceptually outline and operationalize authentic competence assessment in vocational contexts. For this purpose, the chapter drew on existing literature on authentic competence assessment in order to synthesize major criteria or key characteristics for an authentic representation of work-related abilities. In contrast to existing frameworks, these major criteria (1) explicitly target vocational



education, (2) are placed in a logic assessment model that connects the criteria to the assessment design process, and finally (3) provide adequate evaluation methods by which this framework can be accounted for and which allow for a practical implementation and validation of authenticity characteristics in the design process of vocational assessments.

With respect to a coherent definition, we argue that while “authentic” assessments in general education are intended to provide evidence about what students know and can do in a subject matter (Ruiz-Primo and Shavelson 1996, p. 569), it should be defined for vocational education as the *degree of fidelity of all relevant characteristics of an assessment design that have to be adhered to in order to align assessments with work reality and to allow vocational learners to apply their knowledge, skills, and attitudes effectively to solve real work problems.*

This definition can be filled by six characteristics discussed in authenticity literature that in this order also constitutes a logic model for the design process of authentic vocational assessments:

1. Modes of assessment
2. Relevant item sampling
3. Complexity of tasks
4. Staged embedding
5. Process orientation
6. Social interaction

However, it is notable that the logic model is not strictly linear. During the assessment development process, several developmental loops have to be performed in order to harmonize the different authenticity criteria and design steps. For example, after staging the tasks in a model environment and anchoring the vocational situations with realistic material, the items have to be adapted to the refined item context, e.g., by adapting their complexity.

With respect to evaluative methods, we argue, in line with, e.g., Gulikers et al. (2008), that for authentic assessments to reach their potential in positively stimulating learning and better preparing for the labor market, it is imperative that vocational learners perceive their assessments as authentic. Therefore, the perspective of the vocational learner should be included, where possible, in an evaluative framework for authentic vocational assessment. We suggest, among others, conceptual classifications, activity surveys, expert and student ratings, think-aloud studies, or worksite flowcharts as methods for establishing and evaluating authenticity in vocational assessments. It is notable, however, that (1) this is not an exhaustive list of all possible evaluative methods and that (2) authenticity in vocational assessments has to be evaluated by taking into consideration the respective purpose of the assessment for vocational education. Especially the distinction between the purpose of certification and admission to a (regulated) community of practice and rather formative purposes like the regulation of learning and teaching processes (e.g., self-assessment or feedback for vocational teachers and trainers) might justify reason to restrict certain aspects of authenticity.

Nonetheless, we proclaim that by establishing this definition and theoretical framework of authentic competence assessment, several practical steps can be undertaken to improve current VET assessment practices in terms of authenticity. Apart from this, only by co-delivery of adequate evaluation methods can such a framework take effect and be used as an accountability instrument.

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# Assessing Learning Outcomes in Vocational Education **70**

Hamish Coates

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## Abstract

As vocational education and training develops, more energy must be invested in ensuring that sufficient learning has been achieved to warrant the award of a qualification and that people are ready for work. Many traditional and commonly used assessment approaches do not scale well, and there remains a pressing need for reform. This chapter distils insights from international investigations of student learning outcomes assessment and uses these to chart frontiers for innovation. The chapter begins with an historical tour of the field, taking stock of progress over the last 30 years by examining signature initiatives. It sets out a framework for understanding and guiding growth, reviews likely facilitators and blockers, and, through these analyses, advances a strategy for guiding future development. The strategy articulates technical, practical, and substantive dimensions of assessment. Energy is invested in discussing each of these dimensions and creating a picture of what assessment will look like in a decade's time. The

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chapter's final section clarifies governance arrangements which would have capacity to spur the kind of progress required to propel the field. Overall this chapter offers insights into the nature, relevance, research, and practice of assessment in VET.

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**Keywords**

Vocational education · Assessment methodology · Learning outcomes · Education reform

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## Introduction<sup>1</sup>

As vocational education and training (VET) systems and institutions expand, more energy is being invested in ensuring that sufficient learning has been achieved so that people are ready for work. VET plays a huge and growing role in the lives of billions of people across all nations. The competences people develop in VET are used to construct the world around us. It is essential to ensure that people develop desired knowledge and skills. Assuring the quality of learning is particularly important given the expansion of VET, the changing nature of work, and the global mobility of workers (UNESCO 2017). Yet many traditional and commonly used assessment approaches do not scale well, and there remains a pressing need for reform. This chapter distills insights from international investigations of student learning outcomes assessment and uses these to chart frontiers for innovation.

It seems common to hear in newspapers, reports, and conferences that “vocational education is changing rapidly.” Vocational education is becoming more central to socioeconomic prosperity, spurring intensification and proliferation of change (Coates 2017; UNESCO 2017). Online technologies and workplace learning have undoubtedly changed access to curriculum and the mechanics of instruction. Also, interesting institutional variants are emerging, giving rise to new forms of governance and commercial opportunity. At an aggregate level, change does indeed abound, and it would be easy to fill volumes synthesizing the marvelous transformations underway.

Yet as observation at almost any VET provider reveals, much of how teachers and institutions assess student learning has not changed for over a century. Within changing institutional settings, teachers are of course interacting with new computing technologies to provide diverse students with information and experiences intended to prepare graduates with capabilities for tomorrow's world of work. Given such change, it is surprising that much assessment in vocational education has not changed materially for a very long time and that economically and technically unsustainable practice is rife (Smith 2010; Halliday-Wynes and Misko 2013). There are an enormous number of innovative and high-quality developments, including those associated with technology advances. Still, every day around the world, students complete written assessment using pen and paper, sitting without

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<sup>1</sup>The following text builds on Coates (2016) and Coates (2018).

talking in large halls at small desks in rows. It is possible this reflects the pinnacle of assessment, but given the lack of reflective advance over an extended period, this seems unlikely. Rather, given the enormous changes sweeping vocational education, and pressures and prospects surrounding assessment, it is more likely the “transformational moment” is yet to come.

There is substantial value in pushing progress along because the assessment of student learning outcomes is very important. Assessment provides essential assurance to a wide variety of stakeholders that people have attained various knowledge and skills and that they are ready for work or further training or study. More broadly, assessment signposts, often in a highly distilled way, the character of a VET provider and its educational programs. Much assessment is expensive, making it an important focus for analysis. Assessment shapes education and how people learn in powerful direct and indirect ways, influencing teaching and curriculum. Of course, assessment is highly relevant to individuals, often playing a major role in defining life chances and directions.

This chapter provides insight into the nature, relevance, research, and practice of assessment in vocational education. It is intended to be of wide use and furnish insights for policymakers, researchers, and practitioners alike. It takes stock of progress to date and sketches options for ongoing development of this fast-growing field. Assessment in VET takes many forms, including many different and critical forms of workplace assessment, behavioral examinations of skill, attitudinal or interpersonal assessments, and more traditional forms of cognitive assessment such as tests and examinations. This chapter focuses on the assessment of cognitive knowledge and skills, as opposed to behavior or broader affective kinds of competence. Other publications can be reviewed to obtain broader overviews of assessment in VET (e.g., European Commission 2012).

The chapter continues with a historical tour of the field, taking stock of progress over the last 30 years by examining signature initiatives. It sets out general principles for framing change, reviews likely facilitators and blockers, and, through these analyses, advances a strategy for guiding future development. The strategy articulates technical, practical, and substantive dimensions of assessment. Energy is invested in discussing each of these dimensions and creating a picture of what assessment will look like in a decade’s time. The chapter’s final section clarifies governance arrangements which would have capacity to spur the kind of progress required to propel the field.

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## Development of the Field

Assessment has forever played an integral role in tertiary education, but the most relevant antecedents for analyzing contemporary development can be traced back over the past few decades. This section examines signature international initiatives. Clearly, taking critical stock of a field as large and diverse as tertiary education assessment is a useful, though challenging task – there are an enormous number of actors and initiatives, each at varying stages of maturity and diffusion. Rather than

conduct an exhaustive review, it is feasible to synthesize signature case studies which have sought to shift policy and practice.

One broad line of development has involved specifying qualification-level outcomes. Examples include the European Qualifications Framework (European Commission (EC) 2015), the United Kingdom's Qualifications and Credit Framework (Ofqual 2015), the Australian Qualifications Framework (2015), and in higher education the United States Degree Qualification Profile (Lumina Foundation 2015). As such titles convey, this work is developed and owned by systems, and such initiatives have served as important policy instruments for shifting beyond an anarchic plethora of qualifications, generating conversations about finding more coherence, and indeed articulating the general outcomes graduates should expect from a qualification (Chakroun 2010). These system-wide structures can suffer from unhelpful collisions with fruitfully divergent local practice, but their inherent constraint is that they go no further than articulating only very general graduate outcomes (Allais et al. 2009; Wheelahan 2009). They offer little beyond broad guidelines for improving the assessment of learning.

Going one step deeper, another line of work has sought to specify learning outcomes at the discipline level. In higher education, the tuning process (González and Wagenaar 2008) is a prominent example which has been initiated in many education systems and across many diverse disciplines. Broadly, tuning involves supporting collaboration among teachers with the aim of generating convergence and common understanding of generic and discipline-specific learning outcomes. Canada adapted this work in an innovative way, focusing the collaborations around sector-oriented discipline clusters rather than education fields (Lennon et al. 2014), while in Australia a more policy-based and compliance-focused approach was deployed (Australian Learning and Teaching Council (ALTC) 2010). Similar large-scale though much more compliance-focused work has been progressed in VET, for instance, via the development of training packages in Australia (e.g., Department of Education and Training 2017). Such collaborations travel several steps further than qualification frameworks by engaging and building capacity within disciplinary contexts. Like the qualification frameworks, however, the work usually stops short of advancing assessment resources or sharing data and tends to focus instead on advancing case studies or best practice guidelines.

A slightly deeper line of development involves shared rubrics that compare assessment tasks or student performance. Moderation in assessment can play out in many ways (Coates 2010) as indeed has been the case in recent vocational education initiatives. The moderation of resources has involved rudimentary forms of peer review through to slightly more extensive forms of exchange. Mechanisms have also been developed to help moderate student performance. In higher education, the United States, for instance, the Association of American Colleges and Universities (AAC&U) (Rhodes and Finley 2013) has developed VALUE rubrics for helping faculty assess various general skills. This has been progressed in most recent cross-institutional moderation work (AAC&U/State Higher Education Executive Officers (SHEEO) 2015). Several such schemes have been launched in Australia, including a Quality Verification System and a Learning and Teaching

Standards Project, both of which involve peer review and moderation across disciplines (Marshall et al. 2013). This work travels more widely than qualification- or discipline-level specifications, for it involves the collation and sharing of evidence on student performance, often in ways that engage teachers in useful assurance and development activities. Such moderation work is limited, however, in being applied in isolation from other assessment activities and materials.

Collaborative assessments build from the developments discussed so far to advance more coherent and expansive approaches to shared assessment. As with other developments addressed here, such work plays out in myriad ways. For instance, progress testing in the Netherlands (Schuwirth and van der Vleuten 2012) involves the formation of shared assessment materials and administration of these in a longitudinal sense. Other assessment collaborations have focused on the development of shared tasks and analytical or reporting activities – for instance, the Australian Medical Assessment Collaboration (AMAC) (Edwards et al. 2012) and the German initiative with the umbrella title Modeling and Measuring Competencies in Vocational education Modeling and Measuring Competencies in Higher education (KoKoHs) (Zlatkin-Troitschanskaia et al. 2014). In 2015, the Higher Education Funding Council for England (HEFCE) funded a suite of mostly collaborative projects to assess learning gains in higher education (HEFCE 2015), and the European Commission funded a large-scale collaboration titled Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe (EC 2015). Such work is impressive as it tends to involve the most extensive forms of outcome specification, task production, assessment administration, analysis, and reporting and at the same time develop faculty capacity. Work plays out in different ways, however, shaped by pertinent industry, professional, and educational factors. This can mean, for instance, that extensive work is done that leads to little if any benchmarking or transparent disclosure.

Standardized assessment is easily the most extensive form of development and would appear to be growing in scope and scale. Licensing examinations are the most long-standing and pervasive forms of assessment, though their use is cultural and they tend to be far more common in the United States than Europe, for example. Other related kinds of national effort are evident in certain countries – for instance, in Brazil (Melguizo 2015), Colombia (Shavelson et al. 2016), and the United States (Shavelson 2007; Educational Testing Service (ETS) 2014). A series of international graduate outcomes tests have also been trailed in recent years, such as the OECD’s Assessment of Vocational education Learning Outcomes (AHELO) (Coates and Richardson 2012), the International Association for the Evaluation of Educational Achievement Teacher Education and Development Study (IEA TEDS) assessment of teachers (Braeken and Blömeke 2016), the HEIghten assessment (Liu et al. 2016), and a cross-national assessment of engineering competence (Loyalka 2015). The OECD’s Survey of Adult Skills (PIAAC) is the largest international initiative most relevant to VET (OECD 2017). Standardized assessments are also promulgated via commercial textbooks (Pearson 2014). As implied by the term “standardized” and by the external sponsorship of such work, such assessment often proceeds without engaging with teachers. Though such exogenous intervention may in the longer run inject the shock required for assessment



reform, it also tends to balkanize internal from external interests and has not yet been shown to have large impact on learning or teaching practice.

Of course, a variety of these practices are used by vocational education providers around the world, but it must be said, in varying and inconsistent ways. Traditional assessment practices are rife. Such practices are baked into education policy and procedures and more particularly into well-established workforces. More recently established institutions have the opportunity to leapfrog and setup more modern approaches to education design which better express contemporary assessment ideas and practices. It is surprising that VET providers are not playing a greater leading role in assessment reform given their involvement in such work over centuries. A review of the initiatives discussed above shows that most institutions are participating at the margins or in spasmodic ways, with many yet to embrace comprehensive assessment reform.

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## **A Framework for Growth**

A two-dimensional framework is proposed as a mechanism for advancing principles for advancing the field of VET learning outcomes assessment. These dimensions are described, and the framework's value is teased out via a number of illustrative change areas. One dimension of this framework divides change into those aspects which are substantive in nature, which are technical in nature, and which are practical in nature. The other dimension is hierarchical and partitions consideration instead by the level or zone at which change might occur.

Substantive – policy, disciplinary, and conceptual – considerations are the most significant forces shaping learning outcomes assessment. Assessment is of little use unless it is relevant to students, to policymakers, to institutional leaders and managers, to teachers, or to the general public. Establishing such relevance is tricky, as it involves not just identifying but also then defining what counts, and of course stakeholder interests play a role in this. Power plays a key role, manifest through the formal or informal authority of individuals or institutions. The oligopolistic character of many established education systems has limited the extent to which change has been driven by research and technological development, though appetite for research-driven change appears to be increasing with the increasingly competitive nature of education markets.

It is imperative that assessment is cogent technically. This means that assessment resources and approaches should aim to be valid and measure and report what is intended. Assessment should be reliable, which means that assessment should provide consistent measurement of the target focus area. There are a host of methods for assessing and reporting these kinds of technical properties, which of course are the focus of active scientific debates. At a minimum, it might be expected that explicit consideration has been given to measurement considerations, but ideally a set of statistics should be provided as with professionally validated assessment instruments.

Substantive relevance and technical integrity are not sufficient to spur change in assessment. Practice is critical in that it must be feasible to collect, analyze, and report data. Though institutional budgets are getting tighter, many entrenched assessment methods have high fixed costs and limited economies of scale. It is vital that more viable options are explored. Really important changes in assessment might be costly or slow to deliver. They may waste students' time and hinder learning experiences and outcomes. Indeed, such practical constraints are often claimed as impediments to progress. Technology carries the potential to make a huge difference, as is evolving thinking about the nature of the evidence, hence processes required to assure student achievement.

The second dimension of the framework distinguishes the level at which change in assessment might unfold. The Organisation for Economic Co-operation and Development (OECD) (2015: 15) notes of this dimension that it “distinguishes between the actors in education systems: individual learners and teachers, instructional settings and learning environments, educational service providers, and the education system as a whole.” The level at which information is reported is not the same as the level at which information is collected. Data is often collected at a lower level then aggregated and often also combined with other data for reporting. Similarly, the interpretation level might be different again and will likely vary with the interests and concerns of stakeholders. For current purposes, it is proposed that assessment change is required for those involved in VET such as students and teachers and that change is required by broader communities, including the general public, business and industry, and people associated with planning education policy and strategy.

A series of ideas can be evoked from this two-dimensional framework. Substantively, it is important for assessment to be relevant or authentic to students and teachers. This often means that a diversity of assessment practice is required. At the same time, stakeholders more removed from everyday practice seek evidence which is more general in nature. Hence a substantive principle which might be derived is that future reform should ensure that assessment is locally relevant and externally generalizable. A technical principle is that reform should advance transparency regarding the validity and reliability of assessment. The most well-designed and validated assessments are meaningless unless they are feasible to implement. Hence a further principle for reform is that assessment must make efficient use of money and time. In terms of practice, emphasis might be placed on delivering feasible and efficient assessment to large student cohorts given tight resource constraints, whereas those more removed from the process may give more regard to the technical veracity of the evidence produced. Stereotypical remarks made by employer groups can suggest a lack of confidence in the everyday assessment by institutions of students' knowledge and skills.

Such principles could be nuanced differently or elaborated more exhaustively, but the above formulations are sufficient to tease out the main points at play. None of the three principles are particularly surprising or controversial, though they can provoke substantial complexity and be difficult to implement. Part of the trouble arises from the conundrums provoked by attempts to harmonize or jointly optimize the principles considered in unison. Further trouble flows from negotiating the dialectic

between internal and external interests. Broader considerations flow from complexities associated with generalizing the assessment of complex higher-order skills across national and cultural contexts. Resolving these issues offers a chance to unlock substantial progress in the assessment of learning outcomes. Hence the principles provide a useful normative rubric against which to evaluate current progress and change dynamics and to forecast insights and frontiers for reform.

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## Facilitators and Blockers

Clearly, there are myriad reasons why assessment has not experienced its game-changing modernization moment. While such reasons are invariably entwined in specific contexts and initiatives, common themes can be isolated from review of several projects. These contextual challenges are considered with respect to the factors required to facilitate change. As with the preceding analysis, there is no claim that the list is exhaustive or the analysis universal. Thinking and practice in certain fields and institutions is more advanced than in others.

Obviously, people with vested interests in entrenched approaches are often significant obstacles to change. Today's vocational education leaders and teachers have often made significant institutional and individual investments in conventional assessment resources and practices. At the same time, these are the very professionals who are bearing the brunt of quality and productivity pressures. Reshaping their perspective on assessment would open myriad fresh opportunities. This is a challenging point to make, yet remains a task that cannot be ignored.

Likewise, it is likely the assessment of student learning doesn't change given its low priority to institutions. From many perspectives the current system seems "good enough," and besides pressure from accreditation or employers, there can appear to be little impetus to change. As these remarks portend, sparking change on this front likely requires an external commercial or regulatory intervention.

Relevant professional capability and capacity is required to change assessment practice, which in the field of vocational education is in short supply. Vocational education itself lacks dedicated assessment professionals, and there appear to be too few assessment specialists with relevant industry experience (Richardson and Coates 2014). The lack of a professional assessment community is an obvious impediment to change. Building a new profession of assessment experts or a community of faculty with interest in assessment requires investment by VET institutions and stakeholders, yet can ultimately be addressed through training and development.

VET teachers require professional training and development to improve competence in assessment, yet such training has really only evolved over the last few decades and as noted above is spasmodic. It would be helpful to cite figures on the incidence of such training among teachers, and while it affirms the point, it is regrettable that such figures do not exist. Most teachers learn their trade via what could be characterized as an informal apprenticeship, and while competence in assessment is no exception, this does not discount the need for creating more systematic forms of professional development. Improving assessment capability among teachers will do much to encourage diversification and excellence.

Often the most profound shocks are exogenous to any system. The rise of online technology and policies impelling increasing marketization of vocational education are two examples. By definition such shocks are highly significant to advancing education yet are profoundly difficult to forecast or induce. Ultimately, as in many industries, new technologies and business processes are required to adapt.

Inherent security and confidentiality constraints play an obvious role in constraining assessment reform. The greater the stakes, the greater the security and confidentiality implications. In a host of ways, such constraints hinder collaboration and drive-up costs yet contribute to the value and impact of assessment. Engineering new technologies and assessment processes seems to be the most effective means of addressing such constraints.

As assessment like other facets of VET becomes increasingly commercial in nature, various business considerations grow as greater obstacles to change. Non-trivial intellectual property considerations may be pertinent, for instance, by hindering the sharing and replication of materials. Working through such obstacles can be expensive and complex, yet in many instances is ultimately resolvable with appropriate negotiations and agreement.

Traditional VET structures can hamper progress, creating confusion about who should own change. Individual teachers focus on assessing particular subjects, departments focus on majors, and students and institutions on qualifications. Fragmentation of curriculum and cohorts can further hinder the formation of coherent assessment schemes. This can create an ownership or agency problem, rendering change problematic. Changing this dynamic typically involves developing and managing more collaborative training practices.

Teachers' belief in the success of current practice is likely to be a major change barrier. Indeed, current practice may well work locally yet be unsustainable in broader or different contexts. An assessment task may be perfectly aligned with a teacher's curriculum and teaching, for instance, yet fail to contribute to the qualification-level information required for external professional accreditation. Institutions have varying ways for leading change in education practice, which ultimately must resonate with prevailing policies and norms.

In reviewing challenges in changing VET assessment practice, it appears that change, in broad summary, hinges on further professional development, changed institutional management, ongoing technology and business process development, and external commercial or policy intervention. None of these facilitators are easy to plan or enact. Given the complexity and difficulty of the task to hand, there seems value in pushing on all fronts in synchrony, noting that even by passing through various tipping points, reform is likely to be haphazard and take time.

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## **Glimpsing Future Assessment**

What do these change facilitators, the normative framework, and the earlier insights regarding signature initiatives convey in terms of prospects for development? This section deploys the framework to take brief stock of the emerging field before turning to focus on potential steps ahead. A picture is painted of prospects for future

development, building on earlier analyses of Coates (2014) and researchers from many different systems.

What evidence is there that the current initiatives are helping ensure that assessment is locally relevant and externally generalizable? Large-scale qualification frameworks do very little to achieve this, but the more practice-focused initiatives do appear to be driving progress in this direction. Programs that invite teachers to focus on organizing their practice around more generalizable principles – such as the tuning process and the VALUE rubrics – provide signposts for change. Simultaneously, the externally driven initiatives are themselves benefitting from technological advances in assessment (Bennett 2015) which give new insights into what assessment can look like and deliver. There would appear to be some way to go, however, in transcending the internal/external dialectic that appears to simultaneously spur and hinder progress. Also, there is much work to be done to bridge the reducing but still large gap between large-scale policy and technical development and everyday practice.

On the technical front, is progress regarding outcomes assessment advancing transparency regarding the validity and reliability of assessment? Several diversified and large-scale initiatives reveal the extent of work required to validate VET assessment. But with workforce capacity bottlenecking progress even with funded large-scale initiatives, it is unlikely that institutions will be positioned anytime soon to validate student assessment in ways that meet address psychometric standards and criteria. There is a high risk that students are assessed using insufficiently validated tasks which yield spurious information about performance and potential (Coates 2015). Inadequate information of this kind carries risk for graduates and also for institutions and countries. The need for development in this front is important.

Are contemporary advances helping to enhance the efficiency of assessment? Given that most large-scale initiatives tend to be relatively expensive (for instance, crude estimates of around \$10,000 per finished professionally produced multiple-choice item are not uncommon), such work is itself unlikely to be offering any intrinsic signals for how to make assessment more efficient. Through innovation, however, large-scale initiatives do carry potential to initiate new technologies and approaches and to model how new efficiencies may be achieved. The risk, of course, is that change is shaped more by factors which are exogenous to assessment. That is, given ambiguous budget constraints and unclear technical and substantive expectations, explicitly identifiable assessment costs become a real target for savings, particularly compared with more visible staffing resources and facilities. The consequence of such disinvestment is obvious – cheaper and lower-quality forms of assessment will be used that are less authentic and robust. Understanding the trade-offs linked with differential levels of direct and indirect resourcing are important, which hinges on the kind of productivity evaluations exemplified via the National Center for Academic Transformation (NCAT) Course Redesign initiatives (Twigg 2003). Broadly, it could be expected that in any decomposition of assessment costs, it is development and implementation as opposed to the planning, analysis, and reporting phases in which new techniques carry potential to spur new economies of scale.

What does this albeit brief stocktake imply about the most fruitful areas to target reform? Where should further energy be directed to optimize substantive, technical,

and practical matters and do as much as possible to address tensions associated with the internal/external dialectic? How can such energy most effectively navigate the change dynamics noted above? From the above analyses, recommendations can be made for focusing future development.

Seamless assessment tasks and processes must be prepared which can jointly serve the needs of internal and external stakeholders. This might involve production of resources which can be shared across boundaries perhaps via adaptation to different disciplinary or professional or cultural contexts, or it might involve embedding more generic materials within local assessments. Several of the initiatives reviewed above have progressed such options. They have identified ways for harmonizing the production and delivery of materials drawn from different sources, for integrating processes, and for using more professionally developed materials to seed change in local practice.

Further work should be invested in techniques that engineer validity into assessment development. Rather than defer to post hoc evaluation by assessment experts, the quality of assessment is most likely to be improved by intervening earlier in the development cycle to ensure materials exceed minimally sufficient technical standards in the first place. A specific example includes larger use of principled assessment design frameworks that help scale up assessment, so that assessment creation can be better aligned with standards, connected with learning sciences, more efficiently implemented for scaling up technologically, and with conceptual frameworks suited to tailoring to local needs within a broader framework (see: Mislevy et al. 2011; Luecht 2013). Any such development hinges obviously on a set of accepted standards and on an effective means for bringing such standards into play. Internationally standards do exist (e.g., American Educational Research Association (AERA), American Psychological Association (APA) and National Council for Measurement in Education (NCME) 2014; International Testing Commission (ITC) 2015), and VET institutions have a range of means for governing the incorporation of these into teaching practice. While mention of the word “standards” can provoke debates about standardization and regression to the mean (Coates 2010), there would appear to be value in progressing such work if it places a transparent floor around the quality of assessment.

Technology-assisted collaboration and delivery has an important role to play in improving practice. As Bennett (2015) conveys, by affording rethinking of task design and delivery, it also provides a frame for advancing the substantive and technical frontiers. Technology-assisted collaboration is important as this is a major means for making assessment more transparent and enhancing quality and productivity. Peer and stakeholder review of tasks helps to iron out glitches and improve authenticity. Professional capacity is developed through feedback. Technical standards could be embedded in design architectures. Sharing design and development also reduces redundancy and duplication and expensive fixed costs associated with resource production (Coates 2015). Also, with appropriate security solutions now available (Richardson and Coates 2014), it is feasible to shift from paper to online administration and reap derivative efficiencies in time and money. Of course, many platforms exist and are available from institutional or commercial

sources (e.g., Dillon et al. 2002; National Board of Medical Education (NBME) 2008; Cisco Networking Academy 2012). The key is to marry these with enterprise-level learning systems which have scaled to ubiquity over the last decade. Put simply, such technologies should distil insights from measurement science into systems that make good assessment easy for time-poor and non-expert teachers.

There is much to be considered regarding the propagation of powerful technologies into VET. As cautioned in 2005 in relation to the rapid expansion of enterprise-level learning management systems (Coates et al. 2005), such change should not be led by technozealots who see information systems as a panacea but rather by educational leaders who can shrewdly leverage technology for change. Among other matters, it is imperative to consider the influence of systems on teaching and learning, the uncertain effects on students' engagement, new dynamics in teaching, and the possible corporatization of knowledge. As Bennett (2015) contends, most value is to be had by exploiting the sophistication of "third generation" technology-based assessment. This involves not just transferring traditional paper-based batch processes to computer (first generation) or incremental improvement in quality and efficiency (second generation) but fundamental redesign which ensures that assessment serves both individual and institutional needs, is informed by cognitive principles, is a medium for enabling natural interaction with rich assessment tasks, and is technically enabled to support and enhance curriculum and teaching.

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## Governance to Spur Progress<sup>2</sup>

The preceding sections set out a normative framework and used this to frame past and chart future assessment initiatives. What are the most effective ways of translating this work into practice? This chapter's final section articulates governance options for spurring the kind of progress required to propel the field. In particular, it advocates for more open forms of assessment, even in the most confidential and secure fields of assessment.

Analyzing how best to translate research into practice can be done in a variety of ways, and the most significant considerations go to governance. New ways of designing and managing VET, including assessment, will almost certainly require new forms of governing education activity, power, and performance (Shattock 2012). While assessment is experienced mostly as a practical matter, it touches many facets of VET leadership and management. Indeed, assessment goes right to the heart of important aspects of governance such as ownership, authority, and power. The risks of poorly designed or conducted governance, and the need to get governance right, show up in sectoral or organizational failures. The governance of assessment is both critical and problematic.

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<sup>2</sup>The following text builds on: Canny and Coates (2014).

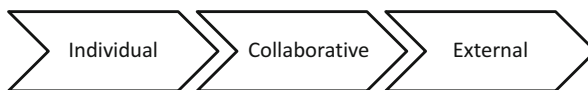
VET providers assess learning in myriad ways. Obviously, quite a lot of assessment is done by individual teachers working alone within single institutions. Alternatively, assessment can be done by groups of teachers within a single institution. In each of these cases, accreditation by a government or industry authority vests power in a provider's leaders, which devolves power to individual teachers. The situation in practice is far more complex than suggested by this straightforward chain of command, with teachers drawing on all kinds of more or less indirect and informal networks. In key respects, the quality and economics of this educational fabric is hard to beat, but at the same time its informal and elite nature falls short. Typically, there is loose institutional oversight, teachers flying solo, and deployment of non-validated materials using dated practical and technical approaches.

Alternatively, assessment can be enacted and governed by groups of teachers across institutions, almost invariably but not necessarily within the same discipline or field. Teachers collaborate in this way routinely in their own work – forming collaborations and networks to design, execute, and produce work. It is reasonably common for teachers across institutions to share teaching, perhaps to service particular knowledge needs, or to diversify teacher perspectives and student experiences. It remains far less common, however, for such collaborations to spill over into assessment. A few reasons for this have been sketched above – such as security, confidentiality, and privacy – and there are doubtless others that go to individual and institutional commercial and reputational factors. Operating between institutions also carries governance implications, inasmuch as the collaboration space lies strictly beyond the jurisdiction of any single institution's reach. These implications are addressed below via the proposed governance model.

Assessment may also be governed from outside institutions. This work may involve teachers working with third-party organizations or third-party organizations working alone. This work may take place at VET institutions, or it may be outsourced to collaborative education or other industry/government bodies empowered to perform specific functions for community benefit like licensing and credentialing. Such external governance is reasonably common with admissions or licensing examinations, but quite rare for in-course assessment even in highly regulated fields. The delegation of assessment in this way raises broader governance considerations about the cost and generalizability of the licensing organization and materials.

Figure 1 captures this spectrum of governance arrangements sketched above. These range from individual teachers working alone to teachers collaborating among themselves and with other agencies and to fully external arrangements. As with all models, this is an abstraction, but it is helpful in clarifying the main options at play.

These simplistic arrangements of course play out in an infinitely complex array of ways. Today's VET institutions are reforming in many areas, adopting a variety of approaches, and spawning a proliferation of organizational forms of work (Coates



**Fig. 1** Spectrum of assessment governance arrangements



2017). What seems sure in all of this complexity is that the business/educational model of (in general terms) “teachers working alone in isolation” is moving more toward “teachers playing a role in a broader team.” Where new forms of educational infrastructure are emerging, these are typically affiliated or owned by existing institutions. In essence, renovating/improving rather than replacing existing teaching arrangements seems to be the most common change underway. Shifting to more collaborative forms of assessment governance would do well to reflect such transition.

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## Conclusion

The “sharing economy” is reshaping many facets of economic and social life, and VET is no exception. Rather than goods and services being created and used by individuals in isolation, teachers and learners are collaborating via advanced online systems to generate new ways of doing education. Teachers and institutions are collaborating on curriculum production, learners are collaborating on assignments, and open admissions, provision, and credit recognition are touching basic notions of the qualification. As signaled at the outset, the assessment component of education has been one of the most resistant areas to adapt to the changing environment. In many areas, assessment is closely tied via content and implementation to local educational settings. It has obvious security, confidentiality, and privacy aspects. As the tool for evaluating individual performance, it also helps measure the quality of programs and institutions, and through this carries reputational and commercial implications.

By taking stock of recent signature developments and painting a picture of future practice, this chapter has advanced a framework for thinking through the growth of the field and productive new approaches to assessing VET student learning outcomes. Technology almost certainly will play a role in changing practice, but it is essential that effective governance architectures are in place. This chapter has advocated reform by strengthening and augmenting rather than replacing traditional arrangements. Most particularly, the chapter has advocated for the value of moving to more collaborative kinds of governance. Even – and perhaps especially – the most high-stakes assessment needs to become more open to improvement.

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# Performance-Based Tests: Using Role Plays to Assess Communication Skills 71

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## Abstract

Modelling and job-related assessment of vocational competences has been traditionally a major aspect for vocational education and training (VET) in order to adequately define and train necessary competences in the context of a dynamic, ever-changing occupational world, as the “ASCOT” research initiative has demonstrated. Similarly, one of the main objectives of higher education (HE) consists in preparing students for the demands of the labor market. This implies that not only discipline-specific competences and expert knowledge need to be acquired during studies but also more generic competences like communication skills. In order to be able to assess such generic learning outcomes of HE, performance-based test instruments are required.

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Within this chapter, a conceptual framework as well as the method of such a performance-based test of students' communication skills will be presented. In vivo role plays are used in order to assess the relevant communication skills, respectively. Using Habermas' (1981) theory of communicative action, the conceptual elements corresponding with the two distinct types of communicative action, which are strategic and understanding-oriented communication, have been extracted. Furthermore, empirical results concerning the relation between discipline-specific competences of economics and observed performance of communication skills will be reported. The data were collected from a sample of nearly 500 students from ten different HE institutions within Germany.

The discussion will firstly address the application for assessment practice in HE as well as the potential limitations of the test; and secondly possible synergy effects between HE and VET assessment practices will be reflected.

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**Keywords**

Communication skills · Generic skills · Ever-changing occupational world · Performance in complex situations · Transfer between VET and HE

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## Introduction

In the last decades, a paradigm shift from educational attainment toward educational achievement and competence development has taken place in empirical educational research including all stages of education (Prenzel et al. 2007). This increasing interest in modelling and measuring competences has gone along with (re)defining (existing) competence concepts and developing innovative and theory-based test instruments. Especially in the fields of vocational education and training (VET) and higher education (HE), these new formats of assessment are more and more closely linked with future labor market requirements since coping with a rapidly changing, dynamic occupational world is a major challenge in the twenty-first century – as captured under the keyword “lifelong learning” within the “Lisbon Strategy” of the European Union (2000). These so-called performance-based tests which go beyond measuring “pure” cognitive skills are used for job-related training and the assessment of vocational competences containing more generic competences like communication skills. Their potential can be seen in the fact that these test formats are explicitly designed by including the later occupational context into the test setting itself. To handle these complex situations, not only specific (vocational) knowledge is needed but also the ability of interpretation, decision-making, and acting under certain circumstances.

To support research in such innovative competence assessment, the German Federal Ministry of Education and Research launched two big parallel research initiatives in these two educational fields: “technology-based assessment of skills and competences in VET (ASCOT)” (2011–2014) (e.g., Winther et al. 2016) and “modeling and measuring competences in HE (KoKoHs)” (2011–2019) (e.g., Zlatkin-Troitschanskaia and Pant 2016). Whereas the former focuses on general

vocational as well as specific skills in the commercial, health, and technical sector, the latter emphasizes generic academic skills as well as expert knowledge and discipline-specific competences in different fields of study like teaching profession or economics. Besides the development and empirical testing of new measurement instruments within the various domains, one major challenge can be highlighted in the systematic comparison between research activities in similar fields over both educational stages.

Hence, the aim of this chapter is twofold: On the one hand, the conceptual framework as well as the method and selected empirical results of such a performance-based test of students' communication skills is presented. On the other hand, the importance of transfer and exchange between HE and VET on a more general level is emphasized. Using the example of skills and competences acquired in economics in HE, the introduced test is intended to stay close to the equivalent in VET, the commercial sector. Hence, we sketch the idea of how progress and development in competence assessment in one educational field can be fruitfully adapted into the other.

Firstly, performance-based testing is introduced, and it is argued for using new formats of assessments with a special focus on recent changes in HE. Secondly, a theory-driven instrument for the performance-based test of communication skills will be presented. Furthermore, empirical results concerning the relation between discipline-specific competences and observed performance of communication skills will be reported. An overall concluding discussion will address two issues: (a) the application and relevance for assessment practice in HE as well as the potential limitations of the test and (b) possible synergy effects between HE and VET assessment practices.

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## Reforms in HE and Performance-Based Tests

The changing demand of skills in the labor market strongly affects the role of HE institutions in fostering employability and in creating innovative knowledge-based societies (European Commission 2011). The Bologna Declaration (1999) with its focus on improving compatibility and comparability of HE qualifications and increasing global competitiveness of European HE, together with the "Lisbon Strategy" (European Union 2000) emphasizing a more powerful knowledge-based economy for growth and jobs, provided the needed impetus for HE reforms and increased the pace of transformation (Enders et al. 2011). The implications of these reforms can be observed at many levels. Students are no longer expected to master and acquire only discipline-specific knowledge and competences but also a broad set of generic competences that can be transferred to many different contexts; and the assessment of these competences calls for novel and innovative evaluation techniques by now (Westerheijden et al. 2007).

Even though there has been an increasing effort in analyzing HE competences and learning outcomes, this topic continues to be underrepresented in HE research overall (Zlatkin-Troitschanskaia et al. 2015), especially in comparison to VET where modelling and job-related assessment of vocational competences has been

traditionally a major aspect (Winther 2010). Since a huge educational expansion in HE has taken place (OECD 2017), the self-concept of HE institutions is in the process of changing into the direction of preparing and training students for the labor market (Wissenschaftsrat 2015). Although training and assessing competences in HE can be quite challenging and complex because of the underlying differences in the HE institutions, a wide range of courses and programs offered as well as the challenges associated with defining and measuring acquired competences (Blömeke et al. 2013).

Against the background of these reforms and changes in HE, the understanding of competences should be broadened, according to VET. Based on the concept of modelling competences rather as a continuum between cognitive- and affective-motivational “disposition” and real-life “performance” than a pure dichotomy (Blömeke et al. 2015), competence is not only focused on its discipline-specific aspects (e.g., factual knowledge) but also to those competences that enable HE graduates to successfully handle and manage new and complex situations. This implies that not only cognitive competences need to be acquired during studies but also such more generic competences that correspond to the successful coupling of individuals and specific situations and thus to students’ individual ability to actively adapt and perform well in their respective future jobs. Accordingly, Masten and Coatsworth (1998, p. 206, accentuation by authors) define competences as:

a pattern of *effective adaptation* to the environment . . . broadly defined in terms of reasonable success with major developmental tasks expected for a person of a given age and gender in the context of his or her culture, society, and time [. . .].

It is important to note here that this definition emphasizes good adaptation to different types of situations and not simply outstanding achievement. This implies that not only cognitive competences are needed but also the ability to adapt and perform well in a variety of situations. Consequently, it seems obvious that the goal of HE is not only to impart discipline-specific expert knowledge – in other words, to promote graduates’ cognitive competences – but also to foster these skills that enable graduates to become effective citizens who can contribute equally toward their personal, professional, and social lives (Chan et al. 2014).

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## **Development of a Performance-Based Test Instrument to Assess Communication Skills**

The aim of the presented research project has been the development of a theoretically founded psychometrically sound test setting that can be efficiently employed in the HE context for the purpose of assessing students’ communication skills (Braun et al. 2018). Communication is a central and generic skill to handle complex situations. Furthermore, communicative skills are explicitly referred to as an important learning outcome of HE in national (Kultusministerkonferenz 2017) as well as in international qualification frameworks (OECD 2013). For example, communication skills



are mentioned as key learning outcomes in Dublin Descriptors (2004) and qualification frameworks for lifelong learning (AK DQR 2011). Recently, the German Rectors' Conference has emphasized communication and cooperation to be essential for German HE certificates (HRK 2017). Hence, communicative skills as a core and generic competence for HE graduates were selected to be focused on.

For the theoretical foundation, it is referred to Habermas' theory of communicative action (1981) in order to sketch distinct types of verbal interaction on the basis of the implied purpose of the interaction itself (Braun et al. 2018). In his comprehensive work, Habermas differentiates between two types of communicative action, namely, *strategic action* and *understanding-oriented action*. Strategic action is intentionally used to influence others in order to pursue specific, mostly hidden, goals. In contrast, understanding-oriented action is consent-driven and principally used in situations in which actors are oriented toward reaching a common agreement and seek to coordinate social actions by reasoned argumentation and cooperation. From a philosophy of science perspective, these two types function as theoretical ideals without the intention to evaluate one communication form as "better or worse" in a normative sense. Moreover, this differentiation helps to theoretically capture concrete definitions in the qualification frameworks. For economics, which are used as an empirical example throughout this contribution, communicative competence is described as "bargaining and negotiating" and in order to "to convince others" (Gehmlich 2007). This conceptual framework will be used to operationalize verbal interaction for the sake of its assessment. It clearly differentiates between two distinct "options" in professional conversation and thus accommodates a transition toward a workable definition of communication types and their specific characteristics.

In order to be able to assess and prove such competences as learning outcomes of HE, performance-based instruments and test settings are needed. It is argued that widespread forms to measure these kinds of competences, like self-reports in questionnaires, are fairly limited in assessing students' performance in real settings (Braun and Mishra 2016). In view of these limitations, role plays seem to be an appropriate method for capturing performance, especially when it comes to verbal interactions. They put students into specific scenarios where they have to take on different roles and responsibilities. This allows for observing students' abilities handling complex demands and applying skills and expert knowledge to solve problems in a direct interaction between two individuals. In the methodological literature, this method is described as follows (Beard et al. 1995, p. 133, accentuation by authors):

In a role-play exercise, participants are given a description of a scenario and their role in that scenario. They are then asked to *assume they are in that situation* and to respond to both the situation itself and to the actions of other role-players.

As "a set of behaviours which is considered appropriate to a particular role" (Van Ments 1999, p. 8) is activated, using role plays as an assessment method has the advantage of explicitly initiate performance within defined situations. Accordingly, using role plays is an adequate and socially accepted method to assess competences in the way it has been defined above.



**Table 1** Overview of role plays representing specific occupational situations

Type of communicative action	Role play number	Role play title
<b>Strategic communicative action</b>	1	Participation in professional development training
	2	Counselling with a personal aim
	3	Indirect criticism toward a colleague
	4	Coming too late to office (regular team meetings)
	5	Reduction of weekly working hours
<b>Understanding-oriented communicative action</b>	6	Explain poor performance and subsequent consequences
	7	Explaining a moderator's role
	8	Open occupational counselling
	9	Discussion of scheduled evaluation criteria
	10	Outlining questions/points of interest for a semi-structured interview

Combining the theoretical considerations with the direct assessment method of *in vivo* role plays, a series of different scenarios for the business company context was constructed. Situations displayed in these scenarios were based on qualitative data derived from a nationwide, representative survey of 10,000 HE graduates within Germany from various disciplines (Braun and Brachem 2017). They were asked to report typical interaction situations in their daily professional life. As a result, ten role play situations were constructed in total: five in which goal achievement is associated with strategic action and five in which goals are achievable through understanding-oriented action (Table 1). To ensure that these scenarios reflect the specific discipline-related context of work for the specific target group, an expert workshop was held.

Each of the instruction in the role plays corresponds with a standardized observation form. This instrument consists of various items which are derived from the theoretical framework described above. The procedure for the assessment of communicative performance works as follows: Each participant individually takes part in four out of ten randomly selected role plays where two are strategic and two are understanding-oriented. Instructions with contextualizing information and the goals to be achieved during the conversation are handed to participants immediately, prior to the conduct of the respective role play. During the test, three persons are present in the room: the test person itself, one trained interaction partner, and a trained observer in the silent present using the observation form and evaluating the test person's performance in the simulated communicative situation. Per design, the role plays, their ordering, and the interaction partners and observers are randomly assigned. After the role play session, an additional instrument is employed for a subsample of the participants: a discipline-specific test for general knowledge in economics as it was conducted in the German National Educational Panel Study (NEPS) (Lauterbach 2015). Students got a calculator to work on the cognitive test of expert knowledge.

The described performance-based test instrument was implemented in ten randomly selected universities and universities of applied sciences as you can study economics in both types of HE institutions in Germany. In total, 234 students participated in the role plays for economics.

Additionally, empirical results concerning the relation between discipline-specific competences and observed performance of communication skills are reported. As mentioned above, a central goal of tertiary education is to prepare and train students for the labor market. Therefore, graduates are supposed to gain discipline-specific, expert knowledge as well as competences that enable to handle and manage new and complex situations successfully. Consequently, the question about their relation arises: “How do communication skills and discipline-specific competences correlate with each other?” Therefore, the performance-based test for communication skills and the discipline-specific test for general knowledge in economics were simultaneously analyzed. The first one consists of two dimensions: the first scale refers to strategic communicative action and the second scale to the understanding-oriented communicative action. More details and the psychometrics of the developed performance-based test can be read in Braun et al. (in revision). The Pearson correlation was conducted via Software Stata using expected a posteriori values (Embretson and Reise 2013).

The correlation between strategic communication and general knowledge in economics is  $r = 0.32$ , and between understanding-oriented communication and general knowledge in economics, it is  $r = 0.31$ , respectively.

There are positive associations between the types of communication on the one hand and general knowledge in economics on the other hand. But both types of competences – those ones that are more related to performance aspects and those ones that are more related to cognitive aspects – covary only moderately and, thus, indicate mostly independent dimensions. Taking the traditional identity of HE institutions into account, mainly focusing on cognitive and discipline-specific competences, the meaning of reinforcing competences that enable to handle and manage new and complex situations successfully is revealed. As this is just one example from one field of study, it seems promising to systematically explore these relationships for a variety of subjects.

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## Discussion and Future Prospects

In this contribution the idea and concept of a performance-based test instrument to assess students’ communication skills is presented, since acquiring these generic competences is regarded as a major goal of HE. Such a test goes beyond “pure” cognitive ability, captured by written tests, and also beyond self-reports of generic competences, a common way to collect this information in huge questionnaire studies. The presented empirical results show moderate associations between communicative performance in simulated vocational situations and knowledge in the field of economics. Thus it appears that there is a noteworthy independence of these two kinds of competences. Therefore, performance-based tests enable the inclusion

of the labor market perspective in terms of prospective professional requirements into HE. In contrast, the assessment and implementation of more generic aspects of competence, such as performance in complex situations, are more advanced in VET compared to HE (Baethge and Winther 2015).

The general idea of combining role plays with a corresponding observation form to assess communication skills in a standardized way can be easily transferred to other study programs in HE. Within the development of the performance-based test, the scenarios have been also parallelized for teaching professions. Thus, the 10 role plays were tailored in order to match the specific conditions of the respective fields in a credible manner resulting in an overall number of 20 role play scenarios: 10 role play scenarios set in the broad occupational field of economics (mostly including communication in the corporate organization setting) and 10 role play scenarios set in the occupational field of teaching (mostly communication situations in the school education setting). With the intention to be close and comparable to consumer services in VET, empirical findings for economics are presented here.

Even though the developed instrument is not yet implemented as an examination format in practice, there is high potential to do so. In the case of HE, the setting of the test strongly equals oral examination practices for field-specific knowledge as they are done in a wide range of fields of study: one person is tested by an examiner, and a second person is documenting the given answers without actively being involved in the conversation. So, human and time resources for the performance-based assessment are comparable to common practice in HE. Furthermore, with respect to promoting and training communication skills, the instrument can be used to systematically acquire these forms of general skills in HE. In the case of VET, such assessment practices can be relatively easily adopted especially in closely related fields like consumer services.

Nevertheless, there are some limitations of the described test setting. With respect to resources, it has to be mentioned that these forms of testing are relatively time-demanding as four different role plays last approximately one hour. Additionally, it is absolutely necessary to train the interaction partners as well as the “silent” observers beforehand. The latter must be absolutely familiar with the items and theoretical framework of the test instrument as well as with the rating scale to evaluate the shown performance adequately.

Finally, a first attempt was made to connect the two research initiatives “ASCOT” and “KoKoHs.” Besides the fact that these two are located in different fields in the German educational system, both face similar societal challenges in the future and use comparable concepts of competences and empirical methods. The discussed potential of transfer and adaption between both fields has been illustrated for the business and commercial sector. But, as there are many other projects in both research initiatives in similar fields, this is just the beginning. For example, research activities and findings in the health sector – for medical assistants and nurses in VET (e.g., Dietzen et al. 2012) and for medicine in HE (e.g., Harendza et al. 2016) – can be systematically compared with respect to competence definition, test design, and empirical findings. Even though focusing on different hierarchical levels going along with different tasks and responsibilities in the health sector, both groups have to interact and communicate with patients, so simulating the daily professional context either computer-based (Dietzen et al. 2015) or with trained confederates

seems to be an adequate assessment format to measure performance in social interactions. Especially in physicians' education at the transition from HE to work, such performance-based tests simulate later social-communicative tasks in hospitals.

Obviously, there is research potential for analyzing and using existing synergy effects between VET and HE in developing test instruments and changing prospective assessment practices. An amplifying discussion overcoming the borders of educational fields and research communities is regarded as very fruitful and promising, especially with respect to future challenges like digitization which affects education itself but also working life and the occupational context.

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# Competence-Based Tests: Measurement Challenges of Competence Development in Vocational Education and Training

# 72

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## Abstract

In the current vocational education and training (VET) research, many empirical studies focus primarily on the development of competence-based test instruments that aim to measure the cognitive dispositions of a domain-specific competence construct. While these studies mainly focus on the analysis of competence structures and levels, the valid measurement of competence development represents a research gap. Studies with this focus differ significantly in their theoretical-conceptual foundations and their methodological approaches. Moreover, different challenges arise in the methodological aspects of a valid change measurement. For this purpose, the first chapter reviews the research on the measurement of competence development in the

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VET field. Given the increasing significance of sustainable development-related competencies in VET, an empirical analysis is performed on commercial trainees' development of declarative knowledge related to sustainability from a societal perspective and sustainability in business processes. The in-depth analyses are based on data sets from cross-sectional and longitudinal studies. The differences and similarities between these research designs are compared with regard to their analysis potential, analysis methods, and results.

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**Keywords**

Competence measurement · Competence development · Cross-sectional research design · Panel studies

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## **Research on the Measurement of Competence Development in VET: Theoretical Assumptions and Methodological Designs**

The discourse on measuring competencies in vocational education and training has received increasing attention in recent years (see Beck et al. 2016; Seeber 2017; Klotz and Winther 2017; Holtsch et al. 2016; Winther et al. 2016). Nevertheless, the understanding of competence as a latent construct and its associated causality is not always clear (Klieme et al. 2008). Currently, individual cognitive and affective-motivational dispositions (Blömeke et al. 2015) serve to explain performance related to the requirements in a domain-specific context; these dispositions are understood to be the mental resource potentials of an individual. Due to the assumption that competencies refer to clusters of knowledge, abilities, beliefs, and emotional and motivational resources and considered as a result of previous learning processes (Weinert 1999), theoretical foundations of studies aiming to measure competence development have to take into account research on learning, teaching, learning environments, and processes as well as on specific characteristics of the domain. Moreover, psychometric research has to be considered.

In principle, competence development is a lifelong process (Blossfeld and Schneider 2011). Nevertheless, the research on competence development in VET is often restricted to observations in the life stage of a respective training program and goes seldom beyond. The theoretical frameworks in this context are often based on approaches to expertise research, particularly the five-stage skill acquisition model by Dreyfus and Dreyfus (1980), which describes the development from a novice to an expert or master level. However, corresponding (more deterministic) models of competence development, such as that of Dreyfus and Dreyfus (1980), are very general, and due to the abstract level differentiations and the lack of explicit explanation-relevant predictors, such models are limited to describing the development of professional competence in VET (Michaelis 2017, p. 45f.). In any case, it is still questionable whether competence development in terms of temporal development is to be understood as a continuous or discontinuous process (Fleischer et al. 2013). Because of the high degree of abstraction in Dreyfus and Dreyfus' (1980) model, competence development, which results from specific intervening learning arrangements, can be explained only to a limited extent by this theory. Even the offer-and-use models discussed in school effectivity research



(e.g., Helmke and Weinert 1997) are of limited use in VET because these models do not refer to the context of workplace learning and its prevailing norms (see Lempert 2009; Rausch 2011; Michaelis 2017, p. 45ff.; Sembill 2008).

Up to this day, the diagnosis of domain-specific competence in different educational areas has been predominantly based on curricular and therefore formal learning processes. For such research projects, and particularly for the previously noted intervention designs, the curriculum instruction assessment triad (Mislevy and Riconscente 2005; Mislevy and Haertel 2006) can be used as a theoretical framework (Winther 2010; Seeber 2017). This means that the development of an assessment should be convergent with the curricular requirements (intended curriculum) but also with the teaching process (implemented curriculum/intervention). Moreover, assessments in VET have to take into account different learning contexts: school-based theoretical learning and practical-oriented learning in companies or workplaces. It can be assumed that the two learning contexts help to develop different knowledge representations; both are necessary to cope with workplace requirements and to act as an expert in a respective domain. Subsequently, the assessment of the development of occupation-related competencies must refer to both learning contexts and their specific outcomes (see Winther 2010, p. 93ff.; Seeber 2017). Furthermore, assessments of the development of learning outcomes must not only consider different learning opportunities in vocational schools and training companies but also nonformal and informal learning opportunities outside of these education or training institutions. Nonformal and informal learning possibilities, e.g., extracurricular activities or learning possibilities in the private context, represent interesting and important explanatory factors. However, explanatory factors of competence development are not considered further in this chapter. This chapter is more concentrated on the methodological challenges due to the underestimation in research on the measurement of change.

Methodological differences can be attributed to general fundamental questions of the measurement of change. Studies with cross-sectional (survey of different samples at one occasion of measurement, e.g., different years of training), trend (survey of different, but comparable, samples at different occasions of measurement), as well as panel designs (longitudinal surveys in which a sample is repeatedly questioned at different occasions of measurement) are suitable for analyzing competence development. Independent of the research design, it must be ensured that the construct validity is the central condition. Consequently, the comparability of the outcome variable or a set of outcome variables across different samples (cross-sectional and trend) or at different occasions of measurement (trend and panel) is of central importance (von Davier et al. 2008). As a general rule, no change measurement methodology is free of measurement errors. Rost (2004) calls this the “validity problem of measuring change.” Each procedure has its own advantages and disadvantages, which have to be weighed against the objectives of a study. Table 1 presents major challenges associated with cross-sectional and longitudinal research designs.

In the past mean comparisons based on sum scores were common for the observation of competence development; however, this approach does not meet the expectation of a valid psychometric foundation. Recent research with validated psychometric procedures primarily focus on the German VET system with its specific characteristics of the so-called dual system. On the one hand, there are studies that analyze the development



**Table 1** Challenges of different methodical designs for measuring competence development

	Cross-sectional design/trend design	Longitudinal design
<b>Analytic potential</b>	Interindividual differences between subgroups (e.g., differentiated by years of training)	Interindividual differences between occasions of measurement and intraindividual development
<b>Sample requirements</b>	Comparable samples in difficult accessible test fields: In addition to the usual comparison of subgroups (especially by gender, level of education, migration background, socioeconomic status), VET faces the challenge of cyclical economic fluctuations that can lead to rapid compensation effects in the training market (Seeber et al. 2017). Therefore, regional aspects of the training market have to be compared across the subgroups	Constant sample over time or appropriate methods for use with incomplete data sets
<b>Test instruments</b>	Ensuring the measurement invariance/construct validity	Ensuring the measurement invariance/construct validity over time Risk of memory effects if subjects answer an item multiple times at all occasions of measurement within short intervals of time

of basic competencies in prevocational training programs (e.g., mathematics, linguistics, or natural sciences) (e.g., Weißeno et al. 2016; Behrend et al. 2017). On the other hand, there are studies that aim to measure the development of domain-specific competencies in selected occupations. Table 2 provides an overview of selected longitudinal studies measuring the change in domain-specific vocational competence during the course of training. These recent studies are methodologically acceptable, based on item response theory (IRT), a probabilistic approach where the models and underlying assumptions are verified in the process of scaling.

## Methodological Differences in the Use of Cross-Sectional and Longitudinal Study Designs for the Measurement of Competence Development

In scientific psychometrics, different approaches exist for measuring competence development. First, it should be noted that change can be observed and discussed on two levels: the group level and the individual level. The specific research interest and the study design determine which level should be addressed. For large-scale assessments on the effectiveness of VET as a whole or the effectiveness of selected training programs, a group-level observation may be sufficient; however, in most diagnostic processes, it is indispensable to obtain precise information on the individual change in competences. Both methodical designs can be analyzed

**Table 2** Selected studies of the “research field” diagnosis of competence development in VET

Domain reference	Authors	Sample/target group	Focus	Methodical approach
Commercial/ business	Rosendahl and Straka (2011a, b)	Bank clerks	Domain-specific competence	Longitudinal study: IRT and structural equation modeling
	Klotz (2015) and Klotz et al. (2015)	Industrial clerks	Domain-specific competence	Cross-sectional study: IRT
	Michaelis (2017)	Freight forwarding and logistics services clerks	Competencies toward sustainable operational management	Longitudinal study: IRT and structural equation modeling
Industrial-technical	Nickolaus et al. (2008, 2011)	Electronic technicians – specializing in energy and building technology Motor vehicle mechatronics technicians (only in the study of 2008)	Domain-specific competence	Longitudinal study: structural equation modeling
	Atik and Nickolaus (2016)	Plant mechanics	Domain-specific competence	Longitudinal study: IRT
	Abele (2014)	Motor vehicle mechatronics technicians Production mechanics Electronic technicians – specializing in automation technology Mechatronic fitters	Domain-specific competence	Longitudinal study: IRT and structural equation modeling

by using item response theory models (e.g., von Davier et al. 2011; Meiser 2007). Already the one-parameter logistic (1-PL) IRT model is suitable to analyze competence developments (see Rasch 1960; Fischer and Molenaar 2012). This chapter follows this approach. A crucial feature of this method is the representation of person skills and item difficulties on a scale based on the response behavior of a random sample.

To be able to evaluate competence-based test instruments with IRT models, an essential condition is the use of suitable linking designs (see von Davier et al. 2008). A common approach is to use anchor items. Studies with a cross-sectional design use identical subgroup-overlapping items, and longitudinal studies use identical occasion-overlapping items. These approaches are adopted in this chapter and are explained in more detail below.

## **An Approach to Analyzing Competence Development in Cross-Sectional Designs**

If anchor items exist between the considered subgroups, differential item functioning (DIF) analyses (as a method for testing measurement invariance) can be used to check subgroup differences both globally and at the item level. The basic assumption of DIF analyses is to calculate item parameters specifically for the considered subgroups within the Rasch analysis, such as trainees with different years of training. By comparing these subgroup-specific parameters, differences in the difficulty degree of a test instrument (global) or of items (local) can be derived for the subgroups. At the item level, the DIF parameter generally indicates the deviation from the average item difficulty in logit units. To calculate the item difficulty, the estimate average and the subgroup-specific estimate must be added. A positive item DIF parameter therefore means a higher item difficulty for the subgroup, whereas a negative item DIF parameter indicates a lower item difficulty (Wu et al. 2007).

To assess the DIF effect, the recommendations of the National Educational Panel Study (NEPS) will be considered. An absolute difference in the average item difficulty greater than 0.4 and less than 0.6 is a weak effect, a difference greater than 0.6 and less than 1.0 is a medium effect, and a difference greater than 1.0 is a strong effect (Pohl and Carstensen 2012). A DIF parameter is considered significant if it is at least twice as large as the associated standard error.

In accordance with expertise research (e.g., Dreyfus and Dreyfus 1980), it can be assumed that apprentices will find it easier to answer items as the number of years of training increases if the content of the items is implemented in curricula. Accordingly, for this case, lower DIF parameters are expected during the training program and can be interpreted as a positive development of competence. Klotz et al. (2015) used this approach in cross-sectional study for commercial trainees. Nevertheless, a high uncertainty remains with regard to the usability of these items as anchor items in longitudinal designs, because the link assumption assumes the item's measurement invariance over time.

## **An Approach to Analyzing Competence Development in Longitudinal Designs**

However, the 1-PL Rasch model faces a challenge in the analysis of longitudinal data with regard to the data structure. Due to the different occasions of measurement, the classical structure, which consists of items and cases, is extended by a time-specific third dimension. However, the three-dimensional structure can be resolved by a data restructuring with virtual test persons or virtual items. In this particular context, "virtual" means that the data of survey times  $n + 1$  are added to the data set of  $t_1$  as additional variables or test participants. However, the two procedures should be viewed not as alternatives but as complementary methods. Data restructuring via virtual persons enables analyses of temporal measurement invariance, which is referred to in the literature as item parameter drift. In principle, the data set is treated

with a cross-sectional design, and interindividual differences between the occasions of measurement can be calculated via DIF analyses, as described above.

The advantage of longitudinal designs, however, lies in the ability to analyze intraindividual competence development. For this purpose, the method of virtual items has been developed. This approach requires the specification of a multidimensional Rasch model. The items of each occasion of measurement form a separate dimension. Put simply, items of the first occasion of measurement form the first dimension, and items of the subsequent occasion of measurement  $n + 1$  form the  $n + 1$  first dimension. Corresponding models are based primarily on the methods of Andersen (1985) and Embretson (1991). The main difference between the two methods lies in the test booklet design. While in Anderson's design, identical items are used at all occasions of measurement (anchor items), Embretson's method allows occasion-specific items as well as anchor items. Embretson (1991) recommends using all items at each test time but distributing them to different test booklets so that a test participant answers each item only once. To implement a corresponding procedure, IT-based test assessments should be used.

Based on the assumption of construct validity, anchor items should still measure the same construct at later occasions of measurement in multidimensional models. For this purpose, it is important to keep the item parameters of the anchor items constant over time. This means that the anchor items receive the same item parameters for all occasions of measurement (parameter fixation). An essential aspect, however, is that competence development is based solely on anchor items. Additional occasion-specific items are used to improve the estimation quality of personal parameters. However, in this method, it is important to select for the item parameter fixation only anchor items whose stability over time is given. Therefore, the analysis of item parameter drift should be advanced. A significant item parameter drift of the anchor items can lead to inappropriate item fit values of the subsequent Rasch scaling. Whether an anchor item is finally usable can be checked via the subsequent Rasch scaling with item parameter fixations. The anchor items should have acceptable item fit values after scaling.

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## **Exemplary Presentation of Challenges of the Measurement of Competence Development in VET**

### **Methodology**

The following example for the measurement of competence development in VET refers to the latent construct of sustainability competencies in business processes. The empirical analysis of competence development is focused on the specific competence construct "acting in the sense of sustainability in the context of operational management." "Competence in sustainability management are defined as a complex ability to act adequately in business contexts, in particular to be able to take into account the medium- and long-term economical, ecological and social – intra-company as well as external – consequences of (strategic and

operational – the authors) management decisions” (Seeber et al. 2016). Sustainability aspects are becoming increasingly important in sustainable development education (Barth and Rieckmann 2016) as well as in VET. However, curricular analyses show that in many German training programs, the implementation of sustainability aspects is insufficient (Brötz et al. 2014). For the purpose of this chapter, however, the complexity of this construct (Seeber and Michaelis 2014) is limited to the declarative knowledge (see Shavelson et al. 2005) or conceptual knowledge (see Anderson and Krathwohl 2001) regarding sustainability and sustainability in business administration. In terms of content, the declarative knowledge items asked about general principles of sustainability, i.e., theoretical and widespread normative concepts, facts and their significance, the impacts of currently discussed sustainability examples, and operational application possibilities in companies (Michaelis 2017).

The final test instrument consists of 40 items. In terms of item design, the test includes single- and multiple-choice items. The scoring is dichotomous. Accordingly, subjects earn one point if they answer the item correctly. A total of 698 apprentices in a 3-year freight forward and logistic clerk training program were tested in summer 2013. This training program provides a reasonable supply of training offerings in Germany (to ensure an adequate sample size); additionally, the issue of sustainability is becoming more and more part of the business models in the logistic sector (Handfield et al. 2013). Therefore, it could be assumed that the apprentices are familiar with topics of sustainability.

The survey was administered at the beginning of the school year. Trainees of all 3 training years were interviewed, so the data represented approximately 2 years of training. In the sense of a cross-sectional analysis, differences in competence levels between different training periods can be interpreted as competence development within the training. In addition, 185 of 326 apprentices in the first year of training were tested on two further occasions (summer 2014 and summer 2015). This sample was used for the longitudinal analysis. Table 3 shows the main characteristics of the tested sample.

**Table 3** Main characteristics of the tested sample

Methodological design	Year of training	Sample size	Age (mean/median)	Female	University entrance qualification	Number of declarative knowledge items
Cross-sectional	1	326	20.9/20 (28 missing)	116/35.6%	249/71.1% (3 missing)	20
	2	164	21.9/21 (3 missing)	61/37.4% (1 missing)	118/72.4% (1 missing)	23
	3	208	23.0/22 (2 missing)	82/39.6% (1 missing)	145/70.4% (2 missing)	23
Longitudinal	1–3	185	20.9/20 (4 missing)	71/38.4%	143/77.7% (1 missing)	20 per occasion of measurement

Note: The characteristics of the longitudinal analysis refer to the first year of training

The tests took place in four different vocational schools. Because the IT equipment in the vocational school was limited, it was not possible to use IT-based test software. Therefore, item rotations in the test booklets were not possible. For economic reasons, not all trainees received all items. Trainees in the cross-sectional sample answered 20–23 items. Trainees in the longitudinal sample received 20 items per occasion of measurement, with 10 items held constant as anchor items between the occasions of measurement.

To analyze the data, the 1-PL Rasch model by the ConQuest software program was used. This program offers different coefficients for analyzing reliability and construct validity, which are explained in the following:

- The estimate of item difficulty is given in logit units; in addition, the standard error is specified.
- The expected a posteriori/plausible value reliability (EAP/PV reliability) “is [the] explained variance according to the estimated model divided by total person variance” (Draney and Wilson 2008, p. 425).
- The weighted means square (wMNSQ) indicates how accurately an item fit the model. The expected value is 1.0. For multiple-choice tests, a wMNSQ between 0.8 and 1.2 is recommended (Bond and Fox 2007, p. 243).
- The T-value informs about the significance of the deviation from the perfect fit per item. Values between  $-2.0$  and  $2.0$  are recommended (Bond and Fox 2007, p. 43).
- For the discriminatory power of an item, ConQuest reported the item-total correlation. In this study, values of 0.2 are sought. In some cases, such as when an item represents meaningful conceptual content, lower values are acceptable.

## Results

### Cross-Sectional Scaling

For the cross-sectional analysis, three Rasch scaling procedures were performed. To check the construct validity of the test instrument, a general Rasch scaling over all items was carried out first. Overall, the reliability of this test instrument is still reasonable (EAP/PV reliability, 0.630). The item fit values (see Table 4, left columns) also have good item properties. Only three items (1.1, 1.6, and 1.9) are

**Table 4** Global DIF analysis for comparing the level of declarative knowledge regarding sustainability and sustainability in business administration between the years of training

Items	Year of training	Estimate	Error
1.1–1.12	1	−0.151	0.053
	2	0.081	0.062
	3	0.170	0.059
2.1–2.11	2	0.026	0.049
	3	−0.026	0.049

conspicuous, as their item-total correlation lies under 0.2. However, these values are still acceptable due to the content-related focus of the items.

In the second step, two DIF analyses were calculated for the items that were answered by trainees with different years of training. Accordingly, subgroup differences can only be calculated between the groups that received the same anchor items. Apprentices of all training years answered items 1.1–1.12, and apprentices from the second and third years of training additionally answered items 2.1–2.11. Table 4 displays the results on the global level, and Table 5 shows those on the item level in Table 5 (right columns). In contrast to the interpretation of the local DIF estimates, the lower the DIF parameter at the global level, the worse the individuals of the associated subgroup performed in comparison to the other subgroups (Wu et al. 2007). With regard to items 1.1–1.12, a decrease in test difficulty is observed with an increase in training courses. At first glance, this finding is in line with the expectation. With regard to items 2.1–2.11, there is only a marginal difference in sustainability-related knowledge between apprentices in the second and third years of training.

However, the global subgroup difference can be assumed only if the associated items show systematic discrimination between the subgroups. Accordingly, the level of item difficulty would have to decrease with increasing training process. In conclusion, negative DIF estimates are to be expected for higher years of training.

The DIF parameters show that the majority of item difficulties do not change significantly between the years of training. All DIF parameters (except item 1.10 toward the third year of training) are below the weak level of 0.4 in terms of the NEPS categorization described above. Only three items (1.1, 1.6, and 1.10) change significantly as the number of years of training increases. However, two items have an unexpected effect direction. Items 1.1 and 1.6 are significantly easier for trainees in the first years of training than for the other trainees. Certainly, the local item analyses only partially confirm the global findings. The global effect of the weaker performance of the first year of training is understandable with regard to the absolute number of stronger item parameters. Only 8 of the 12 items indicate a slightly higher item parameter value for the first year of training. While there were only marginal global differences for items 2.1–2.11 between the years of training, the DIF parameters show unsystematic drifts in the item parameters. The global result (a stable, declarative knowledge achievement) arises because of mutually decreasing item parameter differences between the subgroups.

### **Longitudinal Scaling**

In the first step, the data of each occasion of measurement were individually scaled to identify items containing measurement errors (see more differentiated information in Michaelis 2017). Of the original 40 items, 5 items had to be excluded because of the inappropriate fit of the values. One anchor item was below the adequate value, so the number of anchor items was reduced to nine. Second, the data set was structured such that the test participants of later occasions of measurement were treated as virtual persons. To analyze the item parameter drifts between the occasions of measurement, a DIF analysis was applied. The global-level results are shown in Table 6. Again, it can be observed that the test difficulty decreases over the course of training.

**Table 5** Cross-sectional scaling results

1-PL Rasch model						DIF analysis							
Item	Estimate	Error	wMNSQ	T	Item-total cor.	Average		Training year 1		Training year 2		Training year 3	
						Estimate	Error	Estimate	Error	Estimate	Error	Estimate	Error
1.1	2.494	0.126	1.04	0.4	<b>0.15</b>	2.697	0.130	<b>-0.380</b>	<b>0.161</b>	0.059	0.192	0.321	0.190
1.2	0.204	0.081	1.05	1.9	0.28	0.298	0.082	0.044	0.107	-0.128	0.125	0.084	0.117
1.3	1.572	0.096	1.03	0.6	0.26	1.722	0.097	-0.136	0.125	0.129	0.146	0.007	0.136
1.4	-0.218	0.082	1.05	1.7	0.28	-0.133	0.084	0.080	0.108	-0.093	0.128	0.013	0.120
1.5	-0.946	0.091	0.92	-1.8	0.47	-0.861	0.093	0.069	0.118	0.058	0.140	-0.127	0.134
1.6	1.806	0.101	1.06	0.9	<b>0.19</b>	1.983	0.104	<b>-0.291</b>	<b>0.131</b>	0.120	0.156	0.171	0.148
1.7	-1.238	0.097	1.00	0.1	0.31	-1.166	0.100	0.099	0.126	0.017	0.151	-0.116	0.144
1.8	0.237	0.081	0.97	-1.2	0.41	0.338	0.082	0.092	0.107	0.079	0.125	-0.171	0.117
1.9	-1.857	0.116	1.04	0.5	<b>0.19</b>	-1.789	0.119	0.094	0.148	0.042	0.179	-0.136	0.173
1.10	-1.173	0.096	0.97	-0.5	0.35	-1.170	0.102	<b>0.360</b>	<b>0.125</b>	0.062	0.151	<b>-0.422</b>	<b>0.152</b>
1.11	-1.083	0.094	0.91	-1.9	0.52	-0.973	0.095	-0.132	0.122	-0.055	0.145	0.187	0.133
1.12	-0.996	0.092	0.91	-2.1	0.50	-0.946	0.096	0.101	0.121	-0.290	0.150	0.189	0.133
2.1	1.338	0.121	1.04	0.8	0.22	0.935	0.117			-0.204	0.116	0.204	0.116
2.2	0.534	0.109	0.97	-1.1	0.44	0.138	0.106			<b>-0.224</b>	<b>0.106</b>	<b>0.224</b>	<b>0.106</b>
2.3	2.070	0.145	0.98	-0.1	0.29	1.663	0.139			-0.077	0.138	0.077	0.138
2.4	0.274	0.108	1.00	0.0	0.36	-0.103	0.106			-0.088	0.105	0.088	0.105
2.5	-1.191	0.130	0.98	-0.2	0.36	-1.517	0.126			0.046	0.125	-0.046	0.125
2.6	1.322	0.120	1.06	1.1	0.20	0.925	0.116			-0.103	0.116	0.103	0.116
2.7	1.045	0.115	1.02	0.5	0.29	0.649	0.111			-0.148	0.111	0.148	0.111
2.8	-1.211	0.132	1.04	0.5	0.25	-1.525	0.128			0.165	0.127	-0.165	0.127
2.9	1.307	0.120	1.04	0.8	0.26	0.983	0.120			<b>0.353</b>	<b>0.120</b>	<b>-0.353</b>	<b>0.120</b>
2.10	0.979	0.114	1.01	0.3	0.30	0.593	0.110			-0.037	0.110	0.037	0.110
2.11	-2.435	0.195	0.99	-0.0	0.26	-2.741	0.188			0.315	0.186	-0.315	0.186
3.1	-0.929	0.133	0.93	-1.1	0.50								
3.2	-1.002	0.135	0.96	-0.7	0.44								
3.3	0.711	0.124	1.04	0.9	0.28								

(continued)



**Table 5** (continued)

1-PL Rasch model						DIF analysis							
Item	Estimate	Error	wMNSQ	T	Item-total cor.	Average		Training year 1		Training year 2		Training year 3	
						Estimate	Error	Estimate	Error	Estimate	Error	Estimate	Error
3.4	-1.057	0.137	0.95	-0.7	0.45								
3.5	-1.020	0.136	0.95	-0.7	0.42								
3.6	-0.326	0.123	1.03	0.8	0.32								
3.7	0.790	0.125	0.99	-0.2	0.40								

Note: One item of the 1-PL Rasch model has been deleted for better scaling results. Conspicuous item fit values are highlighted in bold. Significant DIF parameters are grayed out

**Table 6** DIF analysis for comparing the development of item parameter drift on a global level (Michaelis 2017, p. 205)

Occasion of measurement	Estimate	Error
t1	-0.304	0.058
t2	0.127	0.058
t3	0.177	0.058

The anchor items of the declarative knowledge test have a globally significant subgroup difference and show a significant decrease in difficulty over the course of training. This decrease is most pronounced between occasion times t1 and t2. At the item level (Table 7), three of the nine anchor items show a significant item parameter drift. These are items A7, A8, and A10 at t1 and t3. At this time, these items should not be excluded but should be observed within the longitudinal scaling. As mentioned before, a significant item parameter drift is merely an indicator of potential measurement errors of item parameter fixation. Therefore, whether a potential impairment of the measurement model arises is examined below via a longitudinal scaling with item parameter fixation.

Third, the longitudinal scaling is performed by modeling each occasion of measurement as a separate dimension (virtual item structure) and using the item parameter fixation of anchor items. After the deviance (an indicator for assessing the quality of the Rasch model; see Wu et al. 2007) was compared, the best model fit was obtained when the anchor item parameters of the second occasion of measurement from the time-specific individual scaling were used as the item parameter fixation. In the following, only the results of the final scaling are discussed (for the final results of the scaling, see Michaelis 2017, p. 344f). In addition to the abovementioned exclusion of five items, nine additional items were excluded from the scaling due to insufficient item fit values during the longitudinal scaling. A few item parameter fixations were also removed as they resulted in inappropriate item fit values. This mainly concerns the items that were observed in

**Table 7** DIF analysis for the identification of items in the declarative knowledge test, which have an item parameter drift between the occasions of measurement. (Based on Michaelis 2017, S. 206)

Item	Estimate (average)	Error (average)	Estimate (t1)	Error (t1)	Estimate (t2)	Error (t2)	Estimate (t3)	Error (t3)
A2 (1.3)	1.266	0.094	-0.107	0.134	-0.088	0.129	0.195	0.132
A3 (1.4)	-0.328	0.087	-0.131	0.122	0.081	0.123	0.050	0.123
A4 (1.5)	-1.142	0.100	-0.022	0.136	-0.151	0.145	0.173	0.140
A5 (1.6)	1.651	0.102	-0.258	0.143	0.167	0.143	0.091	0.141
A6 (1.8)	0.025	0.085	-0.084	0.120	0.066	0.120	0.018	0.120
A7 (1.12)	-0.886	0.094	-0.367	0.133	-0.056	0.135	0.423	0.130
A8 (3.3)	-0.448	0.094	0.817	0.127	-0.085	0.130	-0.733	0.139
A9 (3.2)	-0.369	0.087	-0.186	0.122	-0.030	0.124	0.217	0.123
A10 (3.7)	0.230	0.086	0.339	0.123	-0.095	0.121	-0.333	0.123

Note: Significant DIF parameters are grayed out

the item parameter drift analysis. The final scaling is reasonable to good scores in terms of item fit values and reliabilities (EAP/PV reliability, 0.689 (t1), 0.708 (t2), 0.733 (t3)). Only two items stand out with an item-total correlation under the recommendations of 0.2. For content-related reasons, however, these items are kept in the analysis.

The longitudinal survey design allows the calculation of the latent variances and correlations as an indicator of the stability of declarative knowledge about sustainability over time. The results, including those in Table 8, show a strong correlation between the occasions of measurement. Accordingly, interindividual differences in intraindividual development are less pronounced.

## Comparison of Scaling Results of Cross-Sectional and Longitudinal Research Design

Based on the previous results, the competence developments of both research designs are compared in Table 9. For this purpose, Warm's mean weighted likelihood estimates (WLE) as an estimator for a persons' ability (Warm 1989) were z-standardized per research design (mean value = 500, standard deviation = 100), and the effect sizes of the change (Cohen's/Hedge's d) were calculated. The effect sizes were calculated as the relative mean difference in the z-standardized WLE person ability scores between the higher and the lower occasions of measurement on the mean total standard deviation (Howell 2013). Hedge's d is similar to Cohen's d, but it calculates the effect size for subgroups of different sizes. The comparison shows that with a continuous training process, the performance on the declarative knowledge test regarding sustainability and sustainability in business administration

**Table 8** Latent covariances (top right) and correlations (bottom left) between the occasions of measurement of the declarative knowledge test (Michaelis 2017, p. 218)

Occasion of measurement	t1	t2	t3
t1		0.393	0.423
t2	0.702		0.412
t3	0.626	0.797	

**Table 9** Comparison of competence development between cross-sectional and longitudinal research designs

Subgroup	N	WLF (mean)	SD	Cohen's/Hedge's d to previous year of training
LS (t1)	185	466.497	107.233	
LS (t2)	185	511.292	86.246	0.460
LS (t3)	185	522.211	97.049	0.119
CS (first year)	306	488.057	109.456	
CS (second year)	164	513.507	93.548	0.244
CS (third year)	208	506.920	88.080	-0.073

Note: CS, cross-sectional study; LS, longitudinal study

increases. The greatest increase in knowledge is measured between the first and second years of the training program in both research designs; however, there is a stronger effect in the longitudinal study. One explanation may lie in the larger number of anchor items in the cross-sectional study design and the stronger unsystematic developments of their item parameters (see Table 4, left columns), which could lead to a reduced knowledge development in the cross-sectional design. The above-average improvement during the first year of the training program is congruent to curricular analyses that suggest the importance of developing competencies regarding sustainability in the freight forwarding and logistics clerk occupation (Michaelis 2017). Between the second and third years of training, the longitudinal study shows a weak but positive effect. In the cross-sectional data set, there is even a weak deterioration in performance between the second and third years of training.

In addition to the comparison of competence development using different research designs, it is possible to consider item parameter differences as well as the development of the items that were used in both study designs (cross-sectional and longitudinal) at all occasions of measurement. Five items fulfill this condition, for which a new DIF analysis is calculated. Therefore, the data of the second and third occasions of measurement of the longitudinal study were again structured as virtual persons and matched with the data of the cross-sectional study. Table 10 includes the results of the DIF analysis.

The DIF effects of the five-item twins from the different study designs show only slightly pronounced item parameter drifts between the individual occasions of measurement or years of training. Nevertheless, the comparison of the item

**Table 10** Comparison of item parameter development between cross-sectional and longitudinal research designs (DIF analysis)

Item twin	Design	Average		Year of training 1/t1		Year of training 2/t2		Year of training 3/t3	
		Estimate	Error	Estimate	Error	Estimate	Error	Estimate	Error
1.3	CS	1.657	0.067	-0.091	0.123	0.247	0.159	0.121	0.141
A2	LS			-0.053	0.147	-0.157	0.140	-0.067	0.143
1.4	CS	-0.143	0.058	0.021	0.109	-0.092	0.142	0.012	0.128
A3	LS			0.032	0.132	0.136	0.134	-0.109	0.135
1.5	CS	-0.946	0.066	0.063	0.117	0.120	0.154	-0.079	0.142
A4	LS			0.089	0.143	-0.160	0.156	-0.033	0.149
1.8	CS	0.287	0.058	0.089	0.108	0.139	0.139	-0.122	0.126
A6	LS			0.028	0.131	0.064	0.132	-0.198	0.132
1.12	CS	-0.855	0.065	-0.082	0.117	-0.414	0.164	0.067	0.138
A7	LS			-0.096	0.144	0.116	0.147	0.408	0.139

Note: CS, cross-sectional study; LS, longitudinal study

parameters makes it clear that depending on the study design, different (but usually only slightly pronounced) item parameters and developments can be measured. The most noticeable difference between the study designs is the development of the item parameter of the five-item twin, which compares items 1.12 and A7. However, the absolute item parameter difference of only 0.341 logits between items 1.12 and A7 toward the third year of training is rated as a low effect.

## Discussion

As this chapter emphasized, the diagnosis of competence development in VET is a research gap. As clarified, the challenge of a valid change measurement is one of the main reasons for this research gap. Although there are comprehensive recommendations for measuring competence developments (e.g., von Davier et al. 2008, 2011), concrete measurement standards could not prevail in VET so far. Previous studies in VET differ mainly in their methodological design. The majority of VET studies aiming to measure competence development use longitudinal designs (e.g., Abele 2014; Atik and Nickolaus 2016; Rosendahl and Straka 2011a; Michaelis 2017; Nickolaus et al. 2008, 2011). In contrast, there are cross-sectional designs (Klotz 2015; Klotz et al. 2015), which are less common so far. However, both approaches have their own potential and advantages as well as aspects that promote measurement errors (see Table 1). The assets and drawbacks of the measurement approach have to be weighed against the objectives of a study. Hence, in the present analysis, psychometric issues of cross-sectional and longitudinal research designs were considered by the example of an instrument for measuring declarative knowledge regarding sustainability and sustainability in business administration. The analysis revealed the following findings:

- The greatest increase in declarative knowledge arises between the first and second years of the training program. However, the effect in the longitudinal research design is stronger than that in the cross-sectional research design.
- The comparison of the development of the items, which were all used in both survey designs for all occasions/training years, produced comparable results, with some individual occasion-specific deviations.

These differences can have a variety of methodological explanatory backgrounds. Therefore, causes are identified, and recommendations for the measurement of competence development in VET are briefly outlined in the following.

A substantial methodological difference is that the selection of anchor items in the two study designs differs. The cross-sectional research design includes 12 anchor items between all 3 subgroups and another 11 anchor items between the second and third years of training. The anchoring in the longitudinal study, however, is based on only five to seven items per measurement occasion. For both longitudinal and cross-sectional research designs, it is questionable whether the selection of anchor items represents a representative selection of items for measuring the declarative knowledge development regarding sustainability and sustainability in business administration. Using an IT-supported test procedure with the function of randomly distributing items on test booklets could improve the quality of the measurement for both research designs.

The sample can also be determined critically. In the longitudinal section, only persons who participated in all occasions of measurement were considered in the analysis. The representativeness of the sample can be limited by this (risk of selection effects). Here, however, imputation methods could be used to work with incomplete data sets. The cross-sectional sample is also problematic in terms of subgroup comparability. Particularly in the case of changing training market situations, the comparison of subgroups may be limited. In the case of changing critical comparison features, weighting methods would be recommended.

It is conspicuous for both research designs that unsystematic developments of the item parameters were measurable. To a certain degree, curricular analyses could explain item-specific difficulty-reducing developments (especially with regard to environmental aspects, which are anchored in the curriculum during the first year of training; Michaelis 2017). The finding that items become more difficult over the course of the training program must be attributed to memory barriers or oblivion processes. It could be assumed that corresponding concepts were acquired during previous educational processes (especially in general education) or perhaps informal learning processes (such as media contributions) but are less present during the training process. On the other hand, this result is compatible with critiques that training programs in Germany insufficiently support holistic sustainability aspects (Brötz et al. 2014). Despite partial curricular anchors, the promotion of sustainability-related competencies is more facilitated by the voluntary initiatives of training institutions. This makes it much more difficult to use cross-sectional study designs, as it is not possible to ensure comparability with regard to the content and quality of learning processes.

## Conclusion

The explanations in this chapter are concentrated on aspects on the psychometric challenges to measure development in domain-specific knowledge of future business administration clerks. Considering the previous aspects, it becomes clear that both methods can generate data that could contain measurement errors. However, the choice of the survey design also depends on the analysis objective. It is possible that the analysis of intraindividual developments is only possible via longitudinal research designs. Additionally, with regard to the analysis of explanatory contexts (e.g., relationships to affective-motivational dispositions), longitudinal studies are superior to cross-sectional studies. Complex structural relationship models can be computed if explanatory features have been tested with regard to the respective occasions of measurement.

A second challenge was mentioned in the introduction: the multiple influencing factors. Domain-specific competence development is not only a result of structured and intended learning processes in vocational schools and training companies but also of informal learning opportunities at workplaces and in private life, especially the discussed competence development in the domain of sustainable business processes. Competence measurement in VET is not an end in itself; rather the aim is to improve learning and training opportunities to support the individual competence development. Therefore, individual prerequisites at the beginning of training in particular knowledge, attitudes, motivation, prevocational experiences, social and cultural backgrounds, etc. and structured learning opportunities as well as nonformal and informal learning during the course of training have to be considered in research designs. A second aspect has to be taken into account in the future research on competence development: the measurement of noncognitive competence facets. Most studies avoid the integration of motivational and emotional competence facets, beliefs, and attitudes. The main reason for this specific research lack lies in the difficulty of their simultaneous measurement and in the lack of appropriate psychometric methods for such complex research designs. First research efforts can be observed by using the experience sampling method (see Rausch et al. 2016), albeit not yet in a longitudinal design.

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# Self-Assessment for Learning in Vocational Education and Training **73**

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## Abstract

Self-assessment is a crucial skill that students need to develop during their educational years, especially at those educational levels where the curriculum leads to future jobs. By being able to assess their own performance, students can become self-regulated learners and continue their professional development throughout their careers. This chapter will explore what is known about self-assessment through an updated version of the state-of-the-art. Firstly, it will be defined what self-assessment is, the different

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forms it can take, and which of those forms are most conducive to enhancing students' learning. Secondly, it will be explored what is the relationship between self-assessment and academic achievement and between self-regulated learning strategies and self-efficacy. That section will also present an overview of the learning and psychological effects of self-assessment to conceptualize the internal cognitive, motivational, and emotional processes that are involved. Thirdly, extracted from the research literature, it will be explored what are the best instructional methods to train students to develop their self-assessment skills. In that section, both recommendations on how to help students develop the requisite skills and recommendations for teachers' training will be presented. Lastly, we will build from best-research examples on vocational education and training to consider how self-assessment can best be implemented and extract practical implications and recommendations.

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**Keywords**

Self-assessment · Self-regulated learning · Professional development

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## **Self-Assessment for Learning in Vocational Education and Training**

Most teachers will agree that one of the main skills students need to develop is their capacity to reflect, evaluate, and, if needed, improve their own work. This skill is known as self-assessment. Unfortunately, it is not so well known among teachers how self-assessment works or what to do to help students develop their expertise in such skills. This chapter will present the state-of-the-art knowledge on student self-assessment, answering those questions while providing examples of vocational education and training research and examples of practice on self-assessment.

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### **Self-Assessment History**

Self-assessment in education has been studied for a long time. Topping (2003) mentioned George Jardine from the University of Glasgow (prof. 1774–1826) as probably one of the first to include self-assessment in his instructional plan. Throughout the twentieth century, there was an increasing interest in the topic, with some articles published as early as 1954 to the boom of the field by the 1990s (Sitzmann et al. 2010). In 1989 two crucial reviews gave a major push to the field: the meta-analysis by Falchikov and Boud (1989), which focused on scoring accuracy in self-assessment, and the more narrative review by Boud and Falchikov (1989), also revolving around matters of accuracy. Importantly, the seminal work by Black and Wiliam (1998), which launched the formative assessment movement, had self-assessment as one of the key pieces for students' learning. Consequently, self-assessment has been key for the formative assessment field.

The first two decades of this century have seen two main branches of educational research into self-assessment. Firstly, self-assessment accuracy has continued as an area of research with no major changes; hence no great developments in our understanding have been gained from an educational perspective (Panadero et al. 2016a). Secondly, increasing effort has been made to use self-assessment for formative purposes, with a relevant focus on self-assessment connections to self-regulated learning (Andrade 2010; Panadero and Alonso-Tapia 2013). Additionally, noteworthy research conducted in medicine (Eva and Regehr 2005) and social psychology (Dunning et al. 2004) has moved the field forward. If we consider all these approaches to self-assessment, we are in an interesting phase in the field, putting together new pieces of the puzzle.

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## Purpose of Assessment

As mentioned earlier, in the last two decades, there has been a growing interest in how the use of self-assessment for formative purposes can enhance student learning, in contrast with summative self-assessment, which focuses mostly on the accuracy of the self-grading. Though there were some previous publications about formative self-assessment (e.g., Boud 1995; Goodrich 1996), the interest grew exponentially after the publication of the review by Black and Wiliam in 1998 (Wiliam 2011, 2014). What is this summative-formative comparison? Wiliam (2014) explains it as follows:

Where the inferences are related to the student's current level of achievement, or to their future performance, then the assessment is serving a summative function. Where the inferences are related to the kinds of instructional activities that are likely to maximize future learning, then the assessment is functioning formatively. (p. 6)

Therefore, when the assessment information serves the purpose of enhancing students' learning, then it is formative, and when the assessment includes elements of grading, selection, etc., it refers to summative purposes. As mentioned above, self-assessment is considered a key formative assessment processes (e.g., Andrade 2010; Black and Wiliam 1998). One of the arguments is that students need to be able to monitor and evaluate their work to be autonomous and self-regulated learners (Paris and Paris 2001). As those authors and many others claim, teachers need to provide the context and instructional scaffold for students to develop their self-assessment skills.

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## What Is Self-Assessment?

A recent state-of-the-art review explored the different types of self-assessment that have been studied in research. Panadero et al. (2016a) found 5 taxonomies with 20 different categories of self-assessment. Importantly for our purposes, these

authors provided their own definition of self-assessment as involving “a wide variety of mechanisms and techniques through which students describe (i.e., assess) and possibly assign merit or worth to (i.e., evaluate) the qualities of their own learning processes and products” (p. 804). And this “wide variety” implies, as was expressed at the beginning of the paragraph, that there are different practices that are labeled as self-assessment. For example, out of the five taxonomies that were found in that review, the one by Panadero and Alonso-Tapia (2013) proposed three types of self-assessment practices based on the presence and form of the assessment criteria: (a) standard self-assessment, with no explicit criteria (i.e., just asking the students to self-assess); (b) rubric self-assessment, in which more clearly defined criteria are provided; and (c) script self-assessment, which includes criteria presented as questions that the students need to answer for themselves. Taken together, this demonstrates that self-assessment is a complex process that can take several forms and, therefore, can be implemented in different ways in the classroom.

Depending on its implementation features, self-assessment can serve summative or formative purposes (Andrade 2018; Panadero and Alonso-Tapia 2013). Picture a continuum with summative on one end and formative at the other. At the summative pole would be the type of self-assessment in which students are asked to estimate a grade for their performance with neither further instructions nor any request to generate more informative feedback. This is called self-grading and is probably the least optimal form of self-assessment implementation to enhance students’ learning (Boud 1995). The reason for the limited effects of this type of self-assessment is that it does not ensure a deeply engaged reflection on the performance or the learning processes. If students are only asked to provide a grade, unless they are given advanced tools to calculate it, they usually just make a guess with no further reflection (Andrade 2010). At the other end, the formative pole would be a type of self-assessment that asks the student to extract conclusions from his or her performance, provides opportunities for practice, and provides modeling and feedback on the self-assessment itself. In other words, self-assessment here is a crucial skill to be developed, one central to the curriculum, not a side activity (Brown and Harris 2014; Panadero et al. 2016a; Tan 2012). This formative approach also has important effects for students incorporation to the labor market where self-assessment is a crucial competence (Clayton et al. 2003).

As with many other things, we get what we aim for. If we implement more shallow approaches to self-assessment aiming at the grade level – e.g., merely asking students to guess their grade – that is what the students will perform. On the contrary, if we aim for a deeper type of self-assessment, then the students will use and follow our instructional scaffold and the effects of the self-assessment will have a greater impact on learning. Teachers can have several reasons for choosing one approach over the other, and of course there are plenty of types of self-assessment in between those two extreme poles. What is crucial is that the teachers make an informed decision on why they are using a particular type of self-assessment. Nevertheless, the general pedagogical recommendation is to aim for the highest level of formative self-assessment possible because that will provide more learning insights for the students.

## Self-Assessment Effects on Learning Variables

All that we have explained above would be pointless unless self-assessment had a positive effect on students' academic performance. There are two meta-analyses that have explored the effects of formative uses of self-assessment. Brown and Harris (2013) explored the effects of self-assessment on students' academic achievement. These authors found 24 effect sizes ranging from  $-0.04$  to  $1.62$  and reported that the median effects lay between  $0.40$  and  $0.45$ . They concluded, using Hattie's (2009)  $0.4$  effect size crosscut, that in light of the reviewed empirical evidence, it could be maintained that self-assessment can improve academic achievement across different grades and subjects. Though Brown and Harris also explored self-assessment effects on self-regulated learning, the more recent meta-analysis that will be presented next is more comprehensive.

Panadero et al. (2017) reviewed 19 studies that had explored effects of different self-assessment practices on self-regulated learning and self-efficacy. Though self-regulated learning theory contains self-efficacy within it (e.g., Zimmerman 2000), these authors decided to review the concepts separately because the included research had differentiated these effects. Importantly, the authors also separated self-regulated learning into three different types of measurement, according to how this construct had been explored in research. They found that self-assessment intervention's effects on self-regulated learning were  $0.23$  (learning SRL),  $-0.65$  (negative SRL), and  $0.43$  (SRL measured qualitatively), respectively, and for self-efficacy  $0.73$ . It was concluded that self-assessment interventions enhanced both students' use of learning strategies (i.e., self-regulated learning) and their levels of self-efficacy.

All in all, the conclusions of these two meta-analyses support the idea that self-assessment interventions do have a positive effect on students' learning, self-regulation, and self-efficacy. It is now important to explore what are the characteristics of VET and how these might affect the implementation of self-assessment.

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## Vocational Education and Training Features and Their Implications for Self-Assessment

Vocational education and training presents some distinct features from other types of educational levels and systems. Probably the most relevant one is that in most countries, VET educational systems organize students' learning around two contexts with different requirements and conditions: the vocational school and the workplace (Schaap et al. 2014). In vocational schools, teachers are devoted to implementing and formally assess learning goals established in the VET curriculum and, therefore, they must generate a summative assessment (i.e. score students' performance). In contrast, in workplaces students during their internships engage in dialogue and many informal assessment situations with their instructors while performing daily activities related to their occupation (Sandal et al. 2014). This underlines the

importance of self-regulated learning for students' academic success in these two complex and evolving learning VET scenarios.

Three implications for students' self-regulation emerge from those contexts. First, in both vocational schools and workplaces, teachers and instructors should develop a strong learning environment that coaches and promotes students' self-regulated learning to support the acquisition of knowledge and skills (Bruijn et al. 2006, cited in Geurts and Meijers 2009). As in any other field, VET teachers and instructors need the ability, not only to intervene actively to deliver essential knowledge but also to take a back seat and allow learners to become more self-directed and learn through collaboration with their peers (Searle 2009). As Höpfner (2009) points out, "the teacher/instructor in technical and vocational education and training is no longer a master who gives all the information, demonstrates everything that has to be done and explains every detail" (p. 1702).

Second, summative assessment is still present in VET schools, influencing students' goal orientations. That means that students might be focused, not only on learning but also on their grades, which would generate types of goal orientation that are not conducive to learning outcomes (Montero and Tapia 1992). In order to alleviate this influence, it is recommended that schools implement authentic assessment scenarios which increase the likelihood of achieving learning goals and also promote higher-order thinking skills (Rojewski 2009). In these scenarios, with a focus on self-assessment activities, students have to demonstrate their comprehension of knowledge and skills within a real context (Boud and Soler 2015).

Third, integrating and building more meaningful relations between the knowledge and the skills developed in the VET school and those utilized in the workplace learning environment (Baartman and Bruijn 2011). Currently, the contradictions between vocational schools and workplace learning environments challenge students' adaptation to their future work. The school-based model sometimes demands assessment procedures that are disconnected the workplace activities, and the students may assume a dichotomy between "practical knowledge" and "school knowledge" (Sandal et al. 2014; Schaap et al. 2014). For this reason, VET teachers and workplace instructors should have a close collaboration to identify learning needs, mainly at the workplace, and thus optimize the teaching processes to solve students' educational needs. Through this collaboration, students will be better guided to take responsibility in their learning so they can develop, organize, and use professional knowledge more effectively (Placklé et al. 2014) and identify the possession of skills demanded in the labor market (Clayton et al. 2003). Therefore, it is essential that students be able to identify the workplace learning needs and fulfill them, that is, to self-regulate and to respond to their initial lack of knowledge when they arrive in their new workplace (Munby et al. 2009).

The use of self-assessment procedures covering general and specific competences is a way to develop VET students' self-regulation skills and to help them integrate their learning in workplace environments. The next section will explore what is known in the VET literature about self-assessment.

## Studies Using Self-Assessment in VET

Even though many authors and professional organizations defend the importance of self-assessment (e.g., Baartman et al. 2013; Clayton et al. 2003), within the VET literature, studies reporting the use of self-assessment tools to promote self-regulated learning are scarce. One of the few areas that has interesting studies within the VET literature in relation to self-assessment is the use of self-report instruments that measure general competences. Two of them will be presented in detail here.

First, Khaled et al. (2014) published a self-report tool that, according to the authors, is still in an exploratory phase. The instrument includes items regarding four competences – deciding and initiating actions, cooperating, applying perspective, planning, and organizing – with four to nine items per competence. Two examples of items for the competence of planning and organizing are “During the preparation of an assignment, I consider which results I want to achieve first” and “I put the tasks to be performed in a logical order.” The validity of the instrument was tested with 351 VET students from the field of health sciences, who had to rate their agreement with the items using values between 0 (“not at all applicable to me”) and 10 (“completely applicable to me”). The results of the study showed that it is possible to identify competences and indicators applicable to different educational settings. Nevertheless, some parts of the questionnaire were not entirely valid, and the authors recognized an important limitation: they noted that specific items could be too abstract because it was difficult to find particular indicators aligned with the variety and complexity of learning situations that VET students face in their daily activity. Nevertheless, this questionnaire represents a valuable effort in designing a standardized self-assessment tool with an emphasis on general competences that can be related to self-regulatory strategies.

Some of the difficulties identified by Khaled et al. (2014) were overcome in the study by Kyndt et al. (2014). Following a complete and complex mixed-method testing process, these authors developed an instrument for secondary vocational education to explore students’ perspectives on generic competences applicable to every occupation. The study included 826 students from many different VET fields (e.g., child care, auto mechanics, organizational assistance) to validate the instrument. The self-report includes eight general competences organized in two sections. The division of communication covers the competences of empathy, active listening, and assertiveness, whereas the section of professional conduct involves the competences of professional attitude, cooperation ability, problem-solving, diversity attitude, and planning and prioritizing. Students self-assessed these competences by answering 44 items on a 5-point Likert scale, from 1 (“completely disagree”) to 5 (“completely agree”).

This instrument shows that it is possible to generate reliable and valid self-reports to help students self-assess their levels in general competences. However, it is important to note, as Kyndt et al. (2014) argue, that competences are a complex learning outcome, so it is better to use this standardized self-report as a starting point to assess general competences and then work in more specific and content related interventions.



Indeed, as some authors have maintained, the assessment of competences must take into account that they are also context-dependent (Bartman et al. 2013). This means that, as well as assessing general competences with several instruments, VET teachers and instructors should assess and promote the self-assessment of specific competences that are appropriate to their VET field.

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## How to Implement Self-Assessment to Help Our Students to Develop This Skill

Before presenting the list of actions that we can take as teachers, it is crucial to consider what Panadero et al. (2016a) called a “developmental approach to self-assessment.” There are three premises here. First, self-assessment in itself, like any other skill, needs practice. Teachers should not assume that their students will know how to self-assess if they have not been given opportunities for practice and instructional support. Second, self-assessment requires expertise in the task at hand. It is extremely difficult to self-assess a task in which we barely have experience. And third, we need to consider the developmental age phase of the student and ensure that the level of self-assessment asked for is realistic for their maturity. Importantly, though more empirical work remains to be done on this point, research on teachers’ assessment practices supports this developmental approach. Additionally, teachers also need their own opportunities for practices and training courses. One study found that, among the five identified predictors of teachers’ use of self-assessment in their classrooms, the highest one was previous experience in implementing self-assessment interventions, followed by knowledge about the benefits of self-assessment and participation in assessment training courses (Panadero et al. 2014).

Regarding what teachers can do to implement formative uses of self-assessment, a number of papers have explored this. Panadero et al. (2016b) reviewed and combined two previous lists of instructional recommendations as presented by Andrade and Valcheva (2009) and Ross (2006). The list combines six recommendations:

1. **Define the criteria by which students assess their work.** It is important that students know what the assessment criteria are so that they can establish goals aligned with those of their teachers and monitor and evaluate them more precisely (Andrade and Valcheva 2009; Panadero and Alonso-Tapia 2013). One approach that has become mainstream in recent years is the use of rubrics. These tools provide students with clear assessment criteria and also different achievement levels that can be used to structure the performance. The formative use of rubrics has been found to have positive learning effects (Brookhart and Chen 2015). Additionally, the negotiation of assessment criteria is also a productive way to help students internalize it by, for example, co-creating rubrics (Fraile et al. 2017).
2. **Teach students how to apply the criteria.** It is not enough to offer students the criteria; teachers also need to model how to use them. This might seem quite an

obvious recommendation, but, unfortunately, it is a much-needed one, and here we can also learn from research on rubrics. Just handing out a rubric does not have the same learning potential as teaching the students how to use it.

3. **Give students feedback on their self-assessments.** Teachers need to give information to the students about how well they are assessing their own performance. Importantly, teachers can provide feedback on the self-assessment *content accuracy* (Panadero et al. 2016a), in other words, how close the qualitative information created by the student is to what a teacher would give. Giving feedback about self-assessment turns the latter more into a reflective action.
4. **Give students help in using self-assessment data to improve performance.** Teachers also need to provide models and scaffold students on how to apply their self-assessment to enhance their learning.
5. **Provide sufficient time (and opportunity) for revision after self-assessment.** As clearly argued by Goodrich (1996), students need opportunities for improvement after having self-assessed. Otherwise, they do not fully internalize the application of self-assessment to improve their work, and their motivation to perform self-assessment might decrease.
6. **Do not turn self-assessment (only) into self-evaluation by counting it toward a grade.** This is a controversial issue. As mentioned earlier, teachers might have different reasons for wanting to implement summative self-assessment alone or in combination with formative uses – i.e., students would generate both qualitative self-generated feedback and a self-awarded grade. As discussed by Panadero et al. (Panadero et al. 2016a), there is still plenty of room for innovative research about self-grading. However, if self-evaluation is the only type of self-assessment implemented, then the teacher is not exploring the full potential of self-assessment as a learning activity.

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## Conclusions

An initial conclusion is that there are a number of future lines of work directly related to VET literature. Firstly, there is a need for more research on self-assessment in VET environments. In comparison with other educational levels and systems, especially higher education, self-assessment publications in VET are scarce. Additionally, it would be interesting if that forthcoming research had a focus on the formative use of self-assessment, as the educational value of this approach is stronger, or explored different approaches to summative uses of self-assessment (for recommendations, see Panadero et al. 2016a). Secondly, future research needs to continue defining what are the specific characteristics and needs of VET contexts when it comes to self-assessment. The key is probably the one outlined in this chapter: VET schools have a number of educational goals and constraints that make them different from workplace settings. Importantly, self-assessment is crucial in both environments, but, for obvious reasons, the first place to teach how to self-assess is in the VET schools so that the students have developed this skill to a point when they reach their workplace. Logically, when those students start working, they

will have to adapt to that new environment and therefore will have to tailor their self-assessment knowledge and skills. But this is already something that can be taught in VET schools. Thirdly, in a similar fashion, it is important that those self-assessment interventions be linked to the development of self-regulated learning skills. This framework also has implications for the relationship pointed out just before: workers are supposed to be able to have regulatory strategies, and VET schools are the ideal place to start developing them.

In conclusion, self-assessment is a crucial skill to acquire over the educational years. It seems even more relevant in VET contexts where the connection to the workplace is constant. As one of the key skills for every worker is being able to conclude whether his or her performance has reached the needed goals, VET educators should have self-assessment as a key goal in their curriculum. Unfortunately, research seems to be lacking in this area, which might be a reflection of the lack of permeability of the formative assessment ideas in VET education. Therefore, this chapter has as a goal to issue a call to transfer over some of the relevant conclusions about the educational influence of self-assessment that have been found in other educational levels. Hopefully, this chapter will be a modest contribution in that direction.

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# Assessment Through Simulated Conversations: Applications in Medical and Teacher Education

# 74

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## Abstract

Simulated conversations (SC) are an established method for teaching and assessing professional communication competences and other clinically relevant skills in medical education. In SC, participants lead a simulated professional conversation about a predefined authentic case scenario with actors trained to portray a standardized role. Recently, the use of SC has expanded to teacher education, and it is of general relevance to all vocational and professional domains that require conversations between professional and client. The present chapter outlines the applications of SC in medical and teacher education and

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provides a generic blueprint of six key steps in designing SC assessments. The aim is to facilitate the transfer of SC assessments to other domains.

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**Keywords**

Communication · Assessment · Simulations · Medicine · Teaching

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## Introduction

Conducting professional conversations is a major task in many vocational and professional domains (Hargie 2011). Typical demands in such conversations include counseling clients, delivering bad news, or resolving conflicts (Gartmeier et al. 2011, 2015). Because of its importance, training in conversation competence has received increasing attention in professional education study programs, particularly in medicine but also in other domains like teaching (Wiesbeck 2015). In this context, the formative and summative assessment of conversation competence is a major issue in providing feedback to learners and evaluating training success. This requires performance-oriented and valid assessment methods that measure participants' communicative behavior in authentic task situations (Braun et al. 2016; Blömeke et al. 2015).

Simulated conversation (SC) is a promising method for this purpose (Association of Standardized Patient Educators 2017; Barrows and Abrahamson 1964; Lane and Rollnick 2007). In SC, examinees lead a simulated professional conversation about a predefined authentic case scenario with actors trained to portray a standardized role. This assessment method has already started to expand from medical education to other fields, such as teacher education (Dotger et al. 2008; Gerich and Schmitz 2016; Wiesbeck 2015; Wiesbeck et al. 2017). It has a general potential for application across vocational and professional domains that require conversations between professional and client.

The present chapter aims to facilitate such a transfer by describing the construction and application of SC assessments for measuring conversation competence and provides a general blueprint for the design of such assessments. The section below provides a generic introduction to the existing research on the assessment of communicative competences using SC. Next, six key steps in the construction of a SC assessment are outlined:

1. Defining the competence based on theory
2. Developing assessment materials (cases, vignettes, and instructions)
3. Selecting or developing observable indicators
4. Recruiting and training SC partners
5. Recruiting and training raters for coding the data
6. Scaling the data to attain performance scores

These steps are illustrated by procedures and materials developed in the *ProfKom* project (for a general description of the project, see Bauer et al. 2018; Gartmeier et al. 2015). In *ProfKom*, parallel SC assessments of physician-patient and teacher-parent

conversations were designed and evaluated (Wiesbeck 2015; Wiesbeck et al. 2017). The chapter concludes with considerations on the strengths and weaknesses of SC assessments for specific purposes.

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## **Simulated Conversations as a Method for Assessment and Teaching**

Due to its great potential in bridging the gap between theory and practice, learning through simulations has been implemented in a variety of domains, from the medical sector to, for example, the military, aviation, consulting, and social work. Simulations are generally well accepted as they allow for training and assessment within authentic contexts and situations, thus providing valid results (Rees et al. 2004). This section provides an overview of the application of SC for the purposes of assessment and teaching in professional education. Since SC is used most prominently in medical education (Association of Standardized Patient Educators 2017; Barrows and Abrahamson 1964; Lane and Rollnick 2007), the discussion begins by focusing on this domain. Subsequently, recent approaches to transferring the method to teacher education are sketched.

### **Simulated Conversations in Medicine**

Medical training has traditionally depended on immersing students in the everyday care of real patients (Cleland et al. 2009; Wiesbeck 2015). However, deploying real patients in the training and assessment of preservice physicians has a number of disadvantages. First, patients treated at the facilities in which medical education takes place – mostly university hospitals – cannot be considered representative of the full spectrum of relevant diseases that needs to be taught in medical education (Cleland et al. 2009). Second, there may be problems with the patients' consent as they are sometimes reluctant to cooperate with students, and this noncompliance can lead to bias (e.g., if patients with specific types or severity of diseases are more prone to decline). Third, the naturally occurring differences between patients with regard to the severity of diseases and personality can affect the reliability of assessments (Collins and Harden 1998). Encountering these different situations may be beneficial for learning the full range of patients' symptoms and behavior, but it is detrimental to reliable assessment, which requires a large degree of standardization across measurement situations. Lastly, the deployment of real patients into clinical teaching is sometimes inappropriate for ethical reasons (e.g., when practicing how to give a terminal diagnosis) because patients have to be protected from unnecessary harm (Gaba 2004).

The use of simulated patients to support clinical skills learning and assessment is a viable solution to counter the discussed problems (Barrows and Abrahamson 1964). According to Barrows (1987), “the Simulated/Standardized Patient (SP) is a person who has been carefully coached to simulate an actual patient so accurately



that the simulation cannot be detected by a skilled clinician. In performing the simulation, the SP presents the gestalt of the patient being simulated; not just the history, but the body language, the physical findings, and the emotional and personality characteristics as well” (p. 17). In the terminology, the term *simulated patient* encompasses *standardized patients* (Adamo 2003; Wiesbeck 2015). That is, conversations with standardized patients are always simulated ones, but SC can have varying degrees of standardization. This chapter follows Wiesbeck’s (2015) recommendation to use the term *simulated conversations* because it covers relevant aspects of the method comprehensively (e.g., conversation partners, situations, cases, coding criteria, and raters). The degree of standardization may vary from rough situation descriptions (similar to traditional role-play) to extensive training in specific reactions and responses (Cleland et al. 2009).

The SC method has several advantages (Cleland et al. 2009). First, regarding content, simulated patients can portray a broad range of cases that students may not encounter in real patients. Second, they are willing to perform scenarios many times with standardized, predictable behavior, and they are available as and when required. Third, simulated patients can be trained adaptively to reflect the student’s level of experience. Fourth, they can provide feedback to participants about their performance, which is important for both learning and formative assessment. Fifth, SC is well accepted by pre- and in-service physicians. Finally, there is strong evidence that SC can be highly objective, reliable, and valid if constructed and conducted thoroughly (Barman 2005; Cleland et al. 2009; Newble 2004).

For these reasons, the use of simulated patients increased quickly in medical education and was developed further, especially for assessment purposes (Cleland et al. 2009; May et al. 2009). Today, clinical skills are mostly assessed by *Objective Structured Clinical Examinations* (OSCEs) (Barman 2005; Harden et al. 1975) that encompass SC. These OSCEs are an examination format in which examinees rotate around a circuit of clinical task stations (Harden et al. 1975) that often require interaction with simulated patients (Iramaneerat et al. 2008). The *Association of Standardized Patient Educators* promoted best practices in the application of simulated patient methodology for education, assessment, and research (Association of Standardized Patient Educators 2017). Since 2004, encounters with simulated patients, including the examination of communication skills, have been a compulsory part of the US Medical Licensing Examinations (United States Medical Licensing Examination 2015), and communication skills are taught in nearly all medical schools (Lurie et al. 2008). In Europe, the employment of simulated patients was delayed (Ortwein et al. 2006) but spread quickly. In Germany, for example, communication competence has become a compulsory element of medical licensing, and almost all medical schools employ SC for assessment purposes (Görlitz et al. 2014).

In sum, simulated patients are today employed worldwide for teaching and assessing clinical and communication competences (May et al. 2009). Moreover, the use of simulated patients has expanded to other domains. Below, the transfer of SC to teacher education will be discussed as an exemplary case.

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## Applications in Other Domains

Recently, attempts have been made to apply SC as a learning tool in teacher education (Dotger et al. 2008). Dotger et al. (2010a, b) constructed a learning cycle that included a variety of interactions between preservice teachers and parents, colleagues, school leaders, and students. According to these authors, SC in medicine and teaching differ mainly in the degree to which standardization can be achieved; it seems SC is more difficult to standardize in educational settings because anticipating participants' responses to verbal triggers is much more difficult (Dotger and Ashby 2010). Consequently, the training of the SC partners is especially critical in education to achieve a sufficient level of standardization.

SC as a method of assessing teachers' competences were first implemented and evaluated in the *ProfKom* project (Wiesbeck 2015; Wiesbeck et al. 2017). In *ProfKom*, a SC assessment was implemented to measure preservice teachers' competence in leading teacher-parent conversations. This was done in the context of a training study aimed at fostering such competences (Gartmeier et al. 2015). The results demonstrated that SC on educational topics can provide a similarly objective, reliable, and valid criteria measure of communication competence as it does in medical education (Wiesbeck 2015; Wiesbeck et al. 2017). Moreover the SC assessment format was well accepted by preservice teachers (Wiesbeck 2015), despite it being unfamiliar to them. In another application, Gerich and Schmitz (2016) used SC both for the training and the longitudinal assessment of preservice teachers' counseling competence. Their results corroborated the view that SC is a well-suited and motivating method to promote and assess preservice teachers' competences and a learning tool that helps link teacher education and practice.

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## Constructing Simulated Conversation Assessments

This section provides a blueprint of the key steps required in the construction and implementation of any SC assessment. Naturally, these steps are consistent with general procedures in the development of assessment instruments (Furr and Bacharach 2013; Wilson 2005). Nevertheless, the features of SC give rise to a specific combination of challenges that must be addressed. Below, each respective step is elaborated conceptually and illustrated with examples from *ProfKom*. The discussion is mostly based on Wiesbeck (2015) work that can be consulted for a more in-depth treatment (see also Bauer et al. 2018; Gartmeier et al. 2015; Wiesbeck et al. 2017).

### Defining the Competence

A first and crucial step in designing any competence assessment is to define and operationalize the construct based on relevant theory (Furr and Bacharach 2013). Competences can be considered as the personal dispositions that allow a person to act successfully in specific task situations that are typical in the (professional)

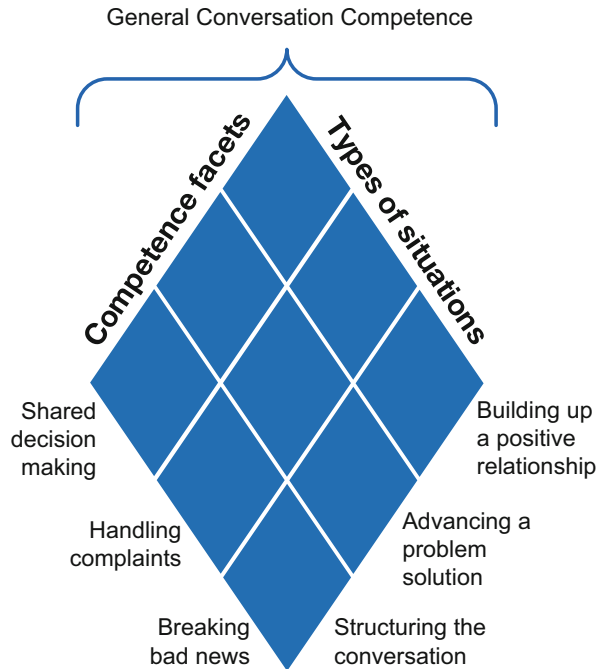
domain (Weinert 2001). Since the turn of the century, the approaches to modeling and measuring competences in educational contexts have been advanced substantially (Blömeke et al. 2015; Hartig et al. 2008; Shavelson 2013). Setting up a competence model requires deliberation about its dimensionality (i.e., whether there are different competence facets) and the relevant task situations in which the competence is required (Furr and Bacharach 2013; Wilson 2005).

Several competence models related to professional communication and consulting have been proposed recently (Aich 2011; Gartmeier et al. 2011; Gerich and Schmitz 2016; Hertel 2009). In *ProfKom*, professional communication competence was conceptualized as a hierarchical and multidimensional construct comprising the individual dispositions required to lead professional conversations effectively (Gartmeier et al. 2011, 2015). The *ProfKom* model proposed three generic facets of conversation competence that apply to the different types of conversations across a broad range of domains (Fig. 1). First, the ability to build a *positive interpersonal relationship* implies the establishment of a climate of mutual respect and trust as a prerequisite for working jointly on the problem that constitutes the topic of the conversation (cf. Rogers 1951). Second, *advancing a problem solution* refers to the professional's ability to foster a client's understanding of the problem and develop options for its solution. To do so, professionals should take charge of identifying the problem as a topic of communication and establishing a shared understanding (common ground; Clark and Brennan 1991; Horton and Keysar 1996). On this basis, potential causes of the problem can be elaborated, and possible solutions can be weighed jointly, with concrete agreements required on courses of action. Third, *structuring the conversation* means being aware of what are key steps and tasks in a specific conversation and managing their transitions smoothly and transparently. The goal is to cover all relevant aspects of, for example, a counseling conversation, and to be "on the same page" as the conversational partner.

Figure 1 also shows that the discussed competence facets relate to specific types of conversations. Thus, specific adjustments may be required to adapt one's behavior to particular types of conversations (e.g., regarding the conversational partner or the purpose of the conversation). Figure 1 lists three non-comprehensive, but typical, conversation formats: shared decision-making, handling complaints, and breaking bad news. The specific type of conversation and its goals determine the differential relevance of each competence facet and how it is applied to the situation (Gartmeier et al. 2011). For example, establishing and maintaining a positive relationship with the conversational partner may be more important and challenging in breaking bad news than in amicable shared decision-making conversations. Moreover, these two types of conversations follow different scripts (Baile et al. 2000; Charles et al. 1999). Thus, they impose different demands in terms of structuring the conversation.

The focus in *ProfKom* was on the shared decision-making conversations that frequently occur in medicine and teaching (Aich 2011; Makoul and Clayman 2006). In such conversations, the goal is to reach a mutual decision regarding a problem for which several viable solutions must be weighed up (Charles et al. 1999). This focus on a specific type of conversation helped with the standardization of the SC assessment.

**Fig. 1** Model of professional conversation competence. (Adapted/translated by permission from Springer Nature: Gartmeier et al. 2011)



## Developing Assessment Materials and Administrative Planning

A range of materials must be developed to use SC for assessing communication competence. The main purposes of these materials are to instruct actors and students about the conversation scenario, their roles, and tasks. Moreover, the organization of the assessment has to be clearly planned and scheduled to ensure the smooth flow of participants through the assessment process. These materials and routines will be elaborated below.

*Cases and role instructions for actors and students.* SC assessments require the development of authentic case scenarios in which the conversations are grounded. If such cases are not available, they can be developed based on expert interviews or similar techniques (Gartmeier et al. 2012). Designing the cases requires consideration of their prevalence and importance in the target domain and of the alignment of their difficulty with the participants' level of competence. Expert consultation and consensual validation are valuable tools in this regard. For example, in *ProfKom* case scenarios, the actor and participants' roles were created based on a Delphi study and expert interviews and were optimized through pretesting, expert consultation, and a consensual validation procedure (Wiesbeck 2015). As mentioned, all cases regarded shared decision-making conversations in the relevant domains (e.g., teacher and parent discussing different options for helping a student who recently received bad grades).

Actors need detailed instructions to be able to perform their role in a standardized way across several conversations. Hence, they should receive comprehensive and precise descriptions of their role covering, for example, the personal background

and life circumstances of the person they enact and given insights regarding the hopes, expectations, and ambitions the person brings to the conversation. Actor instruction materials also provide the basis for actor training (see “Actor Training”). For participants, role descriptions can be somewhat shorter. Unlike actors, participants only get to read about their role shortly before the SC. In order to avoid overburdening participants with overly detailed information, these instructions should cover only essential information on basic questions that the participants need to answer to be able to perform (e.g., “What is the scenario?”, “What has already happened so far?”, “What am I expected to achieve?”, etc.) (Khan et al. 2013). In most SC, participants are allowed to take their instruction sheet with them. However, they should not be able to scan these materials constantly during the SC because this decreases the authenticity of the situation.

*Organizational routines.* Since SC is a specific form of OSCEs, existing guidelines on administrative issues also apply (e.g., Harden 1990; Khan et al. 2013). Important issues regarding the organization of SC involve the following: How many SC should each participant complete? How can the timing of actors and participants be managed so that each participant has the same time for conducting the conversation and getting feedback? How can the total time for the assessment, and the individual assessment and waiting times for the participants and actors, be arranged efficiently? How many conference rooms are required, and how do they have to be equipped and set up (e.g., regarding cameras, assistants, and arrangement of furniture)?

In *ProfKom*, each participant conducted two shared decision-making conversations with different actors (one male, one female; randomly assigned to participants). The meetings were organized based on a rotation schedule that minimized waiting times (Wiesbeck 2015; Wiesbeck et al. 2017). Prior to the conversations, the participants received a standardized introduction and two case vignettes and had 20 min to prepare. After the preparation, each participant was assigned a conference room in which the two SC took place successively (i.e., the actors rotated between the conference rooms). Each of the SC lasted for around 10 min. In each room, a trained student assistant was present to conduct the video recording. The procedures also ensured that participants were kept separate from each other until all of them had completed the assessment.

## Selecting or Developing Observable Indicators

A fundamental issue in using SC for assessment involves the definition of specific observations of the participants’ behavior that provide indicators of their demonstrated competence. That is, the competence definition or model must be broken down to a behavioral observation coding rubric (Evertson and Green 1986; Seidel et al. 2005). In medicine, several coding rubrics for assessing conversation quality are available (e.g., EPSCALE; Edgumbe et al. 2012). However, in many cases, such instruments need to be adapted to the assessment’s specific purpose and circumstances (e.g., in terms of domain, competence definition, etc.). Regardless of whether an existing instrument is adapted or a new one is developed, the main challenge is that the coding rubric must define the relevant behaviors or events that are to be observed (including definitions

and anchoring examples). Moreover, the relation of these observations to specific aspects of conversation competence must be clarified, and relevant timeframes for the observations must be set. For example, specific actions may be relevant only at certain times during the conversation (e.g., in the opening phase), while others may need to be screened throughout the conversation for the frequency or duration of their occurrence (e.g., frequency of meta-communication, length of contributions).

Conceptually, two main types of scoring rubrics can be distinguished for this purpose: *checklist scales* and *global rating scales* (Khan et al. 2013). Checklists are behavior-oriented, low-inference instruments that typically feature actions that should (or should not) be performed during the communication task. Such checklist items are low-inference because they refer to directly observable behavior (e.g., gestures). Thus, they require only a minimum amount of judgment on behalf of the observer and are relatively straightforward to rate even for raters with little prior knowledge. Therefore, they tend to have high interrater reliability. In contrast, global rating scales ask observers for the overall judgments of the participants' conversations, which have to be inferred from the observations (e.g., "Shows interest in the perspective of the conversational partner"). Because such rating scales demand a higher level of qualitative judgments by the observers, they require more background knowledge and training (Langer and Schulz von Thun 2007; Seidel et al. 2005). It is also more challenging to attain a high level of interrater reliability with high-inference ratings (Seidel et al. 2005). However, it appears there are some advantages to high-inference rating items in terms of validity (Newble 2004; Regehr et al. 1998), as they often have a more direct relationship to the theoretical construct being measured and, thus, better content validity (Seidel and Prenzel 2010). Moreover, Regehr et al. (1998) hinted at the advantages for predictive validity. For a thorough assessment, it may be helpful to combine high- and low-inference ratings because they serve different and complementary purposes (Newble 2004); low-inference ratings can serve to identify specific elements of a competence that must be demonstrated, while high-inference ratings can provide a measure of process components and a more complex picture (Wiesbeck 2015). Bauer et al. (2018) found that the two types of ratings generally provided a consistent picture of differences in conversation competence but were differentially sensitive to treatment effects.

A related factor is who actually provides the observations. Typical approaches in SC are to use trained observers either in situ during the conversation or post hoc to code videotaped conversations. A third common option is to have the actors provide their observations after the SC. Video-based rating using trained external observers is probably most advantageous for assessment purposes (Chesser et al. 2009; see also "Recruiting and Training of Raters"). For summative assessment and high-stakes individual decision-making (e.g., pass/fail or grading judgments), consistent evaluation is crucial. Wiesbeck et al. (2017) found higher validity coefficients for such ratings compared to actors' ratings or participants' self-ratings. Moreover, unlike in situ observations, videos can be reevaluated if required, and thus their use is less likely to lead to errors. In contrast, the actors' observations may be a valuable source of feedback when the focus of the SC is on formative assessment for supporting students' reflection on their competence development and fostering the learning process

(Cleland et al. 2009). Though there is evidence that actors can provide reliable ratings (Barman 2005; Blake et al. 2006), it seems less advantageous to rely on these ratings as the only source for summative assessment because the dual tasks of acting and observing may interfere with the fidelity and standardization of the SC. This notwithstanding, a combination of observation sources probably provides the richest picture and allows for comparisons of different perspectives. As Schirmer et al. (2005) argue, a combination of ratings by external raters and conversational partners increases the validity of the assessment and adds an important dimension.

In *ProfKom*, a multimethod approach to operationalizing conversation competence was implemented, which combined different types of ratings and different observers (Wiesbeck 2015; Wiesbeck et al. 2017). Based on the model of conversation competence described above, high- and low-inference rating items were developed for the three aspects of conversation competence. These high- and low-inference items tapped into the same underlying constructs, but they did so at analytically different levels (i.e., global quality judgments vs. the assessment of concrete behavior). The choice of indicators was partly inspired by existing instruments from medicine (Edgcumbe et al. 2012), adapted to the cross-domain approach of the project and the specific competence aspects in focus, while the SC videos were coded by trained raters. These external codings provided the primary data source. Additional actor ratings and student self-ratings were gathered directly after each SC. High-inference ratings were used for this purpose because these had to be completed quickly and on the fly after each assessment. These additional data were used primarily for validation (Wiesbeck 2015; Wiesbeck et al. 2017) and feedback.

## Recruiting and Training Simulated Conversation Partners

Implementing a SC assessment requires recruiting a pool of actors and training them thoroughly to achieve the necessary level of standardization. The competence definition, the instructional materials, and the coding rubric provide the basis of this. Cleland et al. (2009) outline four key factors that should be considered when recruiting simulated patients: ability, suitability, conscientiousness, and credibility. These criteria can be applied easily to other domains. That is, the actors should have the *ability* to enact their roles consistently across repeated SC, maintain focus over time, and realize the importance of sticking to the script and guidance provided. *Suitability* refers to their attitudes toward doctors, as well as the reasons motivating them to participate as simulated patients. Actors with an adverse attitude toward doctors could negatively influence the experiences students gain when interacting with patients. *Conscientiousness* means that simulated patients should be dependable. Since the organization of SC is a logistically complex and costly endeavor, irresponsible actor behavior (e.g., not showing up on short notice, careless acting) could incur additional costs and decrease the reliability of the assessments. Finally, the *credibility* of the actors relates to how they match the case requirements. Characteristics that should be considered here are age, language, gender, race/ethnicity, body habitus, findings of physical examinations, and experience with the



illness (Adamo 2003). The decision to hire professional actors or to recruit lay-actors, such as students, relates to these selection criteria. Professional actors typically bring more expertise in acting, and, therefore, it can be assumed they provide a better standardization of performance. Recruiting lay-actors may be less cost-intensive but increases the amount of actor training required.

Though simulated patient training is considered crucial, there is no widely accepted standard for its extent and duration. One way of assessing the sufficiency of training is to test whether a SC partner can maintain a desired level of accuracy in multiple consecutive encounters (Adamo 2003). Since the portrayal of roles may change over time, it is strongly recommended to continually reassess the quality of simulated patients and, if applicable, retrain them. When simulated patients are well trained, they are hardly distinguishable from real patients (Rethans et al. 2007).

In *ProfKom*, six professional actors were hired and trained. The recruitment process took into account the four key characteristics discussed above. Overall, their experience suggested that all of them were able to serve as simulated parents (*ability*). During the recruitment process, they were asked about their motivations for participating (*suitability*) and had to offer assurances that they would be available for all dates on which conversations would take place (*conscientiousness*). Finally, applicants were screened and selected regarding case requirements such as gender, age, demographics, and personal background (*credibility*).

Actor training took place in two groups, each working on specific case vignettes. Training for each case lasted for approximately 2 h. Its first part consisted of a general introduction to the concept and purpose of SC and the responsibilities of being a SC partner. In the second part of the training, the case vignette and specific verbal triggers were discussed in detail and illustrated by video sequences from a pilot study. The divergent and consistent behavior of the simulated parents in the video examples was discussed in the group, and the actors agreed on guidelines for behavior in future conversations. The final part of the training consisted of trial runs. In order to provide a model for the simulated parents, the workshop leader acted out the first trial run; subsequently, each actor performed at least one trial run. The simulated parents were advised to watch each other closely and to adjust their portrayal of the role to match one another. Since the course of the conversations was not entirely predictable, the simulated parents acted out a variety of possible conversational directions and were advised to improvise if something unpredictable happened. It was stressed that the most important point was for them to always stay in character to ensure the authenticity of the situation (i.e., no meta-communication with the participants about the SC was allowed). Moreover, they were warned about the danger of cuing participants, and typical points in the conversation where this might occur were illustrated.

## Recruiting and Training Raters

A key aspect of achieving high-quality SC assessments is selecting appropriately skilled raters and training them thoroughly. Because SC is a form of rater-mediated assessment, particular challenges apply from a psychometric perspective (Engelhard



2002; Furr and Bacharach 2013; Shavelson and Webb 1991). Specifically, measurement errors introduced by the raters should be minimized by rater training and analyzed in the form of interrater reliability (Chesser et al. 2009; Gwet 2014; Lurie et al. 2008). Interrater reliability is a major concern because it is the very basis of building scores from the assessment (see also “Scaling the Data”). As mentioned above, possible raters for SC include external raters such as faculty staff, examiners or experts, the SC partners, or peer students (Each Assessment subgroup 2012). The purpose of the assessment (formative/summative) is essential in choosing whom to recruit. Regardless of the purpose, however, rater training is required to achieve sufficient psychometric quality. According to Wiesbeck (2015), there is no gold standard for rater training; instead, its type and duration depend primarily on the complexity of the coding manual the raters have to apply. As discussed earlier, low-inference coding rubrics (e.g., yes/no checklists or category classification systems) that focus on directly observable behavior are easier to use than high-inference rating scales. Thus, the latter generally require more intensive rater training to achieve reliable and valid results (Newble 2004). Below, we illustrate rater recruitment and training based on the procedures in *ProfKom*. Detailed guidelines for rater training can be found in Wiesbeck (2015) and in the general literature on behavioral observation methods (e.g., Seidel et al. 2005).

In *ProfKom*, a pool of five raters took part in communication training to provide a common prior knowledge base. Subsequently, they completed a 2-day rater training session based on video-recorded SC. The first part of the rater training consisted of six components, including training on core concepts, discrimination, and frequent rater errors (Langer and Schulz von Thun 2007; Seidel et al. 2005; Wirtz and Caspar 2002). In the concept training, the coding manual was introduced conceptually, and the raters had to assign the observed behavior to items and competence levels. Videos were rated jointly until the raters and the two experts had a common theoretical understanding of and between their ratings. During the group discussion, the coding manual was revised slightly. For example, coding rules were differentiated and examples added or modified. In a similar procedure, the discrimination training aimed at distinguishing different levels of performance on the indicators of the coding rubric. After this first part of the rater training, the five potential raters and the two experts coded ten videos in a trial run (approximately 10 h each), establishing good interrater reliability ( $ICC = 0.84$ ) across all seven raters (including the experts) and all items of the coding manual. The raters reached the a priori set cutoff point of  $ICC = 0.60$  for all but two individual items. Moreover, all possible rater pairs met this target. These results indicated that the rater training adequately prepared the raters for the application of the coding manual.

In the second part of the rater training, two selected raters and the two experts discussed the ratings in detail, based on empirical analyses, to fine-tune them. In a first step, the interrater reliability was targeted, with particular emphasis on and discussion of the two items that had insufficient interrater reliability in the trial run. Subsequently, the leniency/strictness of the raters was harmonized through discussion about the means of each rater for each item. Moreover, frequency analyses were employed to ensure that all raters used the entire scale. To calibrate raters further, ratings were again compared to sample solutions.

## Scaling the Data

Once the ratings are complete, a final step in SC assessments is to transform the raw scores into composite performance scores. This should be based on a psychometric model that accommodates the nature of the data (e.g., the indicators' level of measurement) and the assumed dimensional structure of the competence model (Furr and Bacharach 2013). For basic analyses, typical procedures based on classical test theory may be sufficient (given that the raw data have an appropriate level of measurement). For example, based on interrater reliability analyses, classical item analyses can be performed and composite scales can be built. Factor and reliability analyses are important tools for this purpose (Raykov and Marcoulides 2006).

It should be noted, however, that such basic analyses miss some of the complexities of SC assessments. For example, if more than one case scenario is used, the data have a hierarchical structure in which the observations are nested in cases. Hence, differences between the cases provide an additional source of variance that should be controlled. Moreover, such nesting increases the likelihood that independence assumptions inherent in many psychometric models are violated (Raykov and Marcoulides 2006). Indeed, there is evidence that case effects may result in more severe bias than rater inconsistency (Barman 2005; Guiton et al. 2004; Iramaneerat et al. 2008). A simple tool for gauging the size of potential case effects may be prior testing (e.g., using ANOVA) (Wiesbeck 2015). This does not control for the problem, however. More sophisticated options are available, such as generalizability theory analyses (Shavelson and Webb 1991) or specialized latent variable models that account for testlet effects (e.g., bifactor or testlet models; Cai et al. 2011). Item response theory models for rater data, such as many-facet Rasch models (Linacre 1989), additionally can account for rater effects and provide unbiased person estimates (Bond and Fox 2015; Eckes 2015). These more-sophisticated methods involve greater analytic complexity, however, and typically require large sample sizes.

The analyses in *ProfKom* relied on the basic tools mentioned above, partly due to the small sample size (overall  $N = 168$ ). After interrater reliability had been checked (see "Rater Training"), scores were built by averaging items over the two SC per participant. Confirmatory factor analysis indicated that the structure of conversation competence assumed in the *ProfKom* model fitted the data reasonably well (Gartmeier et al. 2015; Wiesbeck 2015). Moreover, reliabilities for the resulting composite scales were in an acceptable range (0.71–0.87) (see Wiesbeck (2015) for analyses of potential case effects).

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## Conclusion

This chapter has outlined the development of SC assessments of professional conversation competence in medicine and teaching. As discussed, SC is probably the most adequate method for this purpose because it combines performance-based measurement in authentic case scenarios with adequate measures to achieve standardization. It is the authors' conviction that there is a broad range of potential applications of SC assessments to any vocational or professional tasks that involve

communication with clients. Since SC is also highly motivating for students and creates effective learning possibilities, educators may also want to establish SC as a standard method of instruction in their curricula. Doing so can contribute to establishing closer connections between professional learning environments and work life (Dotger 2013).

The chapter has also outlined the cornerstones of planning and implementing SC assessments in facilitating their transfer. For reasons of space, additional optional steps, such as providing feedback, were omitted (Cleland et al. 2009; Dotger 2010). Participants typically have a strong interest in receiving feedback on their performance. For this, video-based feedback probably offers the strongest learning benefits (Fukking et al. 2011), although other less demanding methods are certainly applicable.

Among the limitations of SC assessments of communication competence is clearly the fact that the measurement is bound to competence aspects that are either directly observable or that can be reasonably inferred by observation. Additional efforts or other methods are required to measure aspects that are arguably important in communication but less directly visible, such as empathy, experience, or reflection (Hertel 2009). Such characteristics might be elicited in, for example, stimulated recall interviews when watching videos of SC. Moreover, SC assessments are certainly more complex and time and resource intensive than traditional forms of assessment, meaning their benefit needs to be weighed against the costs. However, thorough planning can contribute to optimizing room requirements, actor salaries, and staff and participants' time. Moreover, the case made here is that other methods, such as self-report measures or paper-pencil tests of communication, are clearly inferior in terms of validity (Wiesbeck 2015).

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# Self-Assessment and Self-Reflection to Measure and Improve Self-Regulated Learning in the Workplace

# 75

Mariëtte H. van Loon

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## Abstract

People's self-monitoring of their learning has extensive impact on generating opportunities for professional development. Self-monitoring before, during, and after completing work-related tasks affects decision-making, learning behavior, strategy use, and learning motivation. When self-assessing, a person compares performance against some standard. When self-reflecting, a person makes in-depth judgments about the learning process, motivation, beliefs, plans, and outcomes. Engagement in self-monitoring is a prerequisite for professional development. However, in most work environments, there is only limited

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facilitation of self-monitoring activities. Opportunities for self-assessment and self-reflection may be scarce, because it is complex to define individualized competency standards that match the workplace reality. This chapter describes reasons why it is often challenging for workplace learners to self-monitor their professional development. Then, recommendations to implement and improve self-monitoring activities are described. Development of competencies and learning goals that clarify the needed knowledge, skills, and attitudes can improve self-assessment accuracy. Further, to self-monitor professional development, people should be trained to focus on predictive cues that give indications about actual progress. Because persons remain largely unaware of their biased self-monitoring, they need continued opportunities and repeated feedback. Moreover, to reflect on affective and motivational aspects of workplace-based learning, employees could use learning journals and questionnaires as support tools to evaluate practice and identify areas for development and feedback seeking. Importantly, to stay motivated to self-monitor learning, people need to be informed about the usefulness of metacognitive activities and obtain autonomy to design individual learning trajectories.

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**Keywords**

Self-monitoring · Self-regulated learning · Metacognition · Self-assessment · Self-reflection · Workplace-based learning

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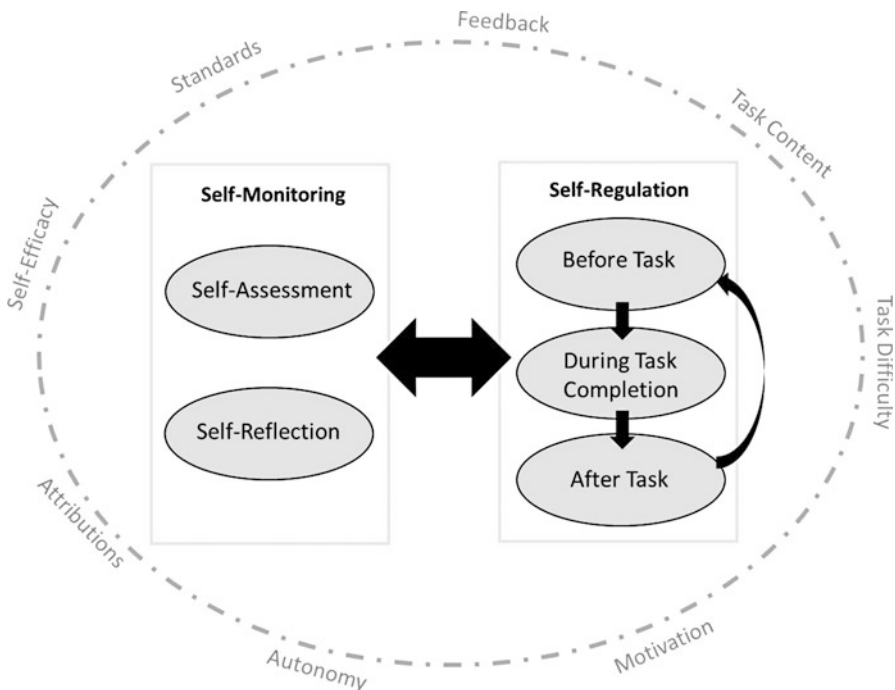
## **Self-Assessment and Self-Reflection to Measure and Improve Self-Regulated Learning in the Workplace**

An extensive part of vocational training takes place in the actual workplace, where learners need to acquire the competencies to become an expert in their profession. Workplace learning is typically informal. It is directed through learners' individual needs and goals, rather than an outlined formal curriculum (Fontana et al. 2015). Professional development takes place through dealing with the demands, opportunities, and limitations of the work context. More often, learning occurs without the learner even being aware of it. Learning opportunities arise when interacting with colleagues and by practicing tasks (Gijbels et al. 2010). To effectively learn in the complex work context, learners have to be self-regulated, that is, taking an active approach to learning and adaptively adjust behavior and strategy use to achieve learning goals (Raemdonck et al. 2008). Learners themselves, rather than supervisors, are responsible for managing professional development. Learning needs to be organized through self-monitoring of the ongoing learning progress, successes, and possible challenges. Further, a learner should reflect on his or her learning attitudes, emotions, and learning motivation. Based on self-monitoring, a person adjusts learning behavior and strategy use to meet personal learning goals and external requirements (Zimmerman 2000).



In other words, in order to effectively learn from workplace opportunities, a person needs to engage in metacognition. The term “metacognition” was first used by Flavell (1976), who described it as “I am engaging in metacognition if I notice that I am having more trouble learning A than B; or if it strikes me that I should double check C before accepting it as a fact” (p. 232). Nelson and Narens (1990) proposed a model of metacognition, explaining that a person’s object-level (actual knowledge and skills) and meta-level (a person’s insight into the object level) are adapted through self-monitoring and self-regulation processes. That is, a person monitors the object level, and self-monitoring then influences a person’s development of knowledge and competencies through self-regulation.

Figure 1 shows the relation between self-monitoring and self-regulation. Zimmerman (2000) proposed a framework to further explain self-regulated learning and the influence of self-monitoring. This model explains self-regulation with processes that start, adjust, and maintain learning. Self-regulated learning consists of three phases: (1) before task completion (forethought phase), the learner sets goals, makes plans, and chooses strategies to reach goals; (2) during task completion (performance phase), a learner works on the learning tasks and self-monitors



**Fig. 1** The interplay between self-monitoring and self-regulation. Self-monitoring consists of self-assessment and self-reflection activities. Self-regulation is cyclical and takes place before, during, and after learning. Further, this figure shows examples of cognitive, metacognitive, and motivational factors affecting self-monitoring and self-regulation

performance by comparing the actual outcomes with the task goals; and (3) after task accomplishment (reflection phase), a learner evaluates whether and how the goals have been attained. It is important to note the cyclical nature of the model of self-regulated learning. During self-regulating learning, a person should continuously engage in self-monitoring, by observing and evaluating the learning process and the outcomes (Eva and Regehr 2007). The output of a learners' self-monitoring is used as a basis to evolve learning through allocation of time to specific tasks and adaptation of strategy use (Panadero and Romero 2014). For instance, a person's goal setting and planning (in the forethought phase) is affected by self-reflections about how the invested effort benefitted performance and whether the used strategies improved goal attainment. Self-monitoring of learning experiences influences the reflection phase after learning by affecting feelings of self-efficacy and motivation.

As shown in Fig. 1, self-regulated learning is affected by a variety of cognitive, metacognitive, and motivational factors (Boekaerts 1999). An effective self-regulated learner selects tasks with an appropriate level of difficulty; tasks should bring opportunities to learn, but at the same time, a person should try to avoid tasks that are too difficult (Metcalf and Kornell 2005). In particular, a students' personal agenda (plans and goals) plays an important role in task selection and the way time is allocated to tasks (Ariel et al. 2009). Moreover, beliefs about self-efficacy, interest in the learning tasks, and outcome expectations have influence on learning decisions and task persistence (Schmitz and Wiese 2006). Attributing learning progress and failures to controllable processes enables the learner to stay motivated when facing challenges and frustration (Cleary and Zimmerman 2004). However, when a learner attributes failures and poor performance to a lack of intellect and ability, this will be motivationally damaging, because it implies that learning efforts to improve performance will not be effective.

Most research addressed self-regulated learning in formal educational contexts. Although workplace learning may not always occur exactly as described by the framework on self-regulated learning, it involves the same phases and a similar need for self-monitoring and self-regulation (Margaryan et al. 2013; Van Eekelen et al. 2005). Because learners need to identify their own learning opportunities in the workplace, the ability to self-monitor and self-regulate learning may even have greater impact in comparison to formal learning contexts. An individual's self-monitoring may be the most important basis for identification of domains for feedback and creation of training opportunities (Freund and Kasten 2012; Zell and Krizan 2014). Active engagement in self-monitoring activities before, during, and after completing work-related tasks is therefore a prerequisite for adaptive adjustment of learning actions and learning motivation (Boud 1995; Panadero et al. 2017; Sadler 1989).

Unfortunately, many learners do not know how to self-monitor their learning, because they are only trained to acquire professional content knowledge and are dependent on their supervisors and colleagues for feedback on competence development and work-related knowledge. Learning cannot be sustainable when learners remain controlled by supervisors. Importantly, effective self-monitoring only improves self-regulation when persons accept responsibility for their long-term professional development (Beck et al. 2013).

The purpose of this chapter is to promote in-depth understanding of self-monitoring in the workplace context. Therefore, the remainder of the chapter is structured as follows: it first describes the measurement of self-monitoring and the match between monitoring judgments and actual learning. Then, after explaining factors hindering self-monitoring, guidelines are given to support trainees and educators improving self-monitoring activities. For consistency, the term self-monitoring is used as an overarching construct to describe one's self-evaluations of professional learning. The term self-assessment will be used when describing a person's quantitative self-monitoring of performance and the comparison of self-observed performance against some standard. The concept of self-reflection refers to either qualitative or quantitative in-depth self-monitoring of the learning process, learning outcomes, and the causes of one's errors or successes.

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## Measuring Monitoring of Learning: Self-Assessment and Self-Reflection

### Measuring Self-Assessment

To self-assess, a learner has to judge the quality of performance before, during, or after executing a task ("Self-Assessment for Learning in Vocational Education and Training" by Panadero et al., this handbook). Self-assessments are made by giving a quantitative judgment about performance. For example, a person could make a judgment about the percentage of correct performance or could self-assess task outcomes with the use of a Likert scale ranging from very insufficient to highly sufficient. In a review, Panadero et al. (2016a) found 20 different categories of self-assessment formats, ranging from simple to complex. An example of a "simple" self-assessment is self-grading completed work. More specifically, in a study by Boud et al. (2013), students had to allocate grades to their completed work prior to receiving instructor grades. More complex forms of self-assessment are, for example, giving ratings for items per task sub-domain with the use of rubrics or completing checklists to assess whether and how sub-steps of the task are completed.

Because self-assessment measures are ratings of performance, the match between self-monitoring and performance can be calculated. Two measures are most commonly reported in literature to measure self-assessment accuracy: correlations between self-assessment and criterion performance and deviations between judgments and performance (Mengelkamp and Bannert 2010). The correlational measure, also referred to as relative accuracy, gives insight into an individual's ability to discriminate between higher and lower performance. Correlations close to +1 indicate a strong match between monitoring and performance, whereas correlations close to 0 indicate that judgments are not related to outcomes. To calculate correlations, the measures of performance and self-assessment do not necessarily need to be measured on the same scale. However, the correlational measure of self-assessment accuracy does not show whether a person over- or underestimated outcomes. To assess to what extent the magnitude of the judgments deviates from actual

performance, absolute accuracy measures are needed. These measures, also referred to as calibration or bias, show whether a person is accurately calibrated, overconfident, or underconfident. Relative and absolute accuracy measures do not necessarily correspond and seem to be based on different self-monitoring processes. For instance, even when an individual can discriminate between tasks for which she/he had high and low performance, this person may still be highly overconfident about the quality of performance (Dunning and Helzer 2014; Van Loon et al. 2013).

## Relating Self-Assessment to Performance

Studies investigating adults' self-assessment show that accuracy ranges from very inaccurate to highly accurate. Most of the studies using measures of absolute accuracy found evidence that self-assessments are biased in the direction of overconfidence (Davis et al. 2006). Several studies on relative accuracy in the field of health professions education found poor correlations between self-assessment and actual performance (Davis et al. 2006). Further, findings by Davis et al. (2006) indicated that physicians who were the least skilled were the most confident.

In an extensive meta-analysis in the domain of law, engineering, counseling, social sciences, and medicine by Falchikov and Boud (1989), correlations between self-assessments and external assessments of performance ranged from no accuracy at all to very high accuracy. In a similar vein, the meta-analysis in the health professions domain by Gordon (1991) showed that relative accuracy ranged from very inaccurate self-assessments to relatively high self-assessment accuracy. A more recent meta-analysis with medical students (Blanch-Hartigan 2011) showed moderate relations between self-assessment and performance. Mabe and West (1982) and Freund and Kasten (2012) conducted meta-analyses on the relation between self-estimated and psychometrically assessed cognitive ability. Both studies concluded that self-estimations were moderately accurate. The few studies showing high self-assessment accuracy may imply that people can have insight into their performance outcomes. However, most studies report low to moderate correlations. In sum, self-assessment accuracy is often poor but also varies as an effect of task conditions and domains.

## Explaining Poor Self-Assessment Accuracy

There are multiple explanations for people's limited self-assessment accuracy. Below, three explanations are further discussed as reasons for low self-assessment accuracy: (a) persons' lack of experiences with learning and self-assessment tasks, (b) a lack of metacognitive insight, and (c) poor design of self-assessment tasks and standards.

Experience with self-assessment affects its accuracy. For instance, medical students' self-assessments were more accurate later in medical school, as opposed to when starting with the education (Blanch-Hartigan 2011). The meta-analysis by Zell

and Krizan (2014) confirmed that the accuracy of self-perceptions improves as experience with the task grows. Moreover, they showed that self-assessments are more accurate for low-complexity than for medium-complexity and high-complexity tasks. A study by Macdonald et al. (2003) extended findings that practice improves self-assessment from the conceptual knowledge domain to the technical skill learning domain. Medical students were trained to perform simulation operation training; repeated task experience led to improvement in self-assessment accuracy and error recognition. Over time, learners' estimates of performance better mirrored their actual learning curves. Presumably, with experience, students become more familiar with the assessment types, and these both accelerate task performance and the ability to judge performance (Boud et al. 2013). Further, accuracy of self-assessment varies according to performance; Boud et al. (2015) showed that weaker students overestimated, whereas high ability students underestimated outcomes. Additionally, students in advanced courses were more likely to underestimate, whereas students in introductory courses overestimated their learning. This indicates that, in addition to experience, a person's knowledge and skills affect the accuracy of people's estimations of their performance. A lack of task skills and task experience makes it very challenging to self-assess.

A second explanation for poor self-assessment accuracy and people's inability to recognize their errors is a lack of metacognitive insight (Ehrlinger and Dunning 2003). The cue-utilization framework (Brunswik 1956; Koriat 1997) has been used to explain poor metacognition. People do not have direct access to the processes that influence their learning. Therefore, they cannot base monitoring judgments on direct insights into performance (Benjamin and Bjork 1996). Instead, metacognitive judgments are inferential, and self-assessment is based on a variety of cues that come to mind when judging performance (Koriat 1997). In order to self-assess, a person needs to rely on cues from a variety of sources, such as prior experience with similar tasks, familiarity with the domain, self-efficacy beliefs, the ease of information processing, and feedback (Freund and Kasten 2012; Rawson and Dunlosky 2002).

Cues have varying degrees of validity in predicting actual performance; accurate self-assessment is guaranteed when judgments are based on cues that have perfect validity (Benjamin and Bjork 1996). However, when self-assessment judgments are based on superficial, rather than valid cues, self-assessment may be poor. Then, subsequent self-regulation cannot be adaptive either. De Bruin et al. (2017) addressed cue utilization in the clinical reasoning domain. Medical experts were shown to use their own slowing down during clinical practice as a cue for processing difficulty. When they monitor difficulties with information processing, they interpret this as a sign to adjust their behavior and a need to search for additional information. However, adaptive utilization of valid cues seems especially difficult for novices, because the slowing down cues are not yet predictive of their performance. Particularly, self-assessments of inexperienced learners may be inaccurate because they have difficulties identifying valid cues.

Effective cue-utilization is especially challenging in the complex workplace, where people need to use and weigh multiple cues to arrive at accurate judgments. Individuals typically believe that they score higher than the average person in their

group, even though this is statistically unlikely, the so-called better than average effect (Guenther and Alicke 2010). Instead of using valid indices of performance, persons may base judgments on cues related to learning motivation and affect, such as one's desire to have flattering self-beliefs and to do better than other trainees (Freund and Kasten 2012; Sitzmann et al. 2010; Zell and Krizan 2014). A meta-analysis on self-assessment in the job-related training context (Sitzmann et al. 2010) showed that self-assessments were more strongly linked to affective evaluation outcomes indicating motivation and satisfaction, rather than cognitive learning outcomes. Even after repeated practice and feedback, self-assessments remained more closely related to motivational factors than to cognitive learning. Interestingly, people seem better able to identify other persons' judgmental biases and invalid cue use than their own biased thinking (Pronin 2008). They often do not realize that their own self-monitoring may be a result of motivational and contextual factors that are not predictive of actual learning (Zell and Krizan 2014).

Furthermore, poor self-assessment could be due to methodological reasons. Self-assessment accuracy may be constrained by the design of the self-assessment task and the measurement items. Self-assessment is typically inaccurate when global measures of perceived ability are used, which are made about a large grain size of the performance domain. For instance, a global judgment could be made by giving oneself a grade. However, when making global judgments, the learner cannot take differences in performance in sub-domains into account. Specific self-perceptions are more accurate than global judgments, because they are better matched to the performance domain and standards (Dunlosky et al. 2005; Zell and Krizan 2014). However, in some domains, matching self-assessment items to performance standards may be easier than in other domains, and this affects the accuracy of self-assessment. For instance, Blanch-Hartigan (2011) showed that medical students overestimated themselves more when self-assessing communication skills than when self-assessing knowledge-based performance. Further, self-assessment was more accurate for knowledge test than when practical skills were tested with clinical examination tests and simulation patient encounters. Moreover, the timing of the self-assessment activity influences accuracy. Self-assessment accuracy is typically lower when students judge performance before or during test completion than after completing tests (Blanch-Hartigan 2011). Additionally, information about the reference group affects self-assessment accuracy. Typically, people's judgments reflect how they think their own abilities compared with abilities of other people (Freund and Kasten 2012). When people are not informed about the reference group they should compare themselves to, validity of self-assessment will be limited.

In the workplace, learning standards and competency frameworks may not always match the reality (Embo et al. 2015). This results not only in unreliable self-assessment but also in unreliable performance measures. Although standardized knowledge tests have measurement errors and unreliability, test reliability is even lower in the workplace learning domain, where learning standards are individualized and learners have to develop competencies in ill-structured and unpredictable domains (Zell and Krizan 2014). When actual performance is measured with extensive measurement error and unreliability, self-assessment can never be highly accurate (Freund and Kasten 2012). In some workplace domains, matching self-

assessments of performance to actual professional development outcomes may not even be possible at all. To support learners in complex workplace domains to develop their self-monitoring skills, there may be a need to encourage reflection on professional development, rather than (only) focusing on self-assessment accuracy.

## Measuring Self-Reflection

Self-monitoring activities are considered most useful when these are used as a part of formative, rather than summative evaluation (Sitzmann et al. 2010). The formative assessment agenda had major influence on the change from a focus on self-assessment to a focus on reflection (Eva and Regehr 2005). Self-reflection refers to self-monitoring learning attitudes and competency development. Although measures of self-reflection may not be easily comparable to measures of performance, a person's judgments about the quality of the learning process may be very helpful to identify learning opportunities (Eva and Regehr 2005). Reflection tools can support students to direct their attention on the observation of their learning and the regulation of learning actions (Fabríz et al. 2014). Open reflection tools suggest persons reflect on their progress without giving strong directions. When using semi-structured tools, learners also give open-ended answers, but they respond to specific reflection questions, guidelines, or prompts. Several studies report the use of learning diaries, learning journals, and portfolios as open or semi-structured tools for self-monitoring (Fabríz et al. 2014; Driessen et al. 2005; Gamrat et al. 2014). These tools can focus the learner on the content (for instance, by prompting them to reflect on what they have learned) and on learning behavior (by asking them to reflect on how they learned). In a study using learning journals for teachers-in-training (Gamrat et al. 2014), the use of a learning journal supported decision-making in relation to professional development. Reflections on learning content and learning assessment supported teachers-in-training to identify and manage their learning goals and to select learning activities and assessment types that aligned with these goals. This way, reflection on learning supported acquisition of specific individual expertise that individuals considered necessary for their personal development plan.

When using structured reflection tools, people usually give quantitative responses on a Likert scale. For structured reflection, questionnaires have been designed that ask learners to reflect on the learning process, outcomes, and motivational factors such as self-efficacy. Examples of structured reflection tools that could be used in the workplace are, for instance, the questionnaire addressing goal orientations by Brett and Van de Walle (1999), engagement in reflection (Kember et al. 2000), and self-directedness in learning (Raemdonck et al. 2008).

## Connecting Self-Reflection to Professional Development

Although self-reflection measures support self-monitoring and self-regulation, these measures should not be used to calculate monitoring accuracy. In contrast to



self-assessment measures, reflection measures cannot be directly compared to learning outcomes. Further, a study by Van Loon and Van de Wiel (2015) showed that structured reflection outcomes did not correlate with item-specific self-assessment accuracy. However, reflective self-reports are extremely valuable, because they can give detailed insights into a learner's self-identified strengths and weaknesses, motivation, attributions, and learning plans. Even though self-reflection accuracy cannot be quantified, when reflections are used as a basis for a discussion between two (or more) persons about experiences, objective external feedback does not seem to be a necessity to acquire perceptions of progress (Frith 2012). Sharing subjective experiences about professional development with others may be sufficient to acquire reliable insights into the learning process. Therefore, work supervisors and colleagues should use a person's reflections to give guidance and formative feedback.

Panadero et al. (2016b) investigated effects of reflection activities on self-regulated learning; to reflect, learners used semi-structured diaries. They had to observe and document their thoughts, feelings, and actions regarding learning goal attainment. Self-reflections appeared to be related to the individual self-regulated learning cycle, and reflection activities improved learning behavior. The learning diaries supported reflection upon what went well and what could be improved. These reflections helped learners to set goals and plan actions in the forethought phase. Moreover, engaging in reflection with the use of diaries benefitted awareness of the components and the importance of effective self-regulated learning (Panadero et al. 2016b; Schmitz and Wiese 2006). Moreover, a study by Gijbels et al. (2010) shows that reflection on learning is related to actual self-regulated learning in the workplace. Students in vocational education filled out questionnaires with which they reflected on their self-directed learning orientations; specifically, they reflected on their active approach to learning, their intentions to take learning initiative, and the way they tried to overcome barriers. Personal reflections on self-directed learning appeared to predict actual work-related learning. This may imply that the content of personal reflections could be valuable to identify areas for supervision.

However, the study by Gijbels et al. (2010) also indicated that average students in the vocational education field do not have much autonomy and job control with regard to selection and execution of work task. They often have little opportunity to make decisions about the nature and the amount of work they complete within a certain period. For adaptive learning, persons need to have intrinsic motivation; without autonomy to define learning goals, plan learning steps, and try out strategies, people are most likely not motivated to reflect on professional development (Ryan and Deci 2017). That is, it makes no sense to ask learners to engage in self-reflection when there are no opportunities to use reflection output for self-regulated learning.

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## **Fostering Self-Monitoring and Self-Regulation of Workplace Learning**

It is clear that workplace learners should self-monitor competency development, because it affects self-regulation and professional learning (Eva and Regehr 2005). When reflecting on learning attitudes, persons who indicated the willingness to



self-direct learning showed better performance in the workplace-learning context (Gijbels et al. 2010). People who are able to accurately self-assess learning improve over time, whereas learners who inaccurately self-assess may not improve at all (Boud et al. 2013). However, self-monitoring opportunities are often not embedded in workplace training. Therefore, people only have limited opportunity to compare their self-monitoring with actual outcomes and to use personal judgments to seek feedback. To support self-monitoring, monitoring activities need to be implemented as a fundamental part of learning. Supervisors will need to talk to learners about the effects of self-monitoring on self-regulation, and even more importantly, they also need to listen to trainees when they talk about their own metacognition. Studies on implementation of metacognition in the learning contexts show that students need prolonged training to practice self-monitoring. Further, learners need feedback to focus attention on valid cues that are indicative of actual competency development. Importantly, to stay motivated to reflect on learning, people need to be informed about the usefulness of metacognitive activities and obtain autonomy to design individual learning trajectories.

### **Training and Practice Benefits Self-Monitoring**

As with any form of expertise, when learning to self-monitor, a person needs continuing opportunities for development, practice, and feedback (Boud et al. 2015). Through practice, persons can learn to judge whether performance is sufficient or whether they need to take further actions to improve. Not only for self-assessment but also when using a more qualitative self-reflection approach, people should be trained on how they can self-monitor. Through experience and repeated support, learners can acquire insight into the learning standards and competencies they are expected to develop, compare these to their own progress, and learn how to take action to close the gap between the two (Sadler 1989; Sitzmann et al. 2010). Importantly, students need support from supervisors, to develop the ability to increasingly engage in more independent self-monitoring. For example, educators could ask people to practice elaborating on their thoughts and feelings before and after learning. Reflection assignments should not only address task performance; learners should also be taught to reflect on learning beliefs and self-efficacy. Rather than reflecting on overall aptitude, workplace learners should be instructed to reflect on their competency development and learning affect in relation to specific performance events (Zimmerman 2008). For instance, they could list challenging situations and reflect on how they dealt with these. To visualize progress, people could be instructed to plot and interpret changes in skill development and learning motivation over time. Although actual, objective change in learning may be hard to depict, plotting change over time may give some quantifiable indications about learners' feelings of progress and abilities.

When training self-assessment and self-reflection, it is important to embed these activities in the learning context, to provide authentic self-monitoring experiences (Sadler 1989). Schmitz and Wiese (2006) connected a reflection training with the learning context; engineering students received a 5-week training to improve

monitoring and self-regulation. They were instructed to use semi-structured diaries for reflection. In the forethought phase, they had to describe their learning goals and planning, motivation, interests, and feelings of self-efficacy. After learning, they reflected on how much time was spent effectively and to what extent they reached the learning standards and their own goals. During the training, they learned how to set learning goals, they practiced planning and time management, and they received training about how to motivate themselves to learn by searching for a supportive environment and by setting personal rewards. The training also focused on concentration and relaxation. After 5 weeks of reflection training, learners showed a higher level of self-efficacy, learning effort, attention, concentration, and motivation.

### **Feedback to Improve Monitoring**

Feedback is essential when learning how to self-monitor (Boud et al. 2015). People remain largely unaware of biases, and they need feedback to learn to recognize these. Feedback can help them to switch to valid cues for judgments, instead of using intuitively appealing non-predictive cues. Supervisors and colleagues are an important source of external feedback; they can support learners to base judgments on valid cues. Self-assessment accuracy improves when the tasks become more familiar, because people acquire more insight into which cues are diagnostic of performance. Self-assessment is particularly challenging when individuals lack task experience, and therefore, feedback is especially needed when completing unfamiliar tasks (Ehrlinger et al. 2008). When working on new tasks, co-workers and supervisors should give feedback on the match between learners' judgments and actual performance. Importantly, feedback should not only address limitations in task performance and self-assessment accuracy but also focus on improvements over time.

In the workplace, feedback on perceived discrepancies between self-monitoring judgments and actual competency development is probably even more important than feedback on performance itself. When persons hold misperceptions, they do not know that there is a need to adjust learning. Sitzmann et al. (2010) showed that self-assessment accuracy in the workplace was highest for learners who had chances to practice self-assessment and received feedback on their self-assessment accuracy. Self-assessments were less accurate for individuals who rated their performance multiple times without receiving feedback. Through repeated self-assessment and feedback, people learned about reasons for their failures and acquire familiarity with strategies they can use to improve learning.

Although the benefits of feedback are well-known (Hattie and Timperley 2007), in the complex workplace practice, feedback may be difficult to obtain (Zell and Krizan 2014). It may be especially challenging to self-monitor and receive feedback on interpersonal skills, communication skills, and professionalism (Davis et al. 2006). A part of a learner's responsibility in the workplace should be to adequately seek help and feedback. To support feedback seeking, learners could be instructed to take the initiative to regularly reflect on their progress in relation to competency

standards and to base their feedback seeking on their reflections. By combining daily reflections with feedback on competencies, learners become better able to evaluate performance and to diagnose their learning needs over time (Embo et al. 2015). However, feedback may not always be considered reliable and objective by the learner, because evaluation of learning standards and outcomes may be unclear. In order to implement feedback in learning, persons need to trust and believe in the feedback (Rich et al. 2017). To make feedback on competency development more objective and trustworthy, it may be beneficial to include multiple raters in the judgment process. In complex learning domains, multisource 360° feedback may be necessary (Davis et al. 2006). Individuals' exchange of authentic professional and personal experience can only be guaranteed when feedback is not expected to be humiliating (Van der Zwet et al. 2014). In some cases, it may be beneficial to engage in peer feedback sessions with co-workers or to exchange feedback with peers who work in different but comparable workplaces. This may ensure learners that feedback is given with the aim to support workplace learning, rather than to express authority and to judge learning. Moreover, learning from feedback may benefit from an intraindividual, as opposed to interindividual comparison process. That is, instead of comparing persons with others, self-monitoring and self-regulation may benefit from comparing one's own performances over time (Boud et al. 2013). For instance, curves could be used that show an individual's longitudinal competency development from the own and from other raters' perspectives.

Interestingly, in addition to using external feedback for improved self-monitoring, learners can also be trained to self-generate feedback (Griffin et al. 2008). Generating internal task feedback helps learners to activate valid cues. Learning happens most when a person is struggling with the material, as long as this is struggling while thinking about and dealing with task challenges, rather than struggling to think and to concentrate (Bjork and Bjork 2011). To improve this "struggling while thinking," learners can use explanatory questioning techniques, such as elaborative interrogation and self-explanation, to acquire insights into their task progress (Roediger and Pyc 2012). During elaborative interrogation, a person asks him-/herself "why" questions, and when engaging in self-explanation, a person tries to explain ideas to oneself when working on tasks. Further, Klein (2007) introduced the premortem technique with the aim to support accurate self-monitoring when dealing with complex decisions. The premortem technique is the counterpart of the postmortem, which refers to a session after a medical failure. During postmortem, the reasons for the failure are discussed with the aim to prevent this in future situations. The premortem is applied before decisions are made and potential errors occur; an individual or a team has to imagine reasons why a project could possibly fail. This way, people do not only need to consider how to plan their projects but also address reasons for potential failures. Hence, they become aware of potential errors and pitfalls, and this may improve planning and self-monitoring. Such elaborative generation strategies make self-monitoring more accurate and enhance self-regulation and performance. However, for most learners in the workplace, using these techniques may not seem attractive because it increases the learning effort and it slows them down. Therefore, supervisors need to inform them about the benefits of

these strategies and provide sufficient time and opportunities to implement exploratory questioning or premortem techniques when completing work assignments.

## **Benefitting Self-Monitoring with Structure and Standards**

The relation between self-monitoring and performance depends extensively on the design of the items that are used to measure monitoring and performance (Zell and Krizan 2014). Using clear self-assessment questions that ask learners to match their judgment to specific performance standards leads to highest accuracy (Dunlosky et al. 2005; Zell and Krizan 2014). When measures of self-assessment and performance are similar, correlations between self-assessment and actual learning are stronger than when measures are less similar (Sitzmann et al. 2010). To improve accuracy, Boud and Soler (2016) recommend to break down self-assessment activities and corresponding assessment tasks into different sub-tasks and sub-domains. To make outcome measures and outcome expectancies transparent, students should be involved in the identification of standards and criteria for success (Boud and Soler 2016). Besides using specific measures for self-assessment and performance, educators should also be aware of the self-assessment timing effects. Preferably, learners should have the opportunity to self-assess after completing the work-related tasks; engaging with the task informs learners about the specific task demands and their progress (Ackerman and Wolman 2007).

Tools such as checklists, questionnaires, and diaries could be used to give structure to reflection activities. Checklists can be designed according to individual learning goals. This way, learners can be supported to self-monitor which tasks have been completed and which tasks are yet open to complete and whether specific competencies have been reached (Gawande 2010). To support learners to self-evaluate the affective and motivational aspects of workplace-based learning, supervisors could provide students with validated questionnaires that assist them to reflect on their motivation and learning initiatives. Further, several studies showed that completing open or semi-structured learning diaries about motivation and learning strategies stimulates self-monitoring (Panadero et al. 2016b). Panadero et al. (2016b) endorse the use of reflection diaries before engaging in learning actions during the forethought phase and after completing learning tasks in the reflection phase. They recommend not to ask learners to complete these when working on actual learning tasks, because cognitive load may then be too high to solve problems and complete a diary simultaneously.

Moreover, to benefit from reflection, learners need to have insight into the learning goals and the competencies they are expected to develop (Harden 2007). Clear communication is necessary to clarify competencies and standards that mirror the knowledge, skills, and attitudes people need to acquire through training (Embo et al. 2015). Clarification of competencies helps learners and their supervisors to monitor progression; a list of competencies can contain both specific and more generic competencies. A first, important step in the supervision process is to design a framework of feasible, realistic competencies that match the workplace reality.

Learners should collaborate with their supervisors and co-workers to develop, fine-tune, and discuss the competency standards and the way these are interpreted. Embo et al. (2015) recommend that only a limited number of relevant competencies should be used for a reflection activity, in order to give sufficient clarity and opportunity for in-depth reflection. In the forethought phase, learners can formulate learning goals in relation to selected competencies. In the reflection phase, learners can address how and to what extent they progress in relation to competency standards. It is important that reflections are repeatedly discussed between learners and their supervisors and/or co-workers, because feedback helps to fine-tune reflections and to set goals for further learning.

### **Providing Autonomy for Self-Regulation**

Asking students to self-monitor can only make sense when students know about the benefits of monitoring and when they have the power to self-regulate their learning. Fabriz et al. (2014) showed that the use of learning diaries did not lead to any improvements in strategy use and self-efficacy when learners were not informed how their self-regulation could benefit from their monitoring activities. Without this information and training, keeping diaries even decreased learning motivation. However, when learners were informed about the benefits of self-monitoring, keeping learning diaries increased motivation. This implies that learners need to acquire insight why and how engaging in self-monitoring can support workplace learning. When individuals do not believe in the benefits, it is unlikely that they will voluntarily self-monitor learning progress. Through gaining understanding of how learning can be self-regulated, people can take greater responsibility for their professional learning and their competency development. Particularly in the workplace, people should learn that they are themselves responsible for their monitoring and regulation of learning, because after completing training, there will be no supervisors who instruct them to evaluate their progress and outcomes (Boud and Soler 2016; Fastré et al. 2013). When training people to become self-regulated learners, first of all, they need to trust that learning is under their own control. Cleary and Zimmerman (2004) refer to this as empowerment, a process by which learners gain autonomy over their learning. Persons need to acquire beliefs that their success is largely dependent on their ability to effectively use and adjust learning strategies. When learners acquire a sense of agency and control, work motivation and perceptions of self-efficacy increase.

However, although the urgency of empowerment and self-control is clear in theory, the fit between the psychological needs for and actual educational affordances may be limited in the workplace. Trainees may not be provided with sufficient opportunities for autonomy and may lack the support to grow in independence. People often feel evaluative pressure and control (through punishment but also through rewards) from their supervisors and co-workers. When people experience a lack of control, they may not be motivated to self-monitor their learning progress, and this then hinders flexible problem-solving, strategy use, and

performance (Ryan and Deci 2017). The degree to which workplace educators support a learner's autonomy is predictive of learning engagement and outcomes (Gagné and Deci 2005). Workplace learners acquire new skills best when they have the sense of control and when they can make their own decisions and have the opportunity to try out different ways of solving problems (Gijbels et al. 2010). Gamrat et al. (2014) provided teachers-in-training with the possibility to flexibly select their professional development activities and the way they were assessed. Through acquiring self-control over their learning journey, teachers-in-training felt supported and motivated to self-monitor their learning, to set individual learning goals, and to select learning activities to meet these goals. This indicates that reflection on learning is only beneficial when learners have sufficient autonomy to implement their self-insights into their self-regulated learning. Supervisors should therefore facilitate trainees to take control and to make choices.

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## Conclusions

Self-monitoring is essential in all phases of self-regulated learning. In the forethought phase, self-monitoring affects planning and goal setting. During ongoing task completion, persons need to self-monitor to adjust their task performance. After engaging in work-related activities, people need to reflect on the behavioral and motivational aspects of learning to regulate their further learning activities.

Self-monitoring may often be challenging, and in most work environments, facilitation of self-monitoring activities is limited. Workplace learning is often complex, because learners have individual learning trajectories, because competencies and desired outcomes are often not clearly defined, and because learners have to self-organize their competency development and combine information from different sources for professional learning. However, considering the need for self-monitoring in order to self-regulate learning, workplace education should not only focus on teaching "what" to learn but also focus on teaching "how" to learn. Training self-regulated learning competence and lifelong learning should be a priority.

To benefit from both quantitative and qualitative self-monitoring activities, supervisors and educators should inform learners about the formats and tools they can use to self-assess and self-reflect. When training self-monitoring in the workplace, learners need repeated experience and practice with self-monitoring activities. Monitoring needs to be structured according to clear and specific learning standards, comparison groups, and competency frameworks. When aiming for accurate self-monitoring, people should be recommended to self-assess their past performance, rather than future performance. The importance of feedback should not be underestimated; ideally, feedback should give individuals a sense of their improvements in performance and in self-monitoring over time. Importantly, self-monitoring activities have to be integrated within the scope of self-regulated learning. People can only be motivated to self-monitor workplace-based learning when they believe in the benefits and when they accept the responsibility and acquire the autonomy to self-regulate their learning.

Although several studies investigated self-assessment accuracy when individuals completed tests for knowledge and conceptual understanding, not much research addressed self-monitoring in the workplace. An unknown area in research is how self-assessment and self-reflection tasks and tools can be most beneficial when learners need to develop competences in complex and unpredictable work domains. Self-monitoring clearly has strong implications for the learning process and the learning outcomes. Therefore, understanding how people use their self-monitoring of professional development to make and adapt strategies and decisions should be a major priority for future investigation.

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# Electronic Portfolios Enhanced with Learning Analytics at the Workplace

# 76

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## Abstract

During workplace-based learning, e.g., clinical or during an internship, supervisors' quality of feedback and assessment is crucial for trainees' expertise development. Electronic portfolios (ePortfolios) are often used as tools for longitudinal assessment at the workplace. So far, ePortfolios have not realized their full potential, since they are often not well tailored to the workplace and trainees' needs. Potential data about trainees' behavior at the workplace is generally underused, and the management of the data is complex. It is expected that ePortfolios enhanced with learning analytics may serve as means to improve

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the quality of feedback and assessment regarding trainees' progress and development. This chapter addresses this by outlining an approach that is applied in a European 7th framework project ([www.project-WatchMe.eu](http://www.project-WatchMe.eu)).

This chapter shows the development of an ePortfolio environment enhanced with learning analytics, to be used at the workplace in medical, veterinary, and teacher education. Evaluation took place by means of a quasi-experimental design regarding the impact of this environment on trainees' motivation, their assessment experience, and their use. Data gathered in four institutes for medical, veterinary, and teacher education ( $n = 217$ ) showed that trainees were highly motivated for their internships and positively evaluated the perceived feedback. The use of learning analytics features varied. In general visual feedback by means of a timeline of trainees' progress was mostly used, while trainees barely used the features with written feedback. It is concluded that the promise of learning analytics connected to ePortfolios can only be fulfilled when developed and implemented through the eyes of the users.

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**Keywords**

ePortfolio · Learning analytics · Workplace · Feedback

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## Introduction

Work in professions is increasingly driven by reflection, feedback, and collaboration with a decline in the number of desk workers and a rise in flexi-workers who tend to work at multiple locations. This urges the need for learning data, feedback, and visualizations to be made accessible anywhere at any time through mobile devices. Furthermore, there is an augmented need for accountability and certification in most professions, which has led to a compelling need for valid authentic assessments. Recent growth in the use of electronic portfolio environments (ePortfolios) and the increasing use of mobile devices (e.g., tablets and smartphones) at the workplace have further stimulated the demand for an advanced ePortfolio environment based on learning analytics. ePortfolios are purposeful digital collections of a learner's work, including their reflections, that provide evidence for their performance and progress (Butler 2006; Rezgui et al. 2014). They demand a learner's reflection on personal data and progress within the social cultural work context of the learner (Butler 2006; Dysth and Engelsen 2011). Learning analytics is defined as the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purpose of understanding and optimizing learning (Elias 2011). Learning analytics can add to ePortfolios the modeling of learners' expertise development in order to provide automated feedback, intervene during learning processes (e.g., by sending alerts), recommend tutoring, and so on.

Meanwhile, learning in professions is shifting from an educational setting to a workplace setting, both within and outside schools (Billet 2004). Learning at the workplace is domain specific and includes an adaptation to constantly changing task demands (Feltovich et al. 2006). A concept that is important for understanding and

explaining the development of expertise in professions is deliberate practice. Core assumptions of deliberate practice are that expert performance is being acquired gradually and that effective improvement of performance requires the opportunity to find suitable training tasks that the performer can master sequentially (Ericsson et al. 2006). Key to deliberate practice is frequent feedback based on adequate analyses and evaluations of how tasks at the workplace are fulfilled. Although the concept of deliberate practice is less applicable to complex professional contexts without standardized tasks, such as teaching (Ericsson and Pool 2016), it emphasizes the importance of feedback and assessment on activities of (becoming) professionals as the most powerful sources for learning at the workplace.

Workplace-based feedback and assessment demands valid ways of dealing with unique (personal) multimodal data from a variety of sources gathered at unstandardized work contexts, over a longer timespan. Effective feedback provides learners with (1) insight into obtained performances compared to an expected norm, (2) the possibility to evaluate and monitor the own process, and (3) suggestions to bridge the gap between the expected norm and the actual performance (Sadler 2010). Feedback can support learners' development when it gives information about the goals the learners strive for, the progress that they made toward these goals, and the actions and practices to be undertaken for further improvement (Hattie and Timperley 2007). Essentially, this demands a process of drawing inferences about learners' performance and progress and feed this back, based on multisource datapoints in time (Toulmin 2003; Kane 1992).

To this end, since the 1990s ePortfolios are often used as tools to collect data and evidence about learners' development at the workplace. They include authentic products and performances, which are often seen as prerequisite for a valid assessment (Eynon et al. 2014; Peacock et al. 2011). ePortfolios can provide a supervisor with a timely overview, regardless of one's location, of learners' work over a larger timespan. They can serve as a reflective "log" of the learner including a repository of evidence demonstrating personal progress and performance (Van der Schaaf et al. 2008). ePortfolios can be used for formative goals, e.g., in terms of a developmental portfolio or reflective portfolio, or for summative purposes, e.g., a showcase portfolio. Formative assessment goals focus on providing input to a learner's further development. Summative purposes strive for high-stake consequences, such as graduation or merit pay. To fulfill ePortfolios' promises, a reflective pedagogy is needed to stimulate learners to compose a portfolio and to use it in conversations with peers and supervisors (Barbera 2009; Hamp-Lyons and Condon 2000; Van der Schaaf et al. 2012). The implementation of ePortfolios is often challenging, due to data management and implementation problems (Van Schaik et al. 2013). Consequently, potential data about learners' development in the workplace is often underused.

This chapter presents examples and experiences from a European project that aimed to improve the efficiency and quality of workplace-based feedback and assessment by means of learning analytics that is added to an existing ePortfolio environment. The project focused on the professions of medicine, veterinary medicine, and teaching, because in these domains, workplace-based learning has a central role.

## Background: ePortfolios and Learning Analytics

From a technical perspective, ePortfolios include (i) the storage of learners' artifacts or evidence (i.e., their asset repository), (ii) a presentation space where the learner can present him or herself in relation to the learning goals needed to be achieved and based on artifacts selected from the asset repository, and (iii) a feedback and reflection space where the learner and others can comment on the development or work delivered by the learner. Most ePortfolio environments include tools and services on top of this basic system, for instance, providing visualizations of a learners' progress, planning tools, or tools to include or add files as an input to other external systems (e.g., student information management systems). An ePortfolio's evidence can, for instance, include artifacts (regular products of a learner's work), reproductions (registrations of a learner's regular work, captured on behalf of the portfolio), attestations (records of a work made by others), or productions (documents prepared specially for the portfolio) (Barrett 1998; Van der Schaaf et al. 2008). An extensive amount of entrepreneurial ventures provides ePortfolio environments, stand alone or web-based. Besides, many organizations use existing digital systems that include tools with the potential for learners to capture and present evidence about their expertise development and to build an ePortfolio from that. Some examples are existing functionalities in learning management systems, web tools, tools in Blackboard, Wiki portal, PebblePad, OneNote, Microsoft Office, WordPress, and Webfolio.

Although the use of ePortfolios is widespread, the effects of ePortfolios on learners' performance are unclear and depend on how (well) the ePortfolio is used (Bryant and Chittum 2013; Eynon et al. 2014; Kennelly et al. 2016). In the last years, there has been an increase in efforts and evidence that support the promise of ePortfolios to impact on student learning and student success. Examples are shown in the *Handbook of Research on ePortfolios* (Jafari and Kaufman 2006) and the *International Journal of ePortfolio*, as well as the launch of ePortfolios as the 11th High-Impact Practice by the Association of American Colleges and Universities. Recently, several initiatives to improve ePortfolio assessment show promising results for feedback and assessment in terms of flexibility, interaction, and immediacy (e.g., Warren Lee Najmi 2014; Doyle Garrett and Currie 2014).

An upcoming approach in ePortfolio research is to connect ePortfolio environments to learning analytics to improve the efficiency and quality of workplace-based feedback and assessment. A main aim of learning analytics is to provide timely and relevant feedback to learners regarding their progress and learning (Siemens and Gašević 2012). Connecting learning analytics to ePortfolios parallels the so-called content analytics: "Automated methods for examining, evaluating, indexing, filtering, recommending, and visualizing different forms of digital learning content, regardless of its producer (e.g., instructor, student) with the goal of understanding learning activities and improving educational practice and research" (Kovanović et al. 2015, p. 78). Content analytics implies a human process of capturing a learner's performance and products to produce data that can be used

to make inferences linked to evidence that support claims about learners' expertise. An example of an inference is that data about the learners' performances need to be linked to assessment and feedback scores. This demands the alignment of a statistical model with a substantive theory regarding expertise development in the profession.

Today's leading approach of assessments based on multimodal data is Mislevy's evidence-centered design (Mislevy et al. 2012). Inspired by Toulmin's (2003) argument-based approach, Mislevy provides an architecture for the (re)design of assessments consisting of the components: (1) domain model, (2) task model, (3) evidence model, and (4) presentation. Between the components an assembly phase is centered that connects all components. The components are strongly linked. Validity evidence is needed for each component, the links between the components, as well as for the whole design (evaluation). The *domain model* determines the constructs to be measured (e.g., trainees' expertise) and describes how the constructs develop. The *task model* involves the choice of essential tasks (e.g., developing a lesson plan) and the exact key environment (e.g., classroom) needed to get information about the constructs (e.g., trainees' expertise). It also contains specifications of the type of ePortfolio environment and learning analytics required, for example, characteristics of the stimulus material (type of artifacts to be gathered), given instructions, affordances, etc. The *evidence model* focuses on the question: What counts as evidence of learners' expertise and how do we interpret this evidence? In this phase, learners' scores and interaction with the ePortfolio environment are analyzed for psychometric quality (e.g., validity and reliability) and usability (e.g., mouse clicks, time spent on certain features in the display). This data can be used to determine whether and to what extent the existing scoring rules and features of the ePortfolio environment should be adjusted. The ePortfolio environment including learning analytics will be finalized in its *presentation* form. During the whole design process, a close cooperation between educational specialists and computer scientists is key in order to obtain effective solutions. Next, evaluation of the implemented prototype needs to be carried out. Below are the components that were followed in the project that is central in this chapter. The components can be seen as an example of how to connect learning analytics to an ePortfolio environment.

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### **Component 1: Domain Modeling – Entrustable Professional Activities as Units of Professional Practice**

The development cycle starts by gathering the necessary information from educational theories, research, and specialists into the development of learners' expertise at the workplace. Learning at the workplace is domain specific. In the past decades, competency-based frameworks were designed to restore the quality and structure of workplace-based education. The frameworks generally related to a competency-based approach, describing the knowledge, skills, and attitudes of professionals,

needed to carry out specific professional tasks. Examples of such frameworks are the Canadian CanMEDS framework in medicine (Frank 2005), the VetPro competency framework for the veterinarian domain (Royal College of Veterinary Surgeons 2014), and national teaching standards in many European countries.

So far, the concept of competencies has met with mixed success. This is partly due to unclarity of the concept and its operationalization of the concept in long (analytical) lists of subcompetencies. Essentially it is important to bring the concept of competencies back to the primary process of work of professionals (Mulder 2014). According to this idea, in 2005, the concept of Entrustable Professional Activities (EPAs), i.e., tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once sufficient specific competency is obtained, was designed to link competencies to performances in the medical workplace (Ten Cate 2005). The focus of EPAs is not only about the evaluation of a learner's ability but implies an estimation of how much supervision a learner needs at the workplace, i.e., how autonomously the learner can carry out professional tasks. A crucial underlying question regarding EPAs is: would I entrust this trainee unsupervised with this task (e.g., with my sick mother) or, in teacher education, with teaching my daughter or son? Examples of EPAs are conducting patient handovers; anesthetic management of a patient; conducting a normal, low-risk delivery; and interviewing adolescents regarding high-risk health behavior. Levels of entrustment that go with EPAs are: acting is not allowed, more observation is needed (*low level*), and up to acting is allowed "unsupervised": under clinical oversight, distant/backstage supervision, or post hoc report (*high level*) (Ten Cate 2005). Originated in medical education, EPAs have now been applied also in allied health programs (e.g., nursing, physician assistant education, midwifery) and other programs. In teacher education the concept of EPAs comes close to the concept of Core Practices, i.e., the most crucial professional activities of a teacher's daily work (Grossman et al. 2009). In this chapter we use the word Core Activities instead, to describe teachers' work in practice.

The internationally emerging concept of EPAs is fundamental to define the criteria for workplace-based feedback and assessment. In the project underlying this chapter, a series of Delphi studies and focus groups was carried out to collect data among experts and trainees for health professions education and for teacher education to develop ready-to-use EPAs and Core Activities (Wisman-Zwarter et al. 2016; Duijn et al. 2017; Jonker et al. 2015; Leijen et al. 2017). These were described in rubrics to be useful for assessment purposes. A rubric is a description of aspects of work with associated performance level descriptions (Dekker-Groen et al. 2012). The development of rubrics showed clear differences in context and methodology between different professions. For instance, the healthcare context (medical and veterinary) is characterized by a large variety of short encounters between trainees and various supervisors and other healthcare staff. The teacher education context shows both a longer encounter with single supervisors (e.g., when a lesson is observed) and some professional activities that take place outside any observation (e.g., preparation for lessons, developing assignments, assessing students' work).



## Component 2: Task Model – Information Sources to Provide Evidence for Entrustability

The task model regarding relevant information sources at the workplace that provide evidence for a trainee’s EPAs and Core Activities was developed. Those aim to serve the purpose of feedback to trainees and support for entrustment or proficiency decisions. Based on literature reviews and research among experts and stakeholders (Ten Cate et al. 2015; Leijen et al. 2017), the project shows that the most relevant information sources for trainees’ progression in workplaces can be grouped into prior credentials, knowledge and skills tests in workplace settings, short practice observations, longitudinal practice observations, case-based discussion, product evaluation, self-report, and post hoc result checks. The EPA approach and the way of finding correct information sources are both described in a feasible guide (see Ten Cate et al. (2015)).

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## Component 3: Evidence Model – Development of a Student Model-Driven Probabilistic Approach

Third, the developed EPAs and selected information sources, combined with technical considerations such as scalability, formed the input for the development of student models based on a probabilistic approach (Van der Schaaf et al. 2017). Decisions on entrustability or proficiency levels for activities were made on the basis of a set of workplace-based assessments, including written narrative information, e.g., written feedback by a supervisor. The underlying student model module advices on the following criteria:

1. Estimation of entrustability: What is currently the most likely level of entrustability or proficiency for this trainee, given the information in the portfolio? The answer to this question can be provided in terms of a probability distribution regarding the levels of that EPA or Core Activity given the current evidence:

$$P(\text{level } x \text{ for EPA} \mid \text{current evidence in portfolio})$$

2. Selection of improvement feedback: What feedback should be selected to give to the trainee, given his EPA or task level?
3. Selection of topic of interest: What EPA or Core Activity is at the moment the most of interest for a trainee and supervisor?

The UnBBayes library and the OpeNER Natural Language Processing toolkit were used for this purpose. A Multi-entity Bayesian Network approach (MEBN) (Laskey 2008) allowed building flexible student models that learn from incoming evidence. These models can be individualized but at the same time can be dealt with on a large scale with many concurrent trainees using the online environment. The MEBNs include five modules, namely, the:

- (a) Evidence collector: this interprets the individual pieces of (possible written) evidence or information about a trainee and translates it into more abstract and general terms.
- (b) Core student model: translates the portfolio and assessment data into the progress state of the trainee.
- (c) Context modeler: this describes the actual context for a given trainee, including models for the actual supervisors, assessors, and peers.
- (d) Feedback producer: this module must decide on whether feedback is required and, if yes, which feedback.
- (e) Aggregator: this part should be able to produce numerical data that can be visualized, together with data directly derived from the portfolio database.

These different parts of the student model have to work in close cooperation. They all consist of logical and probabilistic rules. The evidence collector consists of rules that decide, for instance, to translate written feedback that contains words like “excellent” and “well done” into the observation that “this feedback was positive with 80% of chance.” The context modeler uses the context information from the portfolio (e.g., information about the workplace, the supervisors, the tasks) and translates it into an observation such as “the assessment was done in a difficult setting with 60% of chance.” The core student model translates above statements and additional information from the portfolio into statements such as “this trainee is probably (>70%) at the highest entrustability level for this EPA.” The feedback producer takes output from the core model, the feedback, and input from the user to produce a statement like “it is probably wise (chance of 90%) to point the trainee at this moment to his lacking procedural skills in this EPA.” Such a statement would then result in a message to the user, for instance, visualized in a graph. The last part of the model, the aggregator, consists of the probabilistic knowledge in all other parts of the model, combined with aggregated data from the ePortfolio system. It might contain rules on how to select the best data to represent for a given situation.

Before a student model can be developed, different questions have to be answered among the users. Examples of questions are: When does a trainee require feedback? How do trainees perceive feedback? What kind of diagnoses are used by a supervisor to determine that a trainee requires feedback and what type of information sources are useful to make entrustment decision about critical responsibilities for trainees? Trainee’s motivation, self-regulation, and previous assessments are important in this regard. What timing of feedback is useful?

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#### **Component 4: Presentation Model – Development of Written and Visual Feedback**

The presentation model addresses the written and visual feedback to be provided to trainees as well as their supervisors. Again, taking the requirements and specification as a starting point, this phase will develop the just-in-time feedback and visualization modules ready for integration into the ePortfolio system. In the project, Bayesian

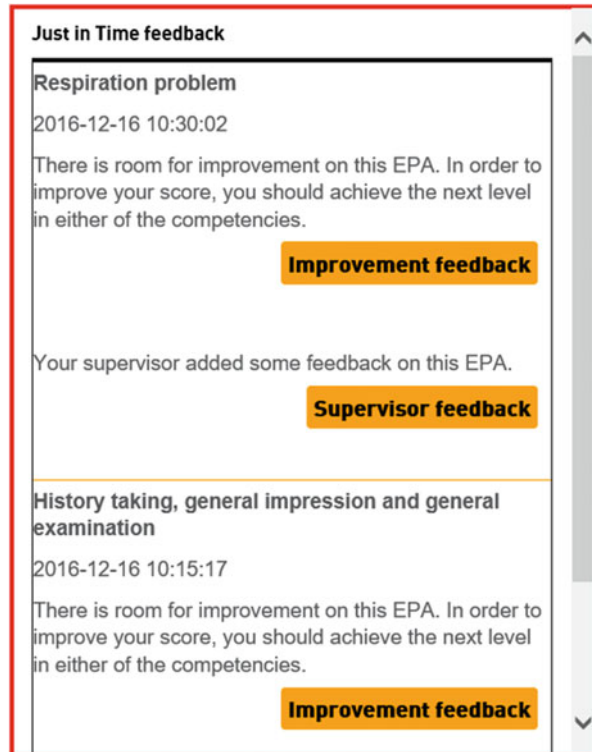
student models that are probabilistic in nature translate incoming ePortfolio data to represent progress states of the trainee in order to provide the most relevant feedback message to the trainee at any given moment. More specifically, the ePortfolio environment is enhanced with a Bayesian student model software module to monitor trainees' development on professional tasks, including a feedback module that delivers quantitative and written personalized feedback (denoted as "just-in-time" feedback, or JIT) and a visualization module that visualizes the feedback in terms of progress in the display (denoted as "visualization" or VIZ) (Van der Schaaf et al. 2017). The development of a feedback and visualization module demands input from the users on at least the following questions: What is feedback according to the users? What would trainees and supervisors like to see in the progress of learning of a trainee on the short and on the long term? What kind of feedback do they prefer, with what graphically display? With what frequency is feedback typically given and received? What are the time constraints for giving and receiving feedback? Where does the activity that must be assessed take place? Where is assessment performed? What kinds of devices are available when assessment is performed and received?

## Written Feedback

The developed system has a written feedback option that gives written personalized feedback to users. Besides the fact that supervisors or peers can write feedback in a trainee's portfolio, the project experimented with a natural language processor (NLP) that automatically identified and produced feedback messages to trainees or their supervisors based on incoming data. NLP tools aim to automatically interpret human language and their availability increased since the mid-1990s (Jarafsky and Martin 2008; McNamara et al. 2017). Based on the estimated performance scores in trainees' portfolios, *improvement feedback messages* are defined based on the rubrics that are underlying the system. For instance, when an estimated score of a trainee is near to entrustable level 2, the trainee will automatically get advice of actions that he or she can take to develop to level 3. This also counts for the other levels. The automatic feedback is defined beforehand by teams of domain experts that described many suggestions for what trainees can do to develop to a next level.

The student model module is used to decide which, if any, of the available improvement feedback messages should be selected from the underlying rubric for presentation to the trainee. The maximum probability is selected by the student model module for each EPA or Core Activity, and the trainee is given one improvement strategy for each plus supervisor feedback, if the supervisor gave any. See Fig. 1 for an example. The written feedback section on the dashboard in the ePortfolio environment is useful as it shows the available feedback of the most recent EPAs and Core Activities, aggregated in one overview. The trainee can quickly see what needs attention, and there is no need to scroll through the whole portfolio to get these insights.

**Fig. 1** Example of JIT feedback, regarding supervisor and improvement feedback displayed on the dashboard in a trainee's ePortfolio



Supervisors receive alerts, displayed as text messages. For each trainee who has at least one alert triggered, a button to navigate to his or her portfolio is available. Supervisors will see a list of trainees to whom they ought to pay special attention. From this, the supervisor can go to a trainee's portfolio to understand in detail the reasons behind the JIT message. Figure 2 shows an example.

## Visual Feedback

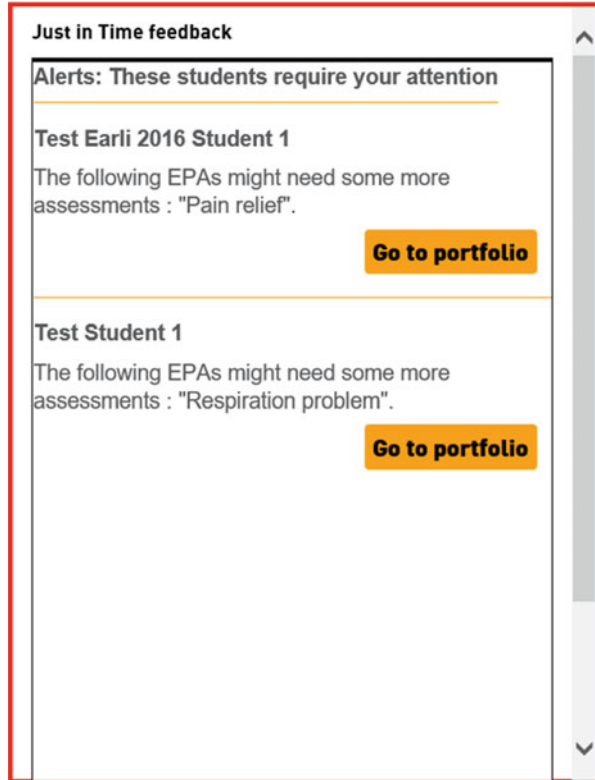
Trainees' progress is visualized in several ways, based on stakeholders' wishes in the project. Below some examples are shown.

*Timeline.* The timeline visualization provides an overview of a trainee's time-based development, using assessment forms as benchmarks (Fig. 3). It is interesting for users to track their development over time as they improve.

The dots in the timeline display the actual score for a trainee at a certain EPA or Core Activity. Inside the visualization, the user can:

- Hover on an assessment dot to see a summary of the assessment form in a pop-up box.
- Click on an assessment dot to see a written message from the assessment of that EPA or Core Activity in a pop-up box.

**Fig. 2** Example of written alerts to supervisors



- Go to a particular assessment form by clicking on the relevant button inside the pop-up box.
- Click on an EPA or Core Activity or on the legend explanation below to navigate to a timeline view of his or her development.
- Zoom in and out to see a longer or shorter period of time in the timeline, or use the dropdown list of preset time periods.
- A text analysis system that handles supervisor's written feedback, by recognition of positive, neutral, or negative elements and feedback this back "automatically" to trainees (see Fig. 4).

*Current performance.* The current performance visualization aimed to give the trainee an idea of where they are right now on their EPAs or Core Activities. It used the most recent scores for each EPA or Core Activity to show the user a contemporary picture of their performance. Current performance consists of two different visualizations presenting the same data: the spider diagram and the bar chart (see Fig. 5).

*Supervisor view.* Supervisors often supervise several trainees at a time. They will therefore benefit from an easy overview informing them, which trainees require attention. In order to fulfill this need, the project developed a specific



Fig. 3 Example of a timeline visualization

supervisor view in the shape of a timeline. The supervisor view comprises development curves for all the supervisor’s trainees in a single timeline visualization. In this visualization, a supervisor sees a timeline with graphs for each of their trainees. The graphs are generated by aggregating the trainees’ scores on different EPAs or Core Activities over time. This illustrates for the supervisor the approximated performance of each trainee (see Fig. 6).

### Component 5: Evaluation

The context of the evaluation concerned internships that trainees in the professions of medical, veterinary, and teacher education had to fulfill during a few weeks. It was assumed that ePortfolios enhanced with learning analytics functionalities contribute to motivation and feedback perception of trainees, because feedback can be provided more timely and personalized. A quasi-experimental study among 217 trainees of 4 institutes for professional education in 2 countries (the Netherlands and Estonia) was conducted to find out whether the ePortfolio with learning analytics impacted positively on trainees’ motivation for their internship, their assessment experience, and their use of the ePortfolio system. Data was collected at one institute for medical

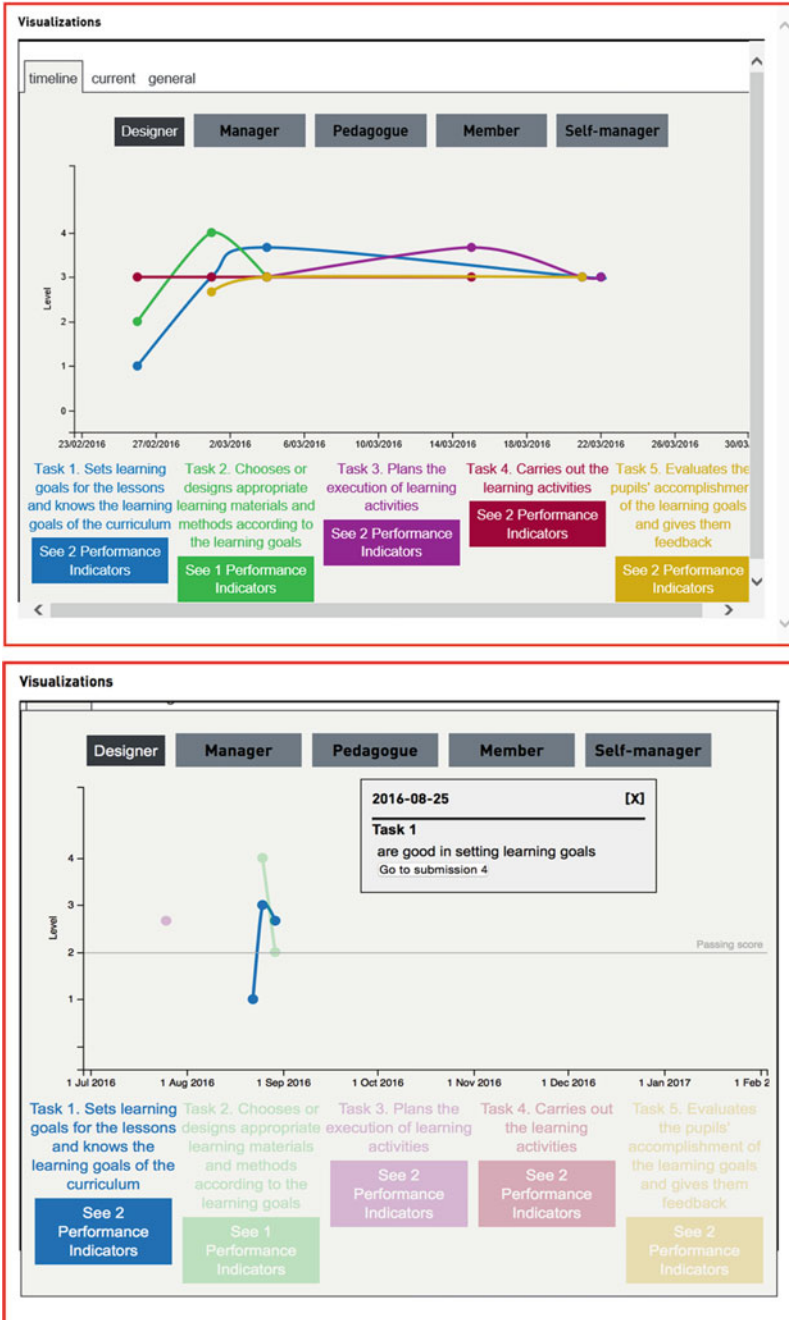


Fig. 4 Timeline with written feedback

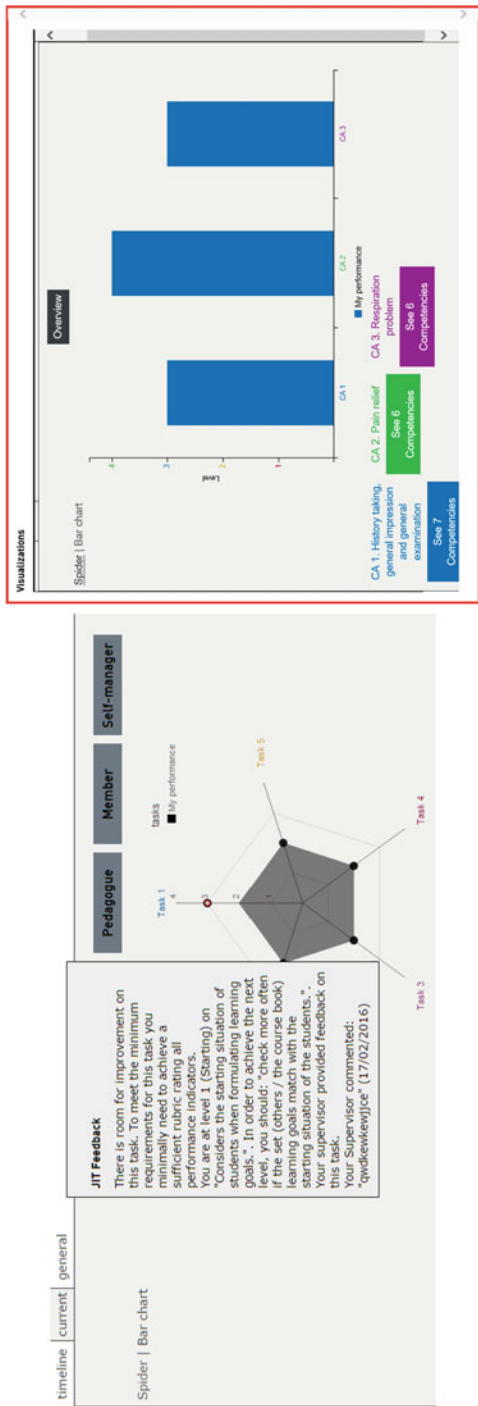


Fig. 5 Interaction with the spider diagram (left panel) or bar chart (right panel) reveals written feedback



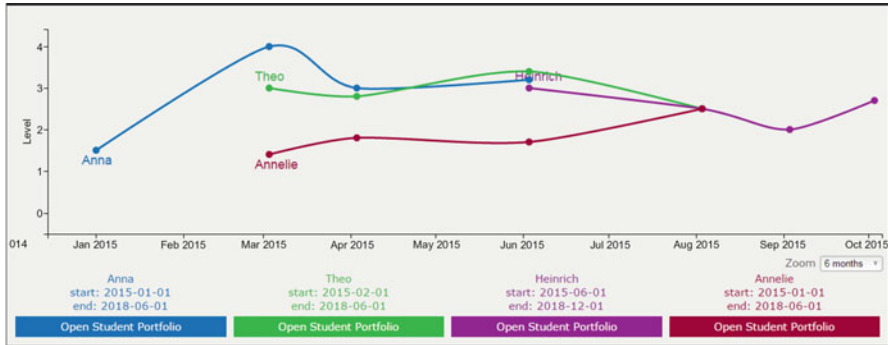


Fig. 6 Supervisor view

Table 1 Trainees’ use of written feedback (JIT) and visualizations (VIZ)

	n trainees that used the feature	Total n mouse clicks	Total time spent (minutes)
JIT, written feedback: improvement feedback, supervisor feedback	47	62	2037
VIZ, visualizations: timeline, performance, bar and spider chart	147	1949	8984

education (Utrecht, the Netherlands  $n = 56$ ), one institute from veterinary education (Utrecht, the Netherlands,  $n = 34$ ), and two institutes from teacher education (Utrecht, the Netherlands,  $n = 66$ ; Tartu, Estonia,  $n = 61$ ). Data was collected by questionnaires as well as by analyses of logs, i.e., amount of mouse clicks and time spent on written feedback (JIT) and visualization (VIZ) features in the ePortfolio environment. The questionnaires measured aspects of motivation (Ryan and Deci 2000) and assessment experience (Gibbs and Simpson 2003). Log files of trainees’ “mouse clicks” and time spent on the feedback features as presented in the former section were gathered to get insight into trainees’ use of the ePortfolio (Agudo-Peregrina Iglesias-Pradas conde-González and Hernández-García 2014).

Regarding trainees’ *motivation* for their internship, it turned out that trainees’ scores in the motivation questionnaire were rather high (at average around 3.5 on a 5-point scale) and that there were no differences between groups, indicating that their basic needs are mostly satisfied. This was also counted for trainees’ *assessment experience*.

In total mouse clicks and time spent on features were registered from 201 trainees (61 medical, 45 veterinary, 95 teacher education). Although the feature *timeline* had high numbers of visits and clicks, this did not count for the bar chart and spider chart. Almost none of the students clicked on this feature (Table 1).

In general, the students did not *use* the learning analytics modules as much as expected, or even if these features were used, students did not spend much time on looking at the represented content. Comparing the use of the two learning analytics

applications, i.e., the JIT with written feedback and the VIZ with visualizations, it can be concluded that the automated feedback module was used much less than the visualization module. The main benefit of the visualizations according to the respondents was that the VIZ module was easier to understand and it provided a simpler overview of the process the trainees made over time.

The results show that the learning analytics modules in the ePortfolio environment were not used as much as expected and that written feedback (JIT) was used less than the visualizations (VIZ).

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## Conclusion

This chapter described a project that aimed to improve the quality of workplace-based feedback and assessment for trainees and supervisors through enhancing an existing ePortfolio environment with learning analytics. The ePortfolio collects and stores data about trainees' progress from diverse sources. Based on state-of-the-art probabilistic reasoning techniques, student models were created that allowed for aggregation and tailored just-in-time feedback. The learning analytics process as described in this chapter includes related processes (Elias 2011; Mislevy Behrens Dicerbo and Levy 2012; Toulmin 2003). First the domains with entrustable professional activities were defined. Then data were selected and captured. Next data were aggregated, and information was reported to make analyses, evaluations, and predictions based on the data. The human factor in learning analytics is represented by the trainees, content specialists, educational specialists, and technologists at workplaces throughout Europe.

The evaluation cycle, related to argumentation theory and evidence-centered design, provides useful insights into benefits and challenges of implementing ePortfolios enhanced with learning analytics in workplace-related contexts. Although the written feedback from the supervisors was highly valued, trainees did not or almost not use the automated feedback module. The visualization model, especially the feature "timeline," was used most by trainees. The main benefit of the visualization module according to the trainees was that it generated a simple overview of their development over time and was easy to understand.

There are, however, several scientific challenges that have to be dealt with. Firstly, the use of learning analytics for workplace-based feedback and assessments demands new solutions to make use of symbolic and numerical data and soft, written data and feedback as input to the models. This will require the use of text mining techniques and natural language processing to analyze written elements in order to resolve and encode them into probabilistic propositions to inform the student models. Examples of techniques that might be considered are the well-known latent semantic analysis but also more recent developments such as the application of ontologies or the application of sentiment analysis.

Foreseen practical challenges include the tailoring to trainees' and supervisors' feedback and assessment needs. Connecting learning analytics to ePortfolios demands multi-sorted learning and assessment tools at the work environment to be

used as an input into the system and a module for automated feedback provision. The overarching environment is assumed to improve the quality (validity and reliability) and efficiency of supervisors' and trainees' (self and peer) feedback and assessment at the workplace. However, this will only succeed when the environment is developed and implemented through the eyes of the users. This especially counts for the visualization dashboards for trainees and supervisors that will be developed to present the information at the workplace in a graphically easy to interpret way. First, this demands a strong integration of ePortfolios in the learners' curriculum as a tool for reflection, dialogues, and feedback on professional development. Second, training for trainees and supervisors to learn to work with the ePortfolio environment is fundamental.

Other practical challenges include the search for ways to easily integrate ePortfolios with other information systems. Since trainees alternately work in several organizations and bring their electronic portfolio with them, learning analytics-based electronic portfolios as used and improved in the described project in this chapter can enhance collaboration between trainees, supervisors, and organizations, for instance, by the exchange of information about trainees' development in organizations, and hence increase the learning opportunities for trainees. Here it is important to ensure that the use of data is aligned with the ethics of the institute or professional domain. Although it is common that the learner is the "owner" of the ePortfolio data and has to grant access to others (e.g., peers, supervisors) to enter the ePortfolios (e.g., in order to provide feedback), there is still the issue of datasets that are stored at servers and are limited in their transport (Greller and Drachler 2012; Selwyn 2015).

All in all it can be concluded that the use of learning analytics in ePortfolios is promising, but still in its infancy. Potentially it can contribute to more personalized, timely, and effective feedback at the workplace. In this end it contributes to the ultimate goal of learning at the workplace: entrusting professionals with, for instance, the critical care of patients, animals, and students.

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# Spelling Assessment, Learning, and Instruction in VET

# 77

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## Abstract

Proficiency in spelling is a key influential factor in success with compositional writing, reading, and vocabulary knowledge. To facilitate student learning in spelling, educators should utilize spelling assessment systems that generate useful diagnostic feedback and that are informed by current theoretical underpinnings of learning and instruction in spelling. Nonetheless, within the vocational education and training (VET) sector, there is a notable lack of robust adult writing literacy measures, particularly in the domain of spelling. Assumptions about the nature of spelling development have important implications for the way spelling is assessed and taught. This chapter considers the importance of learning to spell and compares linear and nonlinear theoretical perspectives on spelling development. Assessment systems used for measuring spelling ability are then discussed in terms of their theoretical underpinnings and their suitability for VET contexts. Recommendations for spelling assessment and instruction in VET contexts are offered.

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**Introduction**

Being a literate reader and writer increases one's capacity to successfully participate in education and training, in the labor market, and in social and civic life. Yet according to the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2016), almost 10% of the global young adult population (aged 15–24 years) is illiterate. While it is widely recognized that there is an association between income and literacy levels, developed nations are not entirely immune to literacy problems. For example, the data from the Programme for the International Assessment of Adult Competencies (PIAAC) indicate that, in Australia, almost half of the adult population (aged 16–65 years) is deemed to have literacy skills below the minimum level required to adequately cope in modern societies (Organisation for Economic Co-operation & Development [OECD] 2013). The PIAAC data also indicate that literacy rates in the UK and in the USA are of even greater concern, as evidenced by their below international average literacy scores (OECD 2013). Furthermore, across the 24 countries and sub-national regions involved in this PIAAC study, between 4.9% and 27.7% of adults were deemed proficient at only the lowest levels in literacy. A combination of inadequate education and lack of opportunities to improve proficiency in literacy skills “has the potential to evolve into a vicious cycle in which poor proficiency leads to fewer opportunities to further develop proficiency” (OECD 2013, p. 23). For young adults with poor literacy skills, the vocational education and training (VET) sector can provide essential systematic literacy support and mentoring.

In order to address literacy issues among young adults, it seems logical to begin by considering how particular language-based subskills may predict later literacy. Among the predictors of literacy, proficiency in spelling is a key influential factor in success with compositional writing, reading, and vocabulary knowledge (Daffern et al. 2017a; Ehri 2014; Holmes and Ng 1993). As “spelling and reading build and rely on the same mental representation of a word,” knowledge of a word's spelling makes the representation of that word “sturdy and accessible for fluent reading” (Snow et al. 2005, p. 86). Equally, being able to spell with automaticity is a critical element of the writing process. Spelling “bridges idea generation and text generation” (Abbott et al. 2010, p. 296). Hence, a valuable way to help young adults improve their reading and writing literacy levels in the English language is to provide opportunities for them to develop deep understanding of the linguistic components that are particular to the Standard English spelling system.

As proficiency in spelling is a crucial aspect of literacy, VET educators may need to utilize spelling assessment tools that are informed by current theoretical underpinnings of learning and instruction in spelling in order to provide useful diagnostic feedback to students. Nonetheless, within the VET sector, there is a notable lack of adult writing literacy measures, particularly in the domain of spelling. Indeed, adult



literacy support programs are largely informed by data obtained from measures of reading literacy such as PIAAC. Furthermore, they are not informed by current theoretical perspectives on the nature of learning to spell.

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## Becoming Proficient in Spelling

Spelling in Standard English is a key foundational literacy skill, but it is also a complex word-formation process that takes time to master. Multiple language sources need to be activated when spelling, and learning to do this efficiently may provide the intellectual engagement that is needed to become proficient at choosing and using words that precisely convey meaning through writing (Daffern et al. 2017a; Richards et al. 2009). In order to support student learning in spelling, educators should be mindful of the varied theoretical perspectives that exist regarding the nature of learning to spell, as the theoretical position that an educator chooses to adopt may influence the way spelling is taught and assessed (Daffern et al. 2015). Broadly, there are two schools of thought regarding the nature of spelling development. One perspective assumes that learning to spell proceeds in a linear manner, while several other perspectives broadly attest that learning to spell does not follow a linear trajectory. What follows is an overview of the diverse understandings of how proficiency in spelling is thought to unfold.

### Linear Models of Spelling Development

*Stage and phase theories* have offered one way of conceptualizing how children develop mastery in spelling (Ehri 1985; Frith 1980; Gentry 2000). These theories have been influential since the 1970s as they have helped educators and researchers to understand that learning to spell predominantly through rote memorization is limited and that the development of phonological knowledge in spelling is crucial. By analyzing spelling errors in written texts, stage theorists (Bear and Templeton 1998; Cataldo and Ellis 1988; Ehri 1985; Frith 1980; Gentry 2012; Read 2009) produced a linguistic index (a list of linguistic features, such as final consonants and short vowels) that they subsequently used to categorize spelling development into discreet and sequential stages (Daffern et al. 2015). While different terminology has been used among stage theorists to describe each stage of spelling development, stage theories share two common assumptions. First, they describe development in terms of five linear stages of development. For example, Gentry (2000, p. 324) explains that the first stage is “precommunicative”; the second is “semiphonetic”; the third is “phonetic”; the fourth is “transitional”; and the fifth is “correct” (or “conventional”). On the other hand, Bear et al. (2012, p. 9) label the five respective stages as “emergent,” “letter name,” “within word,” “syllables and affixes,” and “derivational.” Although proponents of stage theories use different terminology to conceptualize spelling development, they are broadly characterized by similar qualitatively descriptive categories. The second commonality

underpinning stage theories is their Piagetian assumption and the “notion that aspects of cognitive development proceed by way of qualitative stage-like change” (Gentry 2000, p. 319). According to this assumption, “spelling difficulties are viewed as an inability to move on to the next stage” (Kohnen et al. 2009, p. 116).

In avoiding the stringent assumption typically associated with developmental stage theories, Ehri (2005) proposed an alternative linear perspective by describing the progression of learning to spell according to sequential “phases,” rather than “stages.” In doing so, she acknowledges that progression through the phases of spelling development may slightly overlap. Further, Ehri’s (2005, p. 176) description accounts for only four “successive” phases of spelling development, namely, “prealphabetic,” “partial alphabetic,” “full alphabetic,” and, finally, “consolidated alphabetic.”

However, a weakness in stage and phase theories is their disregard for the coexistence of other emerging linguistic skills including orthographic knowledge (as demonstrated by an awareness of conventional letter sequences within written words) and morphological knowledge (as evidenced by an awareness of the meaning-based conventions within written words) (Treiman 2017a). Indeed, Devonshire et al. (2013) posit that models of spelling development should not be restricted to a fixed and “predetermined path of intellectual development” (p. 87). Rather, they should account for environmental impacts, including the opportunities afforded to a learner through instruction, or through their experiences with language through speaking, listening, reading, and writing, and through incidental exposure to written texts. It has been argued that stage and phase theories offer an overly simplistic account of learning to spell as they cannot capture the range of difficulties or experiential advantages students encounter throughout their journey toward proficient spelling (Berninger et al. 2010; Daffern et al. 2015). Paralleling such assertion, research has shown that children are capable of using all strategies that are available to them to spell and that these may develop continuously and in parallel (Daffern 2017; Lennox and Siegler 1994; Sharp et al. 2008). With explicit instruction, learners are capable of building morphological awareness during the early years of learning to read and write (Apel et al. 2013; Nunes et al. 2003). According to Bowers et al. (2010, p. 171), morphological instruction is “at least as effective for students in the early stages of formal literacy instruction” as it is for older students.

Nevertheless, for several decades, stage and phase theories have influenced the teaching and assessment of spelling. These theoretical perspectives have also been used to inform the construction of spelling assessments and teaching materials (Varnhagen et al. 1997) such as *Words Their Way* (Bear et al. 2012) and *Word Journeys* (Ganske 2000). Yet, there is no substantive evidence to support linear models of spelling development (Kohnen et al. 2009), despite their continued and prominent influence in educational contexts.

## **Nonlinear Models of Spelling Development**

A growing body of research provides unequivocal evidence that the trajectory toward proficiency in spelling does not proceed in linear stages or phases

(Devonshire et al. 2013; Garcia et al. 2010; Rittle-Johnson and Siegler 1999; Sharp et al. 2008). Alternative propositions are emerging and converging, collectively indicating that becoming proficient in spelling is a process of learning to abstract, apply, and interconnect multiple linguistic aspects of the written language in parallel rather than one after the other. What follows is an explanation of several nonlinear theoretical propositions of learning to spell.

*Dual-route theory* is fundamentally different to stage and phase theories as it assumes nonlinear pathways in spelling development. However, it offers a somewhat limited perspective of learning to spell as it theorizes that only two independent processes (“routes”) are involved in spelling (Barry 1994; Houghton and Zorzi 2003). These processes are labelled as the *lexical route* and the *non-lexical route*. The *lexical route* relies on long-term memory to retrieve the spelling of words that have been previously encountered and memorized through repeated exposures to print. This route functions like a mental dictionary, and the activation of this process has also been described as the “whole word procedure” (Kohnen et al. 2009, p. 117). The *non-lexical route* is activated when words cannot be spelled through the *lexical route*. Thus, the *non-lexical route* involves generating a spelling by mapping individual phonemes (sounds in speech) to alphabetic letters or groups of letters. Through this process, a word is segmented into individual phonemes and then matched to corresponding alphabetic letters. The letters are then stored in short-term memory, sometimes referred to as the “graphemic buffer” (Kohnen et al. 2009, p. 116), while they are being physically transcribed into their written form.

According to dual-route theory, learning to spell involves memorizing the spelling of whole words as well as learning to accurately apply phonological processes. Dual-route theory has been among the dominant nonlinear theoretical frameworks for several decades; however, in recent years, it has been regarded as overly simplistic as it does not fully capture the complexities of learning to spell in Standard English (Treiman 2017b). As Sheriston et al. (2016, p. 406) observe, dual-route theory does not “specify how other skills, such as the contribution of orthographic and morphological strategies, might fit neatly into this classification.”

The *integration of multiple patterns framework (IMP)*, proposed by Treiman and Kessler (2014), differs substantially to dual-route theory even though they are both grounded in nonlinearity. According to the IMP, the ability to map phonemes to spellings (*a non-lexical route*) is not the first skill to develop; rather, some knowledge of the “visual form of writing,” including knowledge of “how letters combine, . . . comes first” (Treiman 2017a, p. 4). The IMP also assumes that as learners gain experiences with written words they simultaneously refine their knowledge of the morphological structures of words. Although Treiman (2017a) supports the view that young children are capable of learning to correctly apply morphological structures in their spelling, she posits that morphological processing in spelling takes considerable time to master and that “even adults sometimes fail to adhere to certain morphologically based patterns” in their spelling (Treiman 2017b, p. 7). Considering English spelling is morphophonemic, that is, words are constructed through representations of both their phonemes (speech sound units) and morphemes (meaning units), the IMP offers a promising perspective. The IMP is based on the premise that

a variety of patterns need to converge in order to spell single words, including phonological (how sounds map to letters), graphotactic (the ordering and arrangement of letters within words), and morphological patterns (applications of morphemic, or meaning-based, properties in words).

*Constructivist theory* of learning was proposed by Ferreiro and Teberosky (1982) and has been somewhat influential in the teaching of spelling across South America and some parts of Europe (Treiman 2017a), despite absence of its efficacy from experimental research in the domain of spelling. According to a constructivist perspective, a learner constructs knowledge and meaning from their own experiences. Hence, becoming proficient in spelling is considered to involve the learner in constructing and testing their own hypotheses about the spelling of words. For instance, despite having received no formal instruction, some young learners have been thought to construct hypotheses, albeit incorrect, that each written alphabetic letter in a word represents a syllable in a spoken word and that visual features of printed words reflect the meaning of those words (Ferreiro and Teberosky 1982; Vernon 1993). For example, a learner may construct a misconceived assumption that the word *cat* is represented using larger-sized letters or with more letters than the word *kitten*. Although the constructivist perspective has helped to highlight that even young children may be capable of discovering a great deal about written communication even before formal instruction begins, it does not offer detailed and empirically informed insights into the complexities of learning to spell and the interplay between instruction and learning.

*Overlapping waves theory* acknowledges individual idiosyncrasies in strategy use when learning to spell, positing that, at any given time, a learner may rely on more than one type of strategy in order to spell a word (Rittle-Johnson and Siegler 1999). This theory is built upon three key cognitive features: “abundant variability, adaptive choice, and gradual change in strategy choice over time” (Farrington-Flint 2015, p. 134). For example, research investigating children’s spelling ability in Grade 1 to Grade 2 demonstrated substantial variability and adaptiveness in the strategies the children used, encompassing phonology, morphology, orthographic analogizing, and retrieval from memory (Rittle-Johnson and Siegler 1999). Other research has suggested that this theory may apply to adults learning to spell new words (Kwong and Varnhagen 2005). In their experimental studies, Kwong and Varnhagen (2005) demonstrate that children and adults have a range of “strategies in their repertoire at any given time, but they shift their reliance on different strategies over time” (Kwong and Varnhagen 2005, p. 149). They noted increased accuracy and efficiency in selecting and applying spelling strategies as a result of repeated experiences in spelling words, concluding that the “process involved in learning to spell new words does appear to be universal” (Kwong and Varnhagen 2005, p. 157).

*The lexical quality hypothesis* (LQH) is another nonlinear proposition (Perfetti and Hart 2002), and although stemming from research in the domain of reading development, it has helped to “enrich the understanding of vocabulary-spelling linkages” (Bahr et al. 2009, p. 123). According to the LQH, both spelling and reading development are dependent on the integration and interaction of three closely connected constituents: orthography, phonology, and semantics. When

applied to spelling, fusion of these linguistic constituents needs to occur in order to promote stability in rapid retrieval and accurate encoding (Bahr et al. 2009). Similarly, in the context of learning to read, accurate decoding and comprehension may be dependent on high-quality representations that include phonological, orthographic, and semantic knowledge. Although integration of these three key components is critical, in circumstances whereby orthography and phonology are of a low quality, semantic information becomes particularly vital to accurate word reading. While the LQH offers a promising perspective for examining learning in spelling and for the construction of spelling assessments, there is currently an absence of empirical evidence that explains how this hypothesis applies specifically to spelling.

*Triple word form theory* (TWFT) aligns closely with the LQH but offers a more robust nonlinear perspective of spelling development (Bahr 2015; Berninger and Abbott 2010; Daffern et al. 2015; Garcia et al. 2010). Grounded in neurocognitive and behavioral research, this theory assumes that learning to spell “depends on developing awareness of phonological, orthographic, and morphological word forms . . . and coordinating them” (Richards et al. 2009, p. 332). Consistent with the LQH, encoding involves analyzing and coding “phonemes in spoken words” (phonological word form), “letter patterns in written words” (orthographic word form), and “root words, prefixes, and inflectional and derivational suffixes” (morphological word form) (Bahr 2015, p. 74). TWFT proposes that spelling mastery is not entirely reliant on the alphabetic principle. Rather, spelling acquisition involves concurrent knowledge development in the phonological structures, orthographic regularities, and morphological properties of the English language (Apel 2014; Treiman and Kessler 2014). Critically, the view that young students “draw on phonology, orthography, and morphology from the beginning of spelling development” and gain increasing explicit control over these skills (Garcia et al. 2010, p. 88) differs from linear assumptions of spelling development, which assume that phonological skills develop first, followed by orthographic skills, and eventually morphological skills. Indeed, research has found that “orthographic awareness may not be dependent on first establishing competent phonological spelling skills” (Larkin et al. 2013, p. 409). According to TWFT, the process of developing accurate and automatic spelling is characterized by a growing awareness and integration of the phonological, orthographic, and morphological word forms (Bahr et al. 2009). TWFT has been supported by findings from several studies demonstrating that growth in spelling is not linear and that the development of robust written lexical knowledge, one that coordinates phonology, orthography, and morphology, follows a gradual but complex trajectory (Bahr et al. 2012; Daffern 2017; Garcia et al. 2010; Richards et al. 2006).

In contrast to linear, Piagetian, perspectives of spelling development, TWFT postulates that students who are beginning to develop their knowledge of Standard English spelling can learn to extract and coordinate phonological, orthographic, and morphological processes when encoding words (Berninger and Abbott 2010); however, efficiency and accuracy in the coordination of these linguistic processes may largely be an outcome of the kind of instruction they receive (Berninger et al. 2010; Daffern 2016; Graham and Santangelo 2014). As Treiman (2017a) notes, many orthographic patterns are not typically taught in schools, and even though most

students may be able to “pick up” conventional letter “patterns on their own, instruction could probably speed the process” (p. 7).

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## Assessment of Spelling Ability

Individual student performance data obtained from a diagnostic assessment of spelling ability can inform instructional priorities. However, performance outcomes may be influenced by the particular theoretical position that underpins an instrument’s design. Therefore, in planning and implementing literacy instruction which targets spelling-related outcomes, educators should carefully consider the robustness of existing instruments which measure spelling performance, including the extent to which they align with particular theoretical perspectives. According to Kohnen et al. (2009), “a high-quality assessment” of spelling ability “depends on how far the assessment taps into the underlying theory of the spelling system and how that spelling system is acquired” (p. 114). Nonetheless, in VET contexts, there is a notable absence of assessment systems which adequately measure spelling ability. Additionally, the vast majority of existing spelling assessments currently being applied by educators in other contexts have largely failed to consider nonlinear perspectives of spelling development (Kohnen et al. 2009), despite unequivocal evidence in support of nonlinear models of spelling development.

By using reliable and sensitive assessments of spelling ability, it is possible to identify specific subskills that need to be taught (Al Otaiba and Hosp 2010). An established technique used to sensitively measure spelling subskills involves a systematic linguistic error analysis of words that a student spells in response to an oral dictation task (Daffern et al. 2015; Kohnen et al. 2009). While many popular standardized spelling tests employ dictation tasks, they are not necessarily adequately diagnostic as they do not allow for a systematic error analysis. Examples of these include the:

- (i) Woodcock-Johnson-III tests, forms A, B, and C (Woodcock et al. 2007)
- (ii) Wechsler Individual Achievement Test-II (Psychological Corporation 2001)
- (iii) Wide Range Achievement Test-4, forms Blue and Green (Wilkinson 2006)
- (iv) Kaufman Test of Educational Achievement (K-TEA)-Brief (Kaufman and Kaufman 1985)
- (v) K-TEA-Comprehensive (Kaufman and Kaufman 1998)

Calhoon et al. (2010) highlight several limitations of these five assessments in terms of their measurement design. First, even though they all employ a dictation method (whereby an examiner dictates a spelling word aloud, uses the word in a sentence, repeats the word, and then the student writes the word), they fail to identify the aspects of spelling that may be problematic for a student. In line with a constructivist perspective of spelling development, these tests merely identify production of whole words as either right or wrong, which may only serve to promote inefficient and ineffective rote learning of specific whole words. Second, the five

tests listed above tap into different orthographic skills, and their “alternative” (or parallel) test forms do not always significantly correlate with each other “in terms of specific orthographic skills covered” (Calhoun et al. 2010, p. 169). The lack of correlations is problematic, particularly if the tests are used to track longitudinal progress or to monitor the effectiveness of an intervention. Furthermore, spelling ability cannot be adequately measured using any of these instruments in isolation as each does not measure a broad coverage of linguistic components. As such, multiple tests may need to be administered to obtain sufficiently comprehensive feedback. More broadly, Kohnen et al. (2009, p. 113) acknowledge that, due to the complexity of Standard English spelling, educators may need to use “several tests in order to adequately assess spelling ability and to monitor spelling development” over time.

In order to tailor appropriate instruction, spelling assessments should enable systematic and comprehensive analysis of the kinds of errors a student makes when producing written words (Calhoun et al. 2010; Masterson and Apel 2000). Examples of normed assessment tools which involve an error analysis technique include the *British Spelling Test Series* (Vincent and Crumpler 1997) and the *Single Word Spelling Test* (Sacre and Masterson 2000), both of which are structured to broadly align with linear models of spelling development. Another example, though informed by dual-route theory, is the *Diagnostic Spelling Tests* of nonwords and irregular words (Kohnen et al. 2015).

While error analysis can yield useful diagnostic feedback, the results may be influenced by the theoretical framework that underpins the constructs of an assessment. For example, a spelling test that is informed by stage theory presumes that phonological spelling representations will be mastered first, followed by accurate orthographic representations, and eventually morphological representations. Under this presumption, spelling ability is assigned to a particular developmental “stage” of spelling by classifying spelling errors according to the descriptive stage that they most closely reflect in the constructs of an assessment (see, e.g., Table 1). An example of an assessment tool which adopts a stage-like framework is the *Words their Way Inventories* (Bear et al. 2012). In utilizing an assessment framework that is informed by a linear theoretical perspective, instruction is then focussed around helping the learners progress to the next assumed stage “by teaching the strategies defining the next stage” (Kohnen et al. 2009, p. 116).

As Kohnen et al. (2009) contest, “there is no evidence that children move from one stage to the next by shifting from the signature strategy of one stage to the strategy that is characteristic of the next stage” (p. 116). An assessment tool that adopts a stage-like classification of spelling ability is problematic as it does not acknowledge that a learner is indeed capable of concurrently developing skills across several “stages” (Daffern 2016; Devonshire et al. 2013; Sprenger-Charolles et al. 2003). The classification of ability into a single “stage” may result in an oversimplified and misconceived diagnosis, which may subsequently constrain a student’s opportunity to refine those strategies classified as more advanced according to linear theories of spelling development (Daffern et al. 2015; Varnhagen et al. 1997).

Using TWFT as a framework for spelling error analysis acknowledges prior phonological, orthographic, and morphological knowledge, which leads to better



**Table 1** An assessment structure informed by stage theory

Spelling stages	Subskills measured	Spelling examples	Characteristics	Instructional priorities
Stage 1 Emergent	Initial consonants in CVC words <sup>a</sup>	<i>t</i> (for “top”)	Spelling is largely pre-phonological. It may include some random marks, letters and numbers, or representational drawing	To progress to Stage 2, phonological skills are introduced, including concepts of print such as left to right directionality
Stage 2 Letter name	Final consonants and medial vowels in CVC words, initial digraphs, initial and final blends in monosyllabic words	<i>Hat, hit, hot, shop, place</i>	Phonological knowledge develops. Sound-to-letter knowledge is accurate. Correct left to right mapping of phonetic representation	To progress to Stage 3, phonological skills need to be mastered first
Stage 3 Within word patterns	Common long vowels, diphthongs, -r influenced vowels	<i>Drive, train, boil, serve</i>	Orthographic knowledge develops. Letter patterns are plausible and mostly correct	To progress to Stage 4, orthographic skills (e.g., knowledge of letter patterns for long vowel phonemes) need to be mastered first
Stage 4 Syllables and affixes	Inflected suffixes, syllable juncture consonant doublets	<i>Shopping, carries, bottle</i>	Morphemic knowledge develops. Some prefixes and suffixes are correctly affixed to base words	To progress to Stage 5, knowledge of how to accurately affix prefixes and suffixes to be base words must be demonstrated first
Stage 5 Derivational	Derivational suffixes, roots	<i>Pleasure, circumference</i>	Understanding of how words derive from base words and word roots expands	The study of word origins and their meanings is the focus of instruction during this final stage

<sup>a</sup>CVC words are consonant-vowel-consonant



understanding of how learners may combine this knowledge to translate spoken words into a conventional written form (Varnhagen et al. 1997). The *Components of Spelling Test* (CoST) (Daffern et al. 2015; Daffern et al. 2017b) directly aligns with TWFT, and this is evident in the three constructs included in this instrument: (i) phonological component, (ii) orthographic component, and (iii) morphological component. As can be seen in Table 2, the CoST involves a systematic error analysis of the phonological, orthographic, and morphological properties in written words. This spelling assessment is a standardized test consisting of 70 words which are dictated to the student/s in the context of a sentence. Internal reliability results for the CoST have been reported, ranging from 0.78 to 0.94 (Daffern et al. 2015), while robust predictive validity has been evidenced in a subsequent study (Daffern et al. 2017b). In administering the CoST to individual students or to a whole class of students at one time, an educator can use the results of the error analysis to determine instructional priorities across the three spelling components.

An analysis of spelling errors, as determined by using the specified CoST scoring sheets, reveals potential strengths and/or breakdowns in phonological, orthographic, and morphological processing, without confining overall spelling ability into a particular “stage.” This is starkly different to a stage-like approach to spelling error analysis and thus has important instructional implications. Specifically, in using the CoST, an educator should concurrently focus instruction on the weaker subskills identified in each of the three subscales, rather than sequencing instruction by prioritizing phonological skills first, followed by orthographic skills, and then eventually morphological skills. Although normed data are currently based on Australian children (Daffern 2017), the diagnostic capabilities of the CoST make this instrument a valuable tool for adults who are developing fundamental English language skills in VET contexts.

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## Conclusion

In determining suitability of a spelling assessment tool for VET contexts, educators should begin by evaluating assessment tools in terms of their theoretical alignment and empirical reliability and validity. As the research evidence for linear spelling development is lacking, selecting a spelling assessment tool which confines spelling ability into a particular developmental stage of development is not recommended. Rather, VET educators are advised to utilize dictation assessment tools which measure spelling ability in a way that captures a learner’s capacity to successfully integrate the phonological, orthographic, and morphological components of the written language. Although the CoST may be a helpful tool to use in VET contexts, normative data for adult learners are yet to be obtained. There is also a need to design and validate supplementary assessments that systematically measure a learner’s ability to accurately represent the phonological, orthographic, and morphological components of the written language. Indeed, this work is currently underway, with promising results, yet to be published.

**Table 2** Structure of the Components of Spelling Test (CoST) and corresponding instructional examples

	Subskills measured	No. of items	Example of an instructional focus if the corresponding subskill is weak
Phonological subscale	Initial and final consonants in monosyllabic words	5	Manipulate initial and/or final consonants in consonant-vowel-consonant words (e.g., <i>tap, rap, map, lap, sap, nap</i> )
	Short vowel graphs in monosyllabic words	5	Compare medial vowel phonemes (e.g., <i>hop/hope</i> ), manipulate onset and rimes (e.g., <i>hot, hat, hit, hut</i> )
	Consonant digraphs	5	Identify digraphs, blend and segment phonemes in words containing digraphs (e.g., <i>sh-o-p, m-a-sh</i> )
	Polysyllabic-word medial blending	16	Syllabify, segment, and blend phonemes in polysyllabic words (e.g., <i>di-ag-no-sti-cian</i> )
Orthographic subscale	Common long vowels	7	Sort words with the same long vowel phoneme (e.g., <i>-igh-</i> as in <i>delight</i> , <i>-ie</i> as in <i>finite</i> , and <i>-eigh-</i> as in <i>height</i> )
	Ambiguous vowels	7	Sort words with diphthongs, on the basis of their positional constraints (e.g., <i>-oy</i> only occurs at the end of a word as in <i>toy</i> , but <i>-oi</i> occurs if followed by the letter <i>-n</i> as in <i>coin</i> or the letter <i>-l</i> as in <i>boil</i> )
	Complex consonant patterns	6	Sort words with complex letter clusters on the basis of their positional constraints (e.g., <i>-tch-</i> as in <i>batch</i> never occurs at the start of a base word but <i>ch-</i> as in <i>chip</i> does)
	Syllable juncture consonant doublets	5	Identify medial consonant doublets in disyllabic words (e.g., <i>throttle, ripple, paddle, nibble, pillow, dagger, manner</i> ). If the medial consonant letter is <i>t, p, d, b, l, g, m,</i> or <i>n</i> and if it appears after a short vowel in a two-syllable base word, double it
	Unaccented final syllables	5	Compare words ending with the letter patterns <i>-le, -el,</i> and <i>-il</i> (e.g., <i>ripple, label, tonsil</i> )  The letter patterns, <i>-le</i> and <i>-el</i> , in the final syllables of words are most common, while <i>-il</i> is least common
Morphological subscale	Inflected suffixes	7	Teach generalizations for suffixes marking tense and plurality (e.g., if a base word ends in a single vowel plus a consonant, the final consonant of the base word doubles when the “-ing” and “-ed” suffixes are added as in <i>hop/hopping, stop/stopped</i> )
	Derivational suffixes	8	Teach the generalization that <i>-ian</i> forms “people” nouns from “thing” or “place” nouns (e.g., <i>music/musician, India/Indian</i> )

(continued)

**Table 2** (continued)

	Subskills measured	No. of items	Example of an instructional focus if the corresponding subskill is weak
	Morpheme juncture schwa vowels	5	Teach the generalization that the long vowel phoneme in the 2nd syllable of a base verb (e.g., <i>propose</i> ) is reduced to a schwa when nominalized (e.g., <i>proposition</i> ); however, the spelling of that schwa does not change
	Homophones	7	Teach the meaning and spelling of words that have the same sound but different meaning and spelling (e.g., <i>sore/soar</i> )
	Greek and Latin roots	7	Teach word origins and meanings (e.g., <i>lumina</i> is a Latin root word meaning to <i>light</i> or <i>to shine</i> )
	Assimilated prefixes	7	Teach the generalization whereby the sound and spelling of the final consonant in a prefix is absorbed into the initial consonant of the base word (e.g., the prefix “in-” means <i>in</i> , <i>not</i> , <i>toward</i> , or <i>together</i> so <i>in</i> + <i>legal</i> = <i>illegal</i> , <i>in</i> + <i>mature</i> = <i>immature</i> )

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# Professional Competence Assessment Diagnostics as an Instrument for Quality Assurance in TVET

# 78

Zhiqun Zhao and Yingyi Zhou

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**Abstract**

The international community of technical and vocational education and training (TVET) has basically reached a consensus that outcome-oriented quality control should be strengthened through external assessment. Professional competence assessment is generally accepted as an economical evaluation approach to acquire large amounts of in-depth and valid information. Two assessment programs are presented as case studies on the outcome-oriented quality assurance of TVET. The students' assessment program based on COMET was implemented by local government Chongqing as a quality assurance measure for secondary vocational education, while the teachers' professional competence assessment program aims at providing methodological reference for quality assurance in teacher further training programs. A fundamental research on the predictive validity of professional competence assessment is also presented to justify its availability as a quality assurance approach.

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**Keywords**

Technical and Vocational Education and Training (TVET) · Quality assurance · Outcome-oriented · COMET professional competence assessment

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## **Introduction: From Input-Oriented to Outcome-Oriented Paradigm Shift in Quality Assurance of TVET**

Since the beginning of the new century, technical and vocational education and training (TVET) in China has been enjoying unprecedented growth. Nevertheless, numerous deep-seated problems have still not been effectively solved, the most prominent one of which is the training quality of vocational institutions (colleges and schools). If it is not good enough, graduates can't get employed directly after training; they have to get further qualifications through on-the-job or off-the-job training. Therefore, the training quality of vocational institutions influences the contents and forms of the training market. Besides, a comprehensive understanding of development levels and structural characteristics of the students' professional competence is of great significance for the systematic design of further training programs.

In the past, the quality evaluation of TVET students in China was mainly achieved through internal examinations. The assessment indicators could not meet the requirements of reliability and validity for quality monitoring in a large scale, making it impossible to carry out inter-institution and interregional comparison. Due to insufficient methodological support, evaluation results could not reflect the overall quality of training, and the interpretation model of the corresponding relations between evaluation results and the training mode has not been established. Even for National Skills Competitions that have a great influence in the Chinese society, there still exist organizational and methodological problems during the large-scale promotion, including the economic cost, the inter-rater reliability, and the validity of test tasks.

Large-scale education assessment projects like the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) have given a lot of inspirations to TVET in China. A consensus has



been reached: outcome-oriented quality assurance should be strengthened in order to achieve a paradigm shift in training quality control from an “input-oriented” one to an “output-oriented” or even “outcome-oriented” one. When it comes to outcome-oriented quality assurance, a tricky issue is how to acquire large amounts of in-depth and valid data without incurring too much cost. The professional competence assessment is in the process of becoming an important supplement to the traditional methods of TVET quality monitoring.

Outcome orientation is one of the most important perspectives of the competency-based education (CBE) (CBE is an instructional program that derives its content from verified tasks and bases assessment on student performance. Programs of this type are also sometimes called performance-based education (PBE) and performance-based training (Norton 1997, Appendix C, p. 1).) approach originated in North America. Since the beginning of the 1990s, CBE has been introduced in China through a number of international programs with Canada, the World Bank, and other donors. Practice has shown that the CBE approach, which takes learning outcomes of students as the goal and focuses on the requirements of the labor market, has almost a “revolutionary” significance in China, compared to the academic paradigm of the past, based on disciplinary knowledge, because the idea of “theory in service of practice” of the CBE is contradictory to the traditional precept of Confucian culture that “knowledge accumulation is superior to practice.” It has fundamentally changed the relationship between theory and practice and thereby determined the new position that “practice is more important than theory” in TVET. It has also, indirectly, given an impetus to the Chinese government while shifting its focus from the ideological conflict in the so-called culture revolution toward “economic development.”

The application of CBE has massively improved the relevance of the TVET to practice and its effectiveness in China. But since the last 15 years, CBE has been gradually criticized especially for ignoring pedagogical aspects in the discussion among education scientists (Jiang and Wu 2006; He 2016). The basic assumption of this concept is that practical knowledge as it appears in professional work is interpreted as being applied scientific knowledge, while the impacts of tacit knowledge are neglected (Rauner 2017). It regards learning as a simple process between input and output, and competence development as a top-down transfer from teacher to student, emphasizes the enhancement of qualification achieved through the accumulation of scientific knowledge, and focuses on observable changes in behavior. Insufficient attention was paid to professional cognitive competence (Hager 1995; Ertl and Sloane 2006). The notion of combining single skills into a competence also ignores the learning situation (Lave and Wenger 1991) and holistic qualities of work.

The development of information and communication technology (ICT) and the change of work organization bring higher requirements for the professional competence of skilled workers. Since the end of the last century, educationalists, TVET institutions, and entrepreneurs of advanced manufacturing industry have recognized that effective learning requires students’ cognition and reflection with respect to the tasks, processes, and contexts in real work situations. It is necessary to carry out an

integrated training approach designed to allow students not only to acquire knowledge and skills but also to gain holistic action competence and an occupational identity. At the political level, in 2003, the Ministry of Education (MoE) launched a pilot program to improve the education quality to deal with the shortage of skilled personnel by developing a new curriculum emphasizing the integration of knowledge learning, skills training, and experience acquisition in actual work situations (MoE 2004). From that time on, TVET institutions have done numerous experiments in curriculum development. These experiments can be categorized into two types. One simplified type is that project teaching has been promoted as a kind of curriculum model (Xu 2009) and has been implemented in Shanghai and the immediate vicinity of Shanghai; the other is the introduction of the “areas of learning” (Lernfeld) curriculum initiated in Germany (KMK 1996).

Chinese educationalists believe that qualified skilled workers should meet the requirements of professional competence, while the purpose of areas of learning is to promote the development of professional competence that is mentioned as individuals’ reflection in an occupation and in society and the willingness and capability responsible for the shaping of individuals and society. In the last years, TVET institutions have carried out a great number of pilot projects to develop Chinese “areas of learning” with the training objective of developing holistic professional (shaping) competence; the learning process is aligned with the work process, where students can conduct learning and thinking in comprehensive actions (Zhao 2009).

From the pedagogical-didactic point of view, the introduction of the areas of learning built a new curricular system according to the competence developmental logic after breaking the discipline-oriented curricular system. This curriculum can better help students to understand the work process and context awareness. It had also a policy impact. For example, in 2014 the MoE published the “Decision of the State Council on Accelerating the Development of Modern Vocational Education” (Guo Fa [2014], No.19), which promoted the spreading of “the work process-oriented teaching model” (MoE 2014). The Ministry of Human Resources and Social Security (MoHRSS) formulated a Guide for the Formulation of National Skilled Talent Training Standards (interim), which uses the professional task analysis method and defines a number of key elements for the evaluation of training programs (MoHRSS 2013).

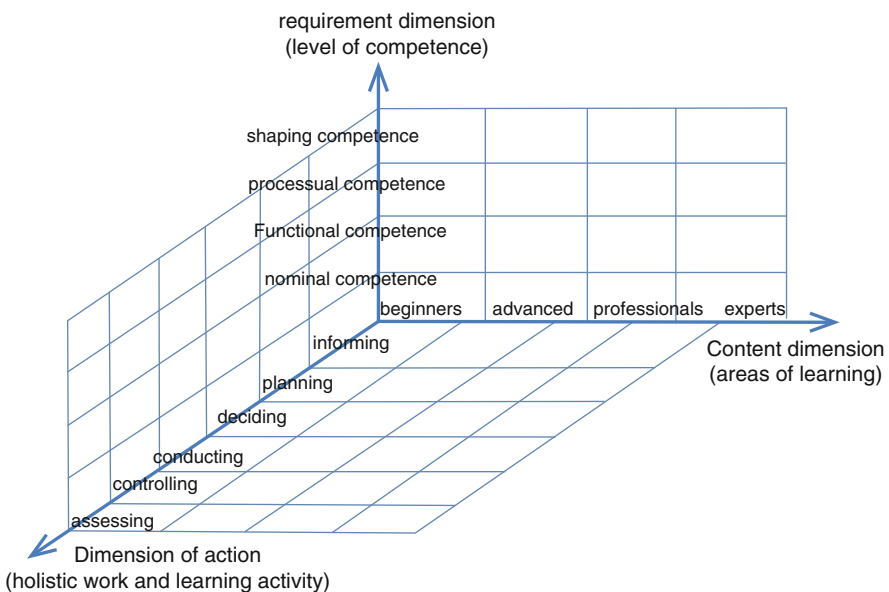
The implementation of the new curriculum requires corresponding quality monitoring methods. The project COMET – “Competence Development and Assessment in TVET” – is an ambitious effort to test a methodology for competence diagnostics in TVET. Under the leadership of Prof. Felix Rauner, University of Bremen, it has established a competence model and an assessment model which are across occupations (Rauner et al. 2009, 2013). These models take into account both the requirements of the world of work and the education goals of TVET. The test tasks are designed based on typical professional tasks (Reinhold et al. 2003; Howe 2008). The open-ended test form is adopted in order to guarantee the content validity of the test. Test questions are specially designed to reduce the length of the test and guarantee the test content’s coverage of occupational fields and the comparability of test results. The intrinsic linkages across professional tasks of the stages from

beginners to experts make the test task aligned with a continuous scale of professional competence, thus allowing for a vertical comparison of professional competence development at different stages. The training of raters and the test of their reliability have improved the accuracy and reliability of assessment results (Rauner 2017; Fischer et al. 2015).

Since 2009, Beijing Normal University (BNU) has introduced the COMET program to a number of innovative TVET projects, adapted them to the specific conditions in China, and conducted competence assessments among various occupations. This chapter introduces the COMET assessments on secondary vocational school students in Chongqing and the professional competence assessments on TVET teachers and verifies the validity of these assessments.

## COMET Professional Competence Assessment

COMET professional competence assessment uses a large-scale diagnostic method to evaluate the development of the professional competence, occupational commitment, and identity of students and teachers and compares the training quality in different TVET institutions and regions. The assessment is based on a three-dimensional competence model (Rauner et al. 2013). Three dimensions, respectively, are the requirement dimension, the content dimension, and the action dimension (Fig. 1).



**Fig. 1** Levels and criteria of professional competence. (Source: Rauner 2017, 64)

## The Levels of the Requirement Dimension

According to the COMET professional competence model, the four levels of professional competence are:

- Nominal competence: Students have superficial conceptual knowledge which is not enough to guide specialized activities.
- Functional competence: Students are required to master the basic knowledge and skills to do the work of specific positions, which doesn't need to understand of complex relationships and have little relevance with situations.
- Processual competence: The completion of professional tasks needs to have the quality awareness and work process knowledge as well as take various requirements into consideration, including economy, customer orientation, and work processes.
- Holistic shaping competence: The complexity of professional work tasks is fully realized, and tasks are solved with a view to diverging demands and in the form of intelligent compromises (Rauner et al. 2013, 47–49).

Students with nominal competence are at risk. They do not have enough professional skills and cannot fulfill their professional tasks independently in line with professional standards.

## The Learning Areas of the Content Dimension

According to the competence development theory, the career development could be divided into five stages: novices, advanced beginners, competent performers, proficient performers, and experts (Dreyfus and Dreyfus 1988; Rauner 1999). The research team of the University of Bremen identifies the corresponding forms of knowledge for each stage. Accordingly, the content of professional work is divided into four learning areas: orientation and overview knowledge, integrated professional knowledge, detail and functional knowledge, and experiential, systematic in-depth knowledge (Reinhold et al. 2003, 29–39).

## The Action Dimension

According to the paradigm of “complete professional action” in the labor studies (Ulich 1994, 198) and the action-oriented learning theory (Volpert 1983; Pätzold 1992), the process of completing a holistic task can be divided into stages of informing, planning, deciding, conducting, controlling, and assessing (Pampus 1987).

## The Levels and Criteria of Professional Competence

In order to develop test tasks and explain the test participants' task solutions, the COMET has established eight criteria to evaluate the task solutions given by the

participants. The eight criteria are clarity/presentation, functionality/operability, sustainability/utility, efficiency/effectiveness, business and work process orientation, social acceptability, environmental compatibility, and creativity (Rauner et al. 2013, 47–49).

As these basic theories of the COMET competence model and assessment model are widely accepted in the research and practice of Chinese TVET, including shaping-oriented vocational education concept (Rauner 1995; Heidegger 2001), action-oriented teaching and learning (Gudjons 1997; Pätzold 1992), developmental tasks (Havighurst 1972), the theory of work process knowledge (Kruse 1985; Fischer and Boreham 2004), and the COMET competence assessment concept was also accepted. A framework for interpreting the development of the professional competence has been established, which can be used not only to diagnose the quality of teaching and learning in TVET but also to provide direct support for teachers' instructional design with beneficial inter-occupational and cross-cultural characteristics.

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## **COMET Professional Competence Assessments and the Related Practice of TVET Quality Assurance in Chongqing**

### **Overview**

In Chinese medical institutions, the concept of “holistic nursing” has been promoted for many years, but the curriculum development and instructional design of most nursing schools are still biomedical and function-oriented. The “innate” competence deficiency of the nurse has brought great pressure to on-the-job and off-the-job nurse training. In 2015, the city government of Chongqing decided to conduct a COMET professional competence assessment on students of nursing program in the secondary vocational schools and to analyze the factors influencing professional competence development.

### **Brief Report About the COMET Assessment on Students of the Nursing Program**

#### **Assessment Tools and Object**

There are 30 secondary vocational schools offering the nursing training program in the city of Chongqing. The assessment was conducted in 16 of the schools, with the participation of a total of 1,258 2nd year students. The assessment tools are mainly two open-ended comprehensive test tasks and a background questionnaire. These tests are designed on the basis of professional tasks, with the form similar to that of the actual work contract. The students are required to fill in a background questionnaire about the facts of vocational schools and employers providing internships (hospitals).

## Rating Process

To ensure the reliability of the raters, 17 teachers with rich nursing experience received a 1-day rater training.  $F_{\text{inn,just}}$  coefficients range from 0.71 to 0.80 in the rating exercises for 5 solutions, indicating a high degree of consistency (0.5 and above, pass; 0.7 and above, good).

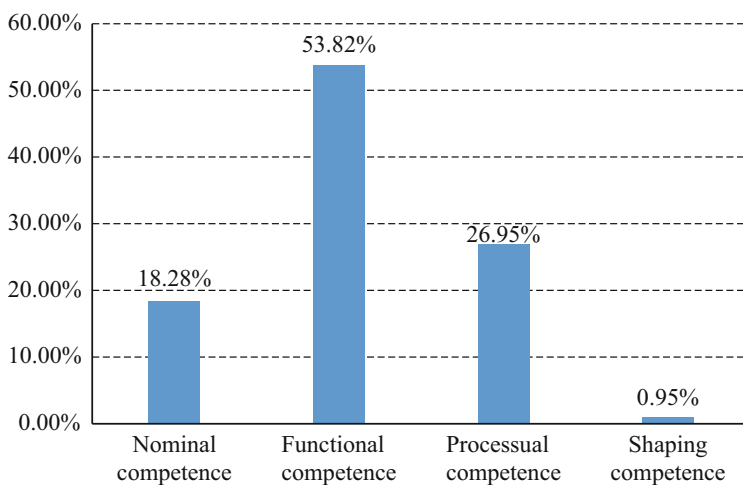
## Assessment Results

### Students' Professional Competence Level

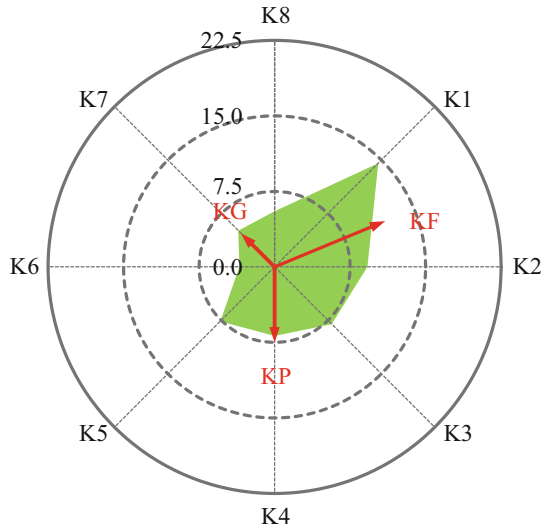
The overall distribution of the 1,258 students' professional competence level is shown in Fig. 2. Among them, 18.28% are at the nominal competence level, 53.82% reach the functional competence level, 26.95% reach the processual competence level, and only 12 (0.95%) reach the shaping competence level. The students' scores of professional competence are generally not high, and there are also big differences in all the schools. More than 30% of the students in four schools are still at the nominal competence level (Fig. 2).

The profile of the professional competence of all students participating in the assessment is shown in Fig. 3.

The students have higher functional competence than processual competence and have the lowest shaping competence. These students perform relatively well in terms of clarity and presentation, functionality/operability, persistence as well as service processes, and work process orientation, while their competence in the criteria like family, the social and cultural environment, as well as environmental and social acceptability needs improvement. This shows that although the concept of holistic nursing has been introduced to China's healthcare sector many years ago,



**Fig. 2** The distribution of the students' professional competence level. (Source: own compilation)



K1=presentation, K2=functionality, K3=sustainability, K4=efficiency, K5=business and work process orientation; K6 =environmental compatibility, K7=social acceptability, K8=creativity; KF=Functional competence, KP=Processual competence, KG=Shaping competence

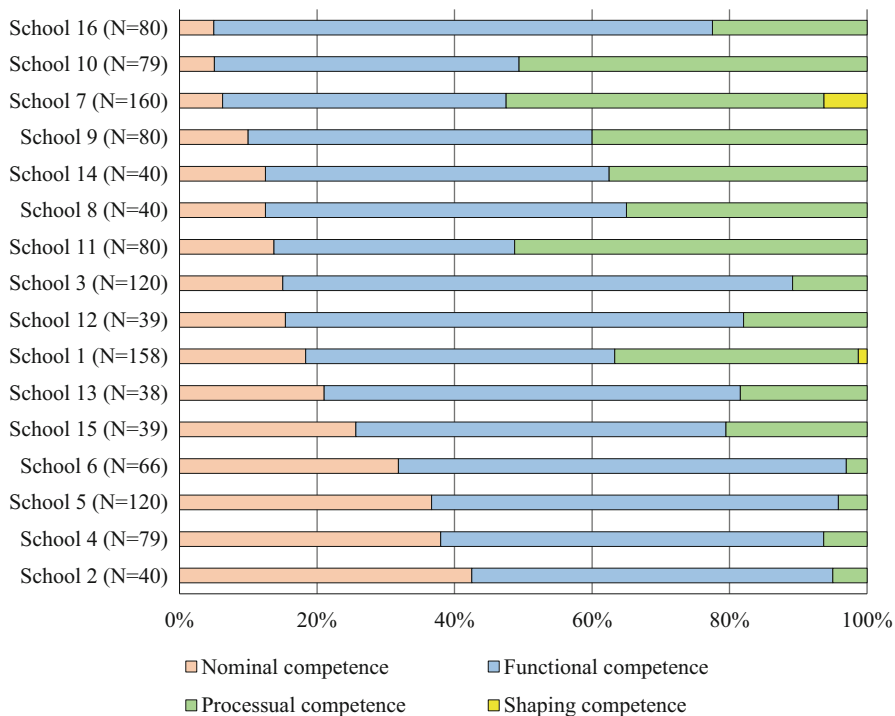
**Fig. 3** The profile of the professional competence of all students. (Source: own compilation)

vocational schools have not yet responded to these requests from medical practice in time. On the whole, nursing training is still traditionally function-oriented (medical model); the development of processual competence and shaping competence is deficient.

As shown in Fig. 4, there is a large discrepancy in the distribution of professional competence levels among schools. In School 1 and School 7, for example, several students reach the shaping competence level. Both of these two secondary specialized schools (zhong zhuan) have a long training history, which shows that the nursing training program has high requirements for professionalization, and the improvement of its training quality requires long-term accumulation of experience.

### A Comparison of the Professional Competence of Students in All Kinds of Schools

Secondary vocational education in China consists of three types of schools: secondary specialized schools, vocational high schools (zhi ye gao zhong), and skilled worker schools/technician colleges (ji gong yuan xiao). Secondary specialized schools and vocational high schools are administered by the MoE, while skilled worker schools/technician colleges are administered by the MoHRSS. The results show that there are significant differences in the distribution of professional competence levels of students among the three types of schools ( $\chi^2 = 134.773$ ,  $P = 0.000 < 0.01$ ). Skilled worker school students score higher than those of the other two types of schools, and the



**Fig. 4** The distribution of the professional competence level of students in all the schools. (Source: own compilation)

distribution of scores is relatively concentrated (Fig. 5). That means, the professional competence of students in skilled worker schools has been developed better, which may be attributed to the teaching reforms led by the two authorities in recent years: the MoHRSS advocates the teaching with the “integration of theory and business practice” (yi ti hua jiao xue), while the MoE emphasizes the development of students’ comprehensive literacy. The results are similar to those of the COMET assessments for other training programs (Zhao and Zhuang 2013).

Other differences among different types of schools also deserve attention. For example, there is a significant difference in the distribution of professional competence levels between students in public and private schools ( $\chi^2 = 649.101, P = 0.000 < 0.01$ ). The professional competence development of the former is better than the latter. Different regions can also cause significant difference in the distribution of professional competence levels of students (e.g., urban cores and suburbs) ( $\chi^2 = 72.996, P = 0.000 < 0.01$ ).

The results show that most students have established a relatively high level of identity on their vocational training. 92.84% of the students say that they are more interested in their training programs than when they entered their schools. But the students lack confidence. In particular, their self-confidence in tests and in the learning



Competence levels	Criteria		
Shaping Competence	Acceptability	Socio-cultural background	Creativity
Processual Competence,	Organization of the teaching process	Training quality control	Efficiency and effectiveness
Functional Competence,	Functionality in a specialized domain	Teaching objectives and content	Teaching approaches / methods

**Fig. 5** The criteria of professional competence assessments on specialized course teachers in vocational schools (Rauner 2013, 6)

content taught in schools needs to be improved. As long as their self-confidence in tests increases, their professional competence will be improved accordingly.

### Other Findings

We make the one-way ANOVA analysis of the students' scores of Chinese, Math, and English in secondary school entrance examinations with their "professional competence level." The results show that the F values in the overall test of the three independent variables, i.e., Chinese, Math, and English, respectively, are 96.921 ( $P = 0.000 < 0.01$ ), 59.921 ( $P = 0.000 < 0.01$ ), and 50.687 ( $P = 0.000 < 0.01$ ), all reaching a significant level. This indicates that the students' academic learning performance and professional competence are related, which is different from the results of the assessment results of the training program of the automotive maintenance (Zhao et al. 2015). It shows that teaching and learning in literacy courses also follow the principle of "domain relativity."

In addition, the level of the students' professional competence development is significantly related to their satisfaction with training resources, teaching content, teachers' working attitude toward them, and hospitals' perception of their vocational schools. The students are satisfied with the attitude and teaching content of their teachers, but not satisfied with the cooperation between schools and hospitals. In particular, the organization and coordination of internship need to be improved. With the improvement of professional competence, the satisfaction of the students with the cooperation between schools and internship hospitals is increasing.

### Follow-Up Work

The above highly relevant data prove that the quality of TVET can be monitored through the diagnosis of the "outcome indicator" of professional competence. The results of COMET assessments can help the TVET institutions to understand the

curriculum and training quality as well as the cooperation between schools and enterprises so as to make a comparison among TVET institutions, regions, and even different countries. By collecting the test participants' background information, the students' occupational identity can be analyzed. This is beyond the scope of traditional knowledge examinations, resulting in a more profound and accurate understanding of the results of implementation of TVET measures.

On the basis of these results, the Chongqing Educational Evaluation Institute convenes a meeting on monitoring results each year, gives feedback to the city government and relevant institutions on the results of COMET assessments, and underlines the core requirements for TVET quality assurance. After the meeting, the Municipal Education Committee organizes relevant personnel to urge the schools with poor test results to rethink their performance and put in place corrective measures. Some vocational schools have reformed the existing examination methods with reference to the COMET concept and established a professional competence evaluation approach that highlights "holistic competence," which also provides inspirations for the reconstruction of enrollment methods of the further training institutions in the future. Competence assessments also offer advice to education authorities on strengthening school management.

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## Professional Competence Assessments on TVET Teachers

In recent years, Chinese governments at national and regional levels have formulated many policies aiming at promoting teachers' professional development; a large number of further training programs have been carried out in public teacher training institutions and nongovernment further training institutions. Yet the effects of these policies and measures are far from satisfactory. Reasons why they are unsuccessful could be answered partly through professional competence assessments of TVET teachers.

### Research Foundations

Professional competence is cognitive psychological dispositions and development potential of a particular occupation. The professional competence of TVET teachers is their ability to holistically solve comprehensive education and teaching problems in a real educational work context (hereinafter referred to as "teachers' professional competence"). Figure 5 shows a three-dimensional model of teacher professional competence based on the COMET professional assessment concept (Rauner 2013; Zhang 2016; Zhao et al. 2017).

### Research Process

We implemented a psychometric test of the COMET teacher competence model and assessment model and analyzed the professional competence of TVET teachers

through formal tests based on that, including the verification of the professional competence model; pretest (pretest design and implementation, pretest rating, as well as the analysis and improvement of assessment criteria and test tasks); formal assessment, rating, and data processing; and diagnosis of occupational identity, organizational identity, and achievement motivation.

We conducted a criterion-related validity test on these tests and performed an independent samples t-test on the total scores of professional competence of two sample groups, i.e., teachers who have won awards in occupational skill competitions and teachers who have not. There were significant differences in the professional competence between the two sample groups ( $t(183.273) = -4.352, p \leq 0.001$ ). There were also significant differences in the scores of professional competence of teachers with different highest grades of occupational qualification certificates, showing that the professional competence test can effectively distinguish between excellent performers and average performers and has high validity (Zhang 2016; Zhao et al. 2017).

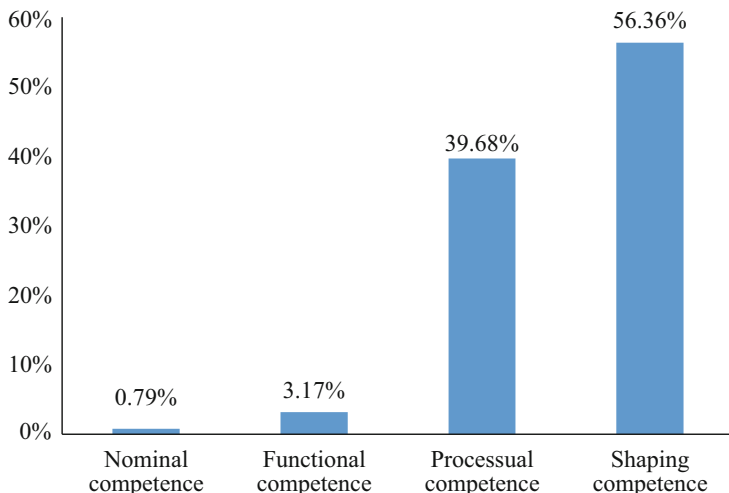
## Assessment Results and Data Interpretation

One hundred twenty-six mechanical manufacture teachers from five cities, i.e., Beijing, Guangzhou, Chongqing, Changchun, and Wuxi, participated in the test. The results show that 0.79% are at the nominal competence level, 3.17% reach the functional competence level, 39.68% reach the processual competence level, and 56.36% reach the shaping competence level (Fig. 6).

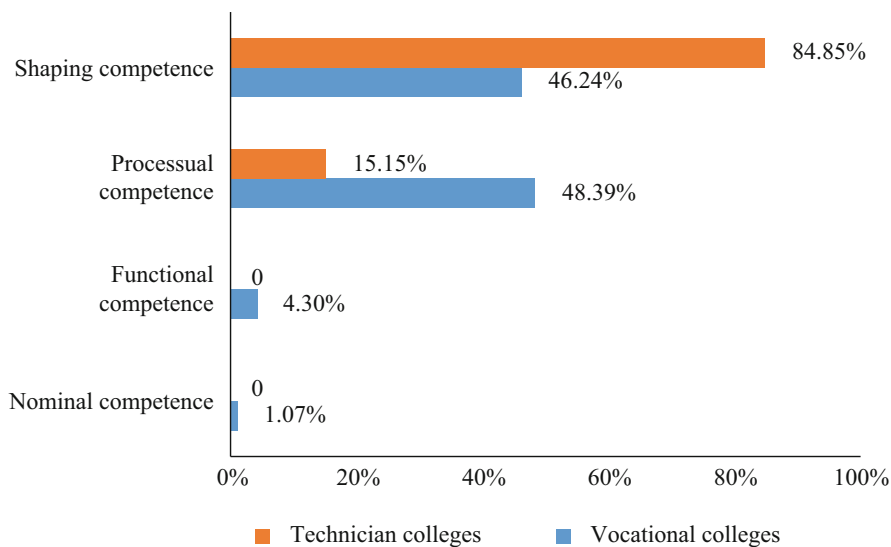
There is a significant difference in the distribution of the competence of teachers in different types of vocational institutions (Fig. 7). Teachers in higher vocational colleges are mostly at the processual competence level (accounting for 48.39%), and 46.24% reach the shaping competence level, indicating that the overall level of teachers in such colleges is high. Teachers in technician colleges in Guangzhou have the top professional competence. 84.85% of these teachers reach the shaping competence level, while 15.15% of them reach the processual competence level. None of them is at the nominal competence or functional competence level. These may contribute to the outstanding achievements of students from such colleges in the COMET professional competence assessment and in the last WorldSkills Competition in 2017.

The data show that there are differences in the level and characteristics of professional competence of teachers in different regions. The gap of the professional competence among teachers in Guangzhou is the smallest, indicating that the overall development of teachers in this city is relatively balanced. This gap in Chongqing is large, which reflects the regional differences and interschool differences between western regions and developed coastal cities.

The comparison of the competence profiles shows that teachers in vocational colleges have a high level of academic education, while teachers in technician colleges have rich work experience in enterprises. Compared with a high level of academic degree, work experience in enterprises can be more conducive to promoting teachers' professional competence development.



**Fig. 6** The distribution of the competence level of teachers. (Source: Zhang 2016, 119)



**Fig. 7** The distribution of the competence level of teachers in different types of schools. (Source: Zhang 2016, 119)

“Occupational identity” refers to the teacher’s recognition of the concept and meaning of the occupation in which he/she works, which gradually takes place in the process of professional work under the specific social context. The occupational identity of teachers in technician colleges in Guangzhou (13.03) is lower than the national average (13.40), which is in sharp contrast to the fact that their

competence level is higher than the national average. “Organizational identity” is the perceptions and feelings of members of an organization about the organization they work for. The average of the organizational identity of teachers in technician colleges in Guangzhou is 13.86, which is slightly lower than that of all types of schools participating in the test (14.11). The achievement motivation of the teachers was tested according to Gjesme and Nygard’s (1970) Achievement Motivation Scale (AMS). The average of the achievement motivation of teachers in technician colleges in Guangzhou is 10.99, higher than the national average of 10.38.

The level of professional competence and achievement motivation of teachers in technician colleges in Guangzhou is higher than the national average, but the level of their occupational and organizational identity is lower than the national average. Apart from the schools in Guangzhou, all other test participants come from institutions in the charge of education authorities. This shows that, compared to those institutions in the charge of the MoE, teachers in technician colleges in the charge of the MoHRSS (e.g., Chinese labor ministry) have a lower level of identity with their occupation and colleges, which may be related to their traditional low social status and poor well-being of these schools and of the workers.

The research shows that the similar structures of students’ and teachers’ competence profiles imply the transfer of professional competence from teachers to students (Rauner 2015, 432). It is reasonable to conclude that the competence deficiencies of teachers restrain the holistic competence development of students. So trainers in the private training market, with competence profiles complementary to that of vocational school teachers’ existing (knowledge-oriented) profiles, is required.

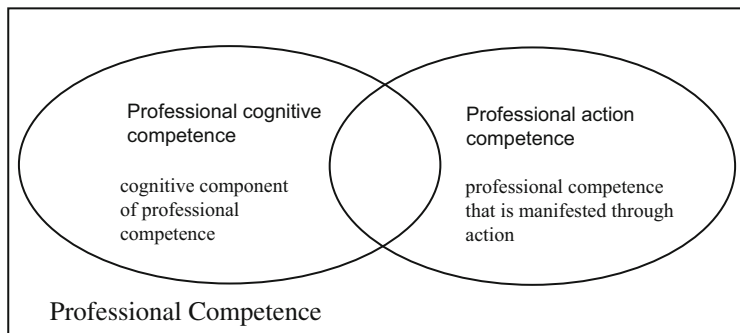
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## The Predictive Validity of Professional Competence Assessments

COMET professional competence assessments have also raised some doubt and questions. There is a common concern: according to the COMET concept, pen-paper tests are organized to assess learners’ cognitive abilities. To what extent the results of such cognitive assessments can reflect test participants’ performance in real work process and contexts? This is the so-called predictive validity of competence assessments. Here we will discuss the accuracy of competence assessments in predicting the psychic traits or performance of test participant in the future working life.

## The Theoretical Framework

Professional competence refers to people’s ability to engage in a profession. It can be divided into the cognitive component, the component that is manifested through action, and the rest besides the two. As an operational definition, we understand the



**Fig. 8** Professional competence composition

cognitive component of professional competence as professional cognitive competence and the component that is manifested through action as professional action competence (Fig. 8).

### Professional Cognitive Competence

Professional cognitive competence refers to the cognitive competence that an individual needs to complete professional work. It is manifested as follows: to inform in work task, conditions, and context, to develop a reasonable action plan, to adjust the action plan based on the actual situation in the course of action, and to reflect on the course of action and results. Professional cognition is based on work experience and work process knowledge.

In professional working practice, theoretical knowledge can hardly guide and lead to a successful practice directly (Fischer and Boreham 2004). Work-related knowledge is not a mental state of an individual but a shared understanding built up through communication in the workplace. Work process knowledge is of great significance. It is the knowledge directly needed (as distinguished from theoretical knowledge) and self-acquired in the process of work. It is built up in the context of the successful establishment of work objectives, the development of plans, the implementation of plans, and the assessment on the results of the work (Fischer 2000, 121). Work process knowledge can be acquired through empirical learning, the application of theoretical knowledge, or reflection and integration of experience and theoretical knowledge acquired at work (Kruse 2002). Based on Benner's (1982) and others' empirical research, Rauner summarizes the characteristics of work process knowledge, i.e., sensitive, background, situational, paradigmatic, communicative, and forward-looking (Rauner 2017, 53). Work process knowledge exists in three levels, namely, occupation, organization, and individual (Lindberg 2003, 40–61). Occupational norms or practices belong to work process knowledge at the occupational level; business production and management processes belong to work process knowledge at the organizational level; in a specific work circumstance, an individual integrates knowledge at the occupational and organizational level to form work process knowledge at the individual level (Billet 1996). Cognition in

professional work has social and situational characteristics: The organization of labor which an individual works for is the basic unit that constitutes the society, and the cognition at work takes place in a particular social context (Lave 1988, 63).

### **Professional Action Competence**

Professional action competence is the professional competence manifested through action. It is the will and ability of individuals to think carefully and appropriately in specific occupational, social, and private situations and act responsibly for individuals and society (KMK 1996). During TVET learning process, action competence helps learners to design actions which are clear-headed, conscious, flexible, rational, and responsible with self-critical and reflective skills for complex and uncertain occupational contexts (Pätzold and Busian 2004, 504). The fundamental difference between professional action competence and skills is as follows: skills are manifested through the completion of a certain duty, while professional action competence can only be manifested through the completion of a complete professional task.

### **The Relations Between Professional Cognitive Competence and Professional Action Competence in Work Situation**

According to the action regulation theory, cognition is the starting point of action, which controls the action in the process and comes from the action. Cognition in professional work comes from professional action. Both are closely linked to solve problems at work. The individual cognitive process in work situation is a cycle of “identifying the problem – dialoguing with the situation – getting the response.” Work experience and work process knowledge help individuals identify problems and gain an understanding of the problem situation. The individual tests identified problems through “action” or “thinking operations” and then use work process knowledge to develop a solution. In doing so, they accumulate work experience focused on the current problem situation, which lays a foundation for solving similar problems in the future (Volpert 1982, 1987; Abeli 1980, 1981).

Professional action competence reflects the characteristics of professional action of individuals. Professional action is carried out in a specific society, organization, or community and subject to relevant norms. For specific problem situations, members of a community manifest similar professional actions; different problem situations trigger different actions. Complete actions include developing an action plan, implementing the action, and adjusting the action plan to the actual situation during the course of the action so as to ultimately achieve expected results. Professional tasks represent the typical work content and work style of the profession. The way of fulfilling the tasks and the results are usually open-ended (Howe 2008; Reinhold et al. 2003).

### **Research Methods**

The hypothesis that the research attempts to prove is that “the results of professional cognitive competence assessments can predict professional action competence.” Measurement indicators are chosen according to the following principles: “guided

by certain theoretical assumptions; can reflect the major dimensions of theoretical assumptions and research variables; and concise and feasible” (Dong 2008, 110). Two indicators, i.e., “informing” and “planning,” are used to measure professional cognitive competence, of which:

- Informing: refers to the search for information in complex and ambiguous situations and identifies key problems to define work objectives; after analyzing the gap between realities and the objectives, determine the subjective and objective conditions and tasks needed to achieve the objectives.
- Planning: devise a solution to the problem based on identified tasks, including the content, procedures, stages, and essential conditions of the work action. Consider the given equipment and organizational conditions, and determine the best solution from various options.

Two indicators, i.e., “implementation” and “assessment,” are used to measure professional action competence, of which:

- Implementation: refers to the process of work according to the best solution planned. There are often deviations between implementation and the plan. It is necessary to observe and record these deviations in time and make reasonable adjustments.
- Assessment: assess the work process and work achievements from various perspectives, including technology, economy, and the society.

Three training programs, i.e., automotive maintenance, CNC technology, and electrical automation, are chosen for the research of the predictive validity of professional cognitive competence tests. The professional work of these three programs has high requirements for professional cognitive competence and action competence and is representative for research questions.

We developed assessment tasks based on professional tasks and asked the test participants to complete the COMET competence assessment so as to assess their professional cognitive competence. After that, we asked the test participants to solve problems through practical actions so as to assess their professional action competence. Due to the complexity of the professional tasks and the length of time required to complete the tasks, the participants may experience fatigue and the accuracy of the tests may be reduced. In order to reduce the test time and ensure the representativeness of the test content, we developed two parallel assessment tasks, which were alternately distributed to the test participants during the assessment. Each participant only needed to complete one assessment task. This could ensure that the test content as a whole covers more than 50% of the professional work and learning content at corresponding stages. Here, “parallel” means that the assessment tasks have the same or very similar requirements on the participants’ competence. Whether the assessment task was “parallel” was judged by practice experts, and researchers made assessments by means of assessment techniques.



Based on the two main indicators to measure professional cognitive competence, i.e., “informing” and “planning,” and the two main indicators to measure professional action competence, i.e., “implementation” and “assessment,” we set out specific rating indicators and ensured the integration of the rating indicators of the professional cognitive competence assessment and those of the COMET program. Taking into account the high costs of professional action competence tests and the requirements of data analysis, we sampled by class at an affordable cost, taking two classes for each specialty.

According to the requirements of the assessment tasks, we requested relevant schools to provide qualified raters, test sites, equipment, materials, etc., before the tests. We rated based on the assessment criteria and on-site during the professional action competence assessment. For the specific content, the correlation analysis and the confirmatory factor analysis were conducted. Due to space limitations of this chapter, the research process and the specific data analysis are omitted.

### Findings Concerning the Predicative Validity of COMET

We found that the results of the COMET professional cognitive competence assessment can predict the professional action competence, and large-scale professional competence assessments can comprehensively and effectively assess professional competence.

- Training program of automobile maintenance: By using “informing” and “planning” to measure professional cognitive competence, and using “on-site analysis,” “preparation for maintenance and cleanup,” and “assessment” to measure professional action competence, we found that the standardized correlation coefficient between the results of the professional cognitive competence assessment and those of the professional action competence assessment was 0.32 ( $p < 0.01$ ).
- Training program of CNC technology: By using “informing” and “planning” to measure professional cognitive competence, and using “implementation” and “assessment” to measure professional action competence, we found that the standardized correlation coefficient between the results of the professional cognitive competence assessment and those of the professional action competence assessment was 0.60 ( $p < 0.01$ ).
- Training program of electrical automation specialty: By using “informing” and “planning” to measure professional cognitive competence, and using “installation,” “cleanup,” and “assessment” to measure professional action competence, we found that the standardized correlation coefficient between the results of the professional cognitive competence assessment and those of the professional action competence assessment was 0.55 ( $p < 0.01$ ).

According to the criterion of predictive validity, the correlation (or validity) coefficient between the test scores in practice and the real work performance rarely exceeds 0.5. In general, if the correlation (or validity) coefficient reaches 0.3 or

above, the test can be considered useful in predicting work performance (Biddle 2005, 79). The results show that the professional cognitive competence assessments for all the three training programs can predict professional action competence, which proves that large-scale professional competence assessments can not only directly assess professional cognitive competence but also effectively predict professional action competence.

The research also found that in different occupational fields or training programs, there are differences in the influences of mechanisms of professional cognitive competence on professional action. For the automotive maintenance sector, “planning” has a direct influence on “on-site analysis” and “maintenance,” with the standardized path coefficient of 0.10 and 0.15, respectively. For the CNC technology sector, “planning” has a direct influence on “implementation,” while “informing” has a direct and relatively large influence on “assessment,” with the standardized path coefficient of 0.29 and 0.18, respectively. Different influencing mechanisms led to the difference in the predictive validity of professional cognitive competence assessments on professional action competence in different sectors. For the CNC technology sector, the content of the existing assessment has high predictive validity. For the automotive maintenance sector, the standardized path coefficient of “on-site analysis (fault detection) → maintenance” reaches 0.55. If the assessment on the cognitive competence during the onsite analysis is included in addition to the existing assessment content, the predictive validity of the professional cognitive competence assessment will be further improved.

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## Conclusion

COMET professional competence assessments can effectively evaluate professional competence. Such large-scale assessments can not only diagnose the level and characteristics of professional cognitive competence but also effectively predict professional action competence. In addition to assessing professional competence, COMET assessments can collect factors affecting professional competence development at the individual, school, enterprises, national, or regional levels through background questionnaires, so as to provide key parameters on the quality of TVET, to help education and labor authorities improve their ability of designing the TVET system and controlling training quality, and to provide an empirical basis for constructive dialogue and cooperation among all actors engaged in TVET.

However, it is difficult to track data in large-scale professional competence assessments, so it is hard to assess the process of students’ professional competence development. Longitudinal research and design is a key component of assessment research in the future.

Some international companies in China such as SAIC Motor and Apple have noticed the inspiration of the COMET assessment for human resource development, like the competence assessment for recruitment and the design of learning tasks for in-company training, who began to introduce its leading ideas and competence

model. The Japanese company FANUC even plans to develop its own trainer's competence profile and to train the trainers of its end-user organizations accordingly. Some training companies specializing in the development of educational technology are also trying to develop intelligent, scenario-based e-learning resources based on the COMET concept, so as to provide simulation training and capability evaluation services based on artificial intelligence technology for high-tech work. Whether this kind of effort will be successful depends on the effectiveness of COMET assessment model, especially the integration of scoring technology and artificial intelligence.

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**Part VIII**

**Supporting Learners**

***Joy Papier***



Maggie Gregson and Brian Todd

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## Abstract

The Sainsbury (Report of the independent panel on technical education, Department for Education and Skills, London, 2016) draws attention to the importance of ensuring that proposed new standards for vocational and technical education in England are not reduced to the simplistic functional analysis of narrow job roles (an approach prevalent in England from the 1980s to the present), or limited to

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include only the short-term, instrumental needs of individual employers. This lesson is either hard to hear or difficult to learn. Over 20 years ago, Wolf (Competence based assessment. Open University Press, London, 1995) and, more recently, Wolf (Review of vocational education. Department of Business Education and Skills, London, 2011) warned of dangers in the use of functional analysis in the development of vocational standards on the grounds that such approaches tend to lead to the production of “bewildering lists of atomised ‘skills’ and a rather ‘tick-box’ approach to vocational assessment.” Behind this stands the deeper point, that the search to find an absolutely perfect list of vocational standards of knowledge, skills, and attitudes is costly, time-consuming, and ultimately self-defeating because, at the end of the day, all that you have is a longer/different list. Sennett (*The Craftsman*. Penguin, London, 2008) reminds us that what we mean by good quality work and what we consider to be effective approaches to assessment are central to good educational practice in a wide variety of vocational contexts. Literature from the field of educational research supports the claim that when teaching, learning, and assessment are seen as integrated forms of good educational practice, high levels of achievement can be realized. However, meaningful and workable standards of quality and research-informed assessment practice are not yet well understood or widely evident in the English system of vocational education and training (and possibly elsewhere).

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**Keywords**

Apprenticeships · Formative and summative assessment · Functional analysis · Quality · Vocational education

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## Introduction

The history of education is marked by spirited and often contentious debates about its nature and purpose. It is interesting to note how the purposes and practices of education differ from time to time and place to place. These variations are partly due to the cultural, social, economic, and political priorities of the time and partly to do with different ideas about what constitutes knowledge and truth (Lawton and Gordon 2002).

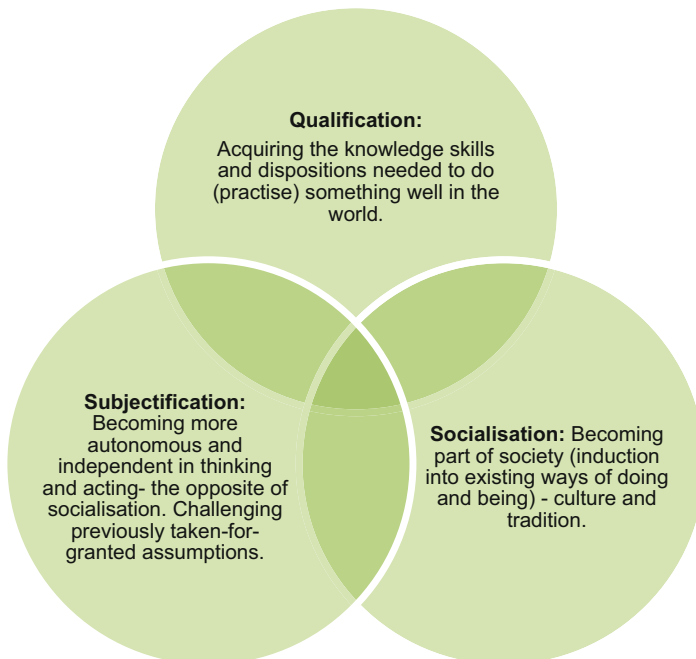
This chapter focuses upon the practices of vocational education and the development of craft. It traces the establishment standards of quality and approaches to assessment in vocational education, beginning with their origins in ancient Greece, through the early craft guilds of the middle-ages and beyond to policy initiatives which have impacted upon vocational educational in England from 1980s to the present. It aims to demonstrate how and why standards of quality and assessment practices in vocational education today might be better informed by returning to enduring understandings of what we mean by good quality work; questions of how to make vocational standards meaningful and workable in practice and by paying attention to how research evidence from the field of formative assessment might contribute to improvements in assessment practice in contemporary vocational education.



In England, the term vocational still carries second-rate connotations, in a culture where “academic” and “professional” education are prized above an education for the purpose of pursuing a craft or “trade.” Dewey (1916, 1933) is critical of such narrow thinking. He points to the importance of recognizing that the meaning of the word “vocation” (from the Latin *vocātiō*) involves a calling to do something well in the world for its own sake. This includes the intrinsic rewards that come from knowing that we have done something well, sometimes in the interests of others.

Dewey argues that it is necessary to define the meaning of a vocation with some fullness in order to avoid giving the impression that an education centered upon a vocation is narrowly practical or something that is done just for financial reward. Carr (1987) describes these returns as “delivering the internal moral goods of education” – the intrinsic rewards that come from doing a job well for its own sake. Most of us have experienced the personal fulfilment and other intrinsic rewards that accompany a sense of a job well done. On the other hand, the consequences of being on the receiving end of a badly designed/poor quality product or a shoddy service are all too familiar.

In relation to the question of “good” education, Biesta (2010) invites us to reconnect with considerations of the purposes of education. He identifies three fundamental dimensions of education, *subjectification*, *qualification*, and *socialization*. These are presented and described in the context of this chapter as follows:



The overlapping sections within Biesta’s (2010) Venn diagram underscore the argument advanced above by Dewey, regarding the importance of educating the whole person and not just “training” in a narrow skill or “teaching to the test.”

In the next section, the limitations of training solely for narrow job roles and the short-term instrumental needs of individual employers will be discussed more fully.

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## Main Discussion

### Curriculum Design and Assessment in Vocational Education

Young (2008, p. 128) notes how in England the *Review of Vocational Qualifications* in 1987, signposted “a shift. . . from a qualification system based on *shared practices* and professional judgment, to one based on formally explicit *criteria*, capable of being defined independently of any specific experience or practice” (original emphasis).

Through the work of Raggatt and Williams (1999), Young points out that support for this type of vocational reform was initially tied to the government’s determination to break the power of trade unions, which they saw as using trade and craft qualifications to perpetuate restrictive practices. Young also notes that,

The attempt to ‘break with the past’ has been a familiar feature of qualification reform, and not only associated with the political Right. Similar frameworks have been introduced in Wales and Scotland strongly supported by the New Left of Centre coalitions leading the Assembly and Parliamentary Executives. (Young 2008, p. 129)

Young locates the roots of this shift to a political culture fuelled by the market-driven dogma of consecutive Conservative and New Labour governments. This he argues, marked the introduction of a more “user-led” vocational education and training system based upon competition and commercial values rather than upon more enduring educational concerns.

Drawing upon examples from England, New Zealand, and South Africa, Young supports Wolf (1995) where he identifies how the use of functional analysis in specifying vocational standards and developing outcomes-based qualifications has led to impenetrable jargon, endless over-specification, bureaucratic assessment procedures, and the trivializing of vocational learning. This move he argues has led to resistance rather than support from universities and other professional bodies, in part at least because it has tended to neglect the importance of curriculum content, context, and the role and nature of vocational pedagogy.

Elliott (2001) and Coffield (2008) draw attention to the ways in which outcomes-based qualifications and functional analysis, coupled with “top-down” approaches to the development, implementation, and evaluation of policy in vocational education and training in England, have led to an avalanche of policy initiatives and the specification of too many standards which, in turn, have become chronically over-prescribed. Functional analysis and outcomes-based qualifications have certainly not served the English system of vocational education well to date (Wolf 2011). There is clearly a big gap between specifying a set of standards and making them “good” in

practice. The amount of new learning involved in making vocational standards “good” in practice is often underestimated and even ignored in favor of political “quick fixes” and questionable claims regarding their success (Eraut 2004; Coffield 2008; Sennett 2008).

It is becoming increasingly obvious that long lists of vocational standards and outcomes-based qualifications cannot be put into practice effectively and that vocational standards arrived at via functional analysis and outcomes-based qualification appear to be ironically dysfunctional and unfit for purpose (Wolf 1995, 2011; Young 2008; Sainsbury 2016).

In the search to find the perfect list of knowledge, skills, and attitudes, functional analysis has generated lists of baffling complexity, which have proved to be difficult if not impossible to realize in practice.

Coffield (2008) notes wryly, that the English Emperor of Vocational Standards has “too many clothes!”

The shortcomings of current understandings of what counts as quality and what constitutes good assessment practice in vocational education and training in England are increasingly recognized and reported in the literature (Sainsbury 2016; Commission for Adult Vocational Teaching and Learning (CAVTL) 2013; Wolf 1995, 2011; Young 2008). If we accept that these curriculum, problems and their consequences in practice can occur at all levels of the education system, then we can see that a sound understanding of standards of quality and good assessment practice are as vital for teachers of vocational and technical education and training, as they are for teachers in any other sector of education.

The introduction of the Apprenticeship Levy in England in April 2017 offers employers opportunities to collaborate with providers of vocational and technical education to develop qualifications in which vocational standards and the assessment of learning can move beyond functional analysis, outcomes-based qualifications, and the ticking of lists. The success of the New Apprenticeship Standards in England will to a large extent depend upon how far curriculum design, pedagogy, and assessment practice in the field of vocational and technical education can loosen the grip of approaches to the specification and assessment of vocational standards which were introduced in England in the 1980s and are now ubiquitous across the sector.

This chapter argues that a sea change is needed in terms of perceptions of standards of quality, outcomes-based qualifications, and approaches to assessment in vocational education. It extends an invitation to the reader to engage in a discourse, which aims to enable vocational education to move beyond the use of long lists of occupational standards and assessment regimes based upon checklists. This will require, however, a return to considerations of what we take to be good quality work and how the craft of experience and the development of practice have been learned, modified, and extended into new crafts and practices in vocational education across centuries. As the actor Jake Gyllenhaal (2016) reminds us, “craft is in every job done well . . . and there is a public obligation and a duty upon each of us to practise our craft well.”

## Work and Standards of Quality in Vocational Education

For most people work is a necessity not an option. We work to make a living and in order to make a living we have to learn to do (or practice) something in the world, which is acceptable and of value to others and in which, ideally, we can find both intrinsic and extrinsic rewards. Dunne (2005) defines a “practice” as,

A coherent and invariably quite complex set of activities and tasks that has evolved co-operatively and cumulatively over time. It is alive in the community who are its insiders (i.e. its genuine practitioners) and it stays alive only so long as they sustain a commitment to creatively develop and extend it – sometimes by shifts which may at the time seem dramatic or even subversive. Central to any such practice are standards of excellence, themselves subject to development and redefinition, which demand responsiveness from those who are, or are trying to become practitioners. Dunne 2005, pp. 152–153

For Dunne, from this perspective, the range of “practice” includes examples as various as “cabinet-making, physics, farming, chess, computer-programming, metal-work, the study of history, rearing a family, music-making, drama-production, soccer and weaving” (p. 154). In acquiring a practice or a craft we learn how others think and have thought (Lipman 2003). How they have gone about making a living in this way before us. We also learn something of the history, traditions, skills, routines, and rituals of the craft we are pursuing and how we got to where we are in practice. Sennett (2012) observes that we make the way we live together through concrete practices and that these say a lot about the human condition. For Sennett, this includes our need and ability to co-operate with each other so that we can do together what we cannot do on our own. The concrete practices we use as we go about passing on craft knowledge and skills to future generations are perhaps the most important of all because they signal assumptions about what we think it means to learn a craft and to practice it well. They also mark our taken-for-granted understandings of: how skills should be passed from generation to generation; how we should arrive at assessments of progress; how we should recognize improvement and achievement in practice; and how we should make judgments about what we mean by and take to be good quality work.

Sennett (2008, p. 52) describes a “skill as a trained practice,” which begins with careful observation, imitation, and repetition and progresses in line with how repetition is organized. The first stage of skill acquisition he argues involves “ingraining the habit” through disciplined observation, obedience, imitation, and investigative repetition.

From the above points of view, a skill can be seen as a set of trained coherent and complex activities, which through practice (repetition/problem-finding and problem-solving) and critique can lead to the mastery, creative development, and extension of standards of excellence, which are themselves subject to active development and redefinition by practitioners in the light of practical experience.

The difference between brute imitation of procedure and the larger understanding of how to use what we know, Sennett contends is a mark of all skill development. Sennett notes that a person who cannot observe, cannot enter into an open dialogue

with someone more skilled about how to improve a practice. This is because the open relationship between problem-finding, problem-solving, and critique that builds and expands skills cannot be reduced or confined to a one-off demonstration or event. For Sennett, practice must develop through observation in conversation, in dialogic and open-ended ways which encourage the apprentice to think for themselves in action, as they interact with the tools, materials, objects, and human beings in the context of their practice and as they address often complex, unexpected, and unfolding problems at work (CAVTL 2013).

Sennett (2008, p. 80) points out that “there can be no skilled work without standards.”

He uses the term “embedding” to describe a process which he maintains is essential to all skills development, a process which involves the conversion of information and practices into tacit knowledge which has become so routinized that we don’t have to think about it.

In learning a skill we develop a complicated repertoire of such procedures. In the higher stages of skill there is a constant interplay between tacit knowledge and self-conscious awareness, the tacit knowledge serving as an anchor, the explicit awareness serving as critique and corrective. Craft quality emerges from this higher stage, in judgments made on tacit habits and suppositions. Sennett 2008, p. 50

In relation to the question of the role and nature of vocational standards, Sennett invites us to begin by considering what we mean by good quality work. One way to go about this, he suggests, is to specify how something should be done, a standard of absolute correctness (which he points out is rarely, if ever, reached). Another way to look at the issue of quality, he argues, is as a standard, which is good enough to get something to work (functionality - getting something finished to a standard where it can be used).

The deeper point, Sennett alludes to here, is that this dichotomy may be false.

He maintains that standards of practice (including tacit knowledge) are best passed on when they are embodied in a human being through shared practice and mutual engagement in the exercising of professional judgment in context, rather than in a lifeless, static code of practice. To do good work, he contends, means being curious about practice. This involves investigating and being able to learn from ambiguity in a “liminal” or “transactional” zone between problem-finding and problem-solving. Echoing Dewey’s (1933, 1934) pragmatic epistemology, Sennett calls for a more holistic form or standard of practice which involves, observation, investigative repetition, dialogue, and critique including learning to understand material/social resistances encountered in contexts where things do not always go as expected. Learning how to act in a “liminal” or “transactional” zone of practice, where it is difficult to know what to do next, takes us well beyond the ticking of checklists. Recognition of this liminal zone is important Sennett claims, because human experience and reality do not fit neatly into discrete or narrow systems of classifying practice. For Sennett, good practice has to be able to admit the unexpected, encourage experiment, and recognize the importance of contingency and context.

When a set of vocational standards begins to constantly churn out, reform in terms of ever more prescriptive lists of atomized standards and skills in the search for absolute perfection, the volume and pace of reform, “doesn’t allow the tacit anchor to develop, then the motor of judgement stalls” (Sennett 2008, p. 50). He goes on to draw attention to how, in such situations, “people have no experience to judge, only a set of abstract propositions about good quality work” (ibid.).

The experiential standard is treated with suspicion. In other words, people are expected to act as if experience is *not* real and as if abstract, absolute standards *are* real.

Young (2008) demonstrates how authors of vocational standards across the years who have attempted to eliminate embedded knowledge in the name of rational analysis have discovered to their cost that tacit knowledge does not easily translate into words or readily submit to being framed in terms of logical propositions.

On one hand, in relying upon standards of practice alone, people may simply muddle through settling for the “quick fix,” producing what is acceptable or even mediocre, neglecting the pursuit of higher standards. On the other, absolute standards of quality may prove to be too abstract and unworkable in practice. People need to learn how to put things into practice and that takes time, mutual engagement, and cooperation (Sennett 2008, 2012; Fielding et al. 2005). It also involves the opening up of dialogue and spaces at work where people can problem-solve, problem-find, imagine, invent, and share ways of working and being together as they learn about how to put good ideas into practice in new ways in complex and unfolding situations and contexts (Gregson and Hillier 2015; Sennett 2012; Eraut 2004).

Sennett asks us to consider three fundamental questions central to good vocational education. Firstly what we mean by good quality work including how to make standards of good quality work explicit, meaningful, and workable in practice? Secondly, how to encourage dynamic problem-finding, problem-solving, and curiosity in practice? Finally, how to create conditions where shared experience of resistance and ambiguity become the basis of a critical dialogue which enables and encourages people to work together in realizing the highest standards of practice?

When these principles of good vocational education are embedded in practice, Sennett claims, the lessons of experience can become the basis of a “dialogue between tacit knowledge and explicit critique” (2008, p. 51) in the pursuit of ever-higher standards of practice.

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## Issues of Assessment in Vocational Education

In establishing the purpose of a system of education, a course of study or a single lesson, in other words what it is “for,” then it is wise to look carefully at its assessment practices and procedures (Rowntree 1977). Approaches to assessment adopted by political administrations, education, and training organizations and businesses can reveal (often despite rhetoric to the contrary) what is really valued and what is actually rewarded in practice.

In vocational education, assessment practices and procedures signal to learners and tutors what they need to do (or not do) in order to achieve success. It is important therefore that vocational tutors are aware of the messages that different approaches to assessment transmit to learners. As argued above, vocational education and training involves learning to do something in the world. It also includes encouraging and nurturing the disposition to do it well, including being able to stand back from the world and look critically at what is taken-for-granted so that we can begin to see what we could do better and how things might be done differently.

Hyland (2009) draws attention to the “undifferentiated rise of skills talk and an obsession with prescriptive learning outcomes” in vocational education in England. He argues that this discourse and, the practices that accompany it, reduce vocational education to a “predominantly utilitarian, one-sided, economic conception, which suggests that all that counts is providing bits of evidence to satisfy narrow, mechanistic performance criteria” (Hyland 2009, p. 122). If for example, all that is taught and all that is learned on a course or in a lesson is how to *conform* to existing practices and centrally prescribed standards, assessed through narrow and instrumental learning outcomes, then it is easy to see how vocational learning can become, at best, instrumental and superficial, at worst, mechanical, manipulative, out of date, or even useless.

Important contributing factors to “good” vocational education (as argued above) include providing opportunities for observation, participation, imitation, investigative repetition, problem-finding, problem-solving, critical dialogue, autonomy, mutual engagement and cooperation, as well as developing the disposition and capacity to take pride in a job well done.

According to the national Commission for Adult and Vocational Training in England (CAVTL 2013), approaches to assessment in vocational education for the twenty-first century should enable and encourage students to acquire well-developed capacities for careful thinking and systematic, situated, practical problem-solving. CAVTL also call for the development of assessment practices and procedures across the sector that enhance learning in ways which encourage people to develop the capacity to respond effectively to unexpected developments in life and in the workplace through individual and collective learning so that they can share and solve problems together in a wide range of immediate situations and in the future. This is a far cry from the discrete specification of narrow and prescriptive learning outcomes and the provision of fragmented bits of evidence to demonstrate that they have been met.

Empirical research and literature from the field of formative assessment support claims that the guiding principles of formative assessment, active learning, making learning explicit, questioning, critical dialogue, problem-finding, problem-solving, self-assessment – helping learners to assess their own progress as part of the learning process, formative feedback, “closing the gap” assessment and the identification of next “steps to success” can enable learners individually and collectively to realize high levels of learning and achievement. However it is also worth noting that to date, this research has largely been conducted in schools and some of the guiding principles and techniques advanced by (among others) Wiliam (2006) and Clarke



(2001, 2008) may not be appropriate to the many sites of practice of vocational education. That does not mean, however, that we should not explore the potential of contributions from this field of research to the development of approaches to assessment in contemporary vocational practice.

From the above, it is clear that the guiding principles and techniques of formative assessment resonate with many of the practices, which have resided at the core of learning a craft for a very long time. This is not to argue that formative assessment is currently completely absent from assessment practice in vocational education today. Indeed (as argued above), it could be claimed that the “mastery” of any craft has always involved observation, questioning, formative feedback, problem-finding, problem-solving, co-operation, the development of tacit knowledge, and explicit critique. A key point to note, however, is that while some formative assessment practice is evident in vocational education, it is currently being pushed to the margins, by the dominance of centrally prescribed, vocational standards based upon technocratic functional analysis, outcomes-based qualifications, and tick box approaches to assessment. Such highly instrumental assessment purposes and practices are in danger closing down the conversations and “spaces” in which formative assessment and the dynamic development of practice need to operate. Formative assessment is becoming disconnected from vocational practice to the extent that its guiding principles and techniques are not being used to their fullest capacity in vocational education contexts.

Drawing attention to how active learning is at the heart of formative assessment, Clarke (2001) illustrates that as with most things of any importance in education, formative assessment has been argued over, misinterpreted, and misused. She urges teachers and other educational professionals not to regard formative assessment as a series of techniques or “recipes” that can simply be mechanically “inserted” into educational practice, but rather seen as a kind of social practice which *integrates* assessment, learning, and teaching. She foregrounds how the techniques of formative assessment must always be put into practice in ways that promote active learning.

Clarke (1998, pp. 50–73) offers practical strategies illustrating how formative comments on written work can enable learners to see how they can begin to “close the gap” between their current and potential levels of achievement. Clarke (2008) demonstrates how the use of open questions and the identification and discussion of success criteria and process objectives can not only help learners to think more critically, carefully, and for themselves but also improve their learning and achievement. She argues that the use of open questions, the articulation and negotiation of “process success criteria,” and self and peer assessment are important in helping learners to “see” and share what success looks like and to learn from these shared understandings. These techniques, she maintains, are particularly helpful in enabling learners to recognize what is involved in the experiential and incremental process of moving towards success in their learning.

In order to maintain the principle of active learning in formative assessment, Clarke advises teachers to collaborate with the learners in planning; deciding contexts for learning; identifying success criteria; discussing “good work”/quality;



engaging in continual paired or whole group talk; critically analyzing learning as it is happening and through constantly reviewing what success and improvement means and looks like in practice. Guiding principles of formative assessment, first developed by Wiliam (2006) and later extended by Clarke (2008), are illustrated more fully in [Appendix 1](#).

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## **Good Quality Work and Making Vocational Standards Explicit**

In considering the question of what we mean by good quality work and how to make standards of good quality work explicit, meaningful, and workable in practice, it may be helpful to look back before we look forward.

Lopez (1971) describes a time when the journey into a craft was literal and embodied in a wandering way of life in which craft workers moved from place to place plying their trade. The workshop, historically one of the oldest economic and social institutions, is significant because it signals settlement. In ancient Greece, through the use of more sophisticated if less portable tools, the workshop demonstrated how shared and settled workers could become more skilled than their itinerant counterparts. The growth of urban workshops in medieval times led to the establishment of craft guilds designed to manage conflict between competing workshops and to act as gatekeepers in assuring the authenticity and quality of the goods produced. Masters who owned the workshops contracted apprentices for 7 years. Apprenticeships came at a price, the costs usually paid by the parents of the young person in question. Journeymen who had completed their apprenticeships were contracted by masters for a further 3 years. The workshop doubled as the home for all three levels of craft worker and they lived and worked on the premises. At the end of their training, the apprentice presented a piece of work, which demonstrated to the rest of the workshop what they could achieve. The apprentice's presentation was largely focused on copying or imitating the journeyman or master with the master being the initial (and often final) judge of the quality of the work. This work was sometimes subsequently exhibited in the guildhall and could be commented upon by anyone in the city. Apprentices were not allowed to speak or explain their work during the assessment/exhibition nor were their journeymen or masters.

The work was expected to speak for itself.

Judges of the apprentice's final work engaged in shared critical thinking identifying the merits of each object and then decided if the work was good enough to pass. Apprentices whose work was not of a sufficiently good standard were given a second and sometimes a third chance to try again the following year. What is lost in this account are the moments of critical dialogue, shared practice, co-operation, mutual engagement in demanding tasks, problem-finding, problem-solving, and the exercise of professional judgment in context, which were threaded extensively and powerfully throughout the apprentice's everyday experience and deeply embedded in the formative and summative processes of assessment which contributed to the development of their practice prior to the final assessment of their work. In these relational circumstances, the spoken word, direct observation, repetition,

problem-finding, problem-solving, assessment criteria, explicit critique, feedback, and co-operation were and remain central pedagogical features in the development of practice.

Today in the workshop, studio, office, factory, or laboratory, the spoken word can often still prove to be more effective than written instructions. When a procedure becomes difficult, it is usually quite easy to ask someone else for advice. For this to happen you both often have to be in the same place at the same time. An advantage of this arrangement is that learning becomes local. A disadvantage, however, is that it also becomes less portable/accessible beyond the immediate context of the practice.

Modern journeys into practice have come to rely heavily upon the written word in the form of long lists of pre-specified, prescribed standards, framed in terms of discrete competences, which are in turn made up of knowledge skills and attitudes to be demonstrated and assessed through the completion of checklists. The language of instruction used to make the standards explicit is often expressed as verbs framed in terms of observable and measurable cognitive, psychomotor, and affective commands/outcomes. However, as Sennett (2008, p. 183) points out, “verbs name acts rather than explain the process of acting; this is why they tell rather than show . . . in their sheer number and density the verbs cast an illusory spell; in reality the verbs are at once specific and inoperative.” A problem here is that, while each verb used in contemporary vocational standards issues a command often framed in the terms of Cognitive, Psychomotor and Affective Domains set out in Bloom’s (1956) Taxonomy of Educational Objectives and although the list of commands may (arguably) be accurate, they are simply not enough to support vocational learning effectively. One reason for this is because they do not explain the process of acting. Another is that they do not attend to ways of thinking and acting in the cognitive, affective, and psychomotor domain, nor do they accommodate how learning in all three domains interacts in human thinking and in doing or making something in the world. They are also ominously silent on the subject of the internal rewards that come to human beings from doing a job well and together to the highest possible standard. Furthermore, written lists of standards do not help to convey what success looks, feels, sounds, smells, or taste like in the process of doing something well. Finally such lists rest upon the assumption that progress in the development of a skill is linear, thereby overlooking or underestimating the irregular developments, cul-de-sacs and detours which are the hallmark of the journeys towards skill development that most of us experience.

Put together by (often remote) experts, these lists of verbs are often only serviceable to someone who is already highly familiar with, and so experienced in, performing the task that they may well have forgotten what it was like to learn to do it in the first place. The paralyzing volume, density, tone of authority, and certainty in much of the language of contemporary standards of vocational education provide a clear indication of the writer’s inability to reimagine the insecurities and vulnerabilities involved in learning a practice in the first place (Sennett 2008) . . . including the *experience* and feelings of insecurity and lack of confidence involved of learning how to do something on our own for the first time.

Writers of new vocational standards, Sennett argues need to be able to share experiences of learning a practice by returning to the liminal point just before they themselves were competent and able to complete the task; just before they mastered the practice; before their routinized habits were formed. Reliving the threshold between knowing what to do and not knowing what to do is crucial in order to be able guide others in learning a practice. They need to be able to explain and make accessible, the process of acting. It is not enough just to name the act. Sennett (2008, p. 183) cautions, “familiarity risks producing only dead denotation. . . the challenge posed by dead denotation is precisely to take apart tacit knowledge which requires bringing to the surface of consciousness what has become so evident and habitual that it seems just natural.”

Anyone who has ever tried to assemble at home something bought on the internet or in a large department store, for example, a bean to cup coffee-maker, digital camera, sewing-machine, etc., only to find themselves faced with a confusing set of instructions, knows the problem. The need to turn to other human beings (sometimes literally, more often now via a web search engine) who have found the same problem and solved it becomes particularly pressing. Sometimes we are able to watch and listen as the “expert” shows and tells us what to do as in sites (for example when using YouTube) where we can watch the demonstration again and again, pausing at different points in the action, until we understand the instructions well enough to try to put them into practice. At other times, we are able to enter into a written dialogue with a remote “expert” on the web in order to ask a specific question to which we receive a written response (for example, when using a search engine such as Google) to which we can then, if necessary, ask another question.

The language and principles of instruction that we use to make standards of good work explicit, meaningful, and workable in practice matter because specific kinds of writing can confuse and bewilder or enable and empower us. Linguistic tools can help us to gain an overall sense of a practice as well as being able to imagine how others have thought, felt, and acted as they learned the practice before us. The challenge for writers of vocational standards is to present written instructions in ways which communicate a vivid sense of the practice overall, including a vicarious experience of what it means to learn the practice and to practice it well. This includes aiming specifically to inspire confidence by reminding vocational learners when a new task is similar to something they have done before.

Writers of new vocational standards will need to be able to retrace their steps to access the tacit knowledge that has become embedded into routine. The expert knows what comes next and where the danger lies. As such, they will need to be able to act as vicarious “masters” and “journeymen” in situations where face-to-face communication and co-operation in the same physical location are not always possible. Rather than getting rid of explicit written standards of vocational education, the challenge is to make them more manageable, intelligible, educational, and workable in practice. The first step as Wolf (2011) and Sainsbury (2016) suggest will be to ensure that there are less of them. New vocational standards will need to be based upon a coherent and grounded approach, articulated clearly enough to ensure national consistency but also broadly enough to be capable of accommodating a

locally negotiated proportion of practice and flexible enough to reflect context and employer need.

Such standards will need to take the importance and dynamics of face-to-face and remote observation and dialogue seriously. They will also need to provide supporting written materials framed in expressive language which not only instructs (tells) but also explains (shows) and supportively illustrates how practice is acquired and developed. This might best be achieved, Sennett (2008) argues, through representations of vivid accounts of experience (including liminal and affective experiences of learning), written and digital narratives, story, analogy, images, metaphors, and other linguistic tools which can bring to light the processes of practice fashioned from words, sounds, and images.

The same authors will need to remember and value what is ancient and enduring in the human condition, human capabilities of thinking and experiences of learning and thinking through making. The making of a craft and the experience of acquiring a practice include finding ways of being in the “presence” (one way or another) of those who have practiced the craft before us and those who continue to practice it with us.

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## Vocational Pedagogy

In turning to the second question of problem-finding, problem-solving, and the development of tacit knowledge, it might at first appear that in order to learn a craft all we need to do is to simply observe, copy, and imitate the practices of skilled others until these skills become part of our own practice. However, the process of acquiring a craft is far less mindless, infinitely more interesting and much more complex. We watch to “develop an eye” for what is important to notice. We listen to “develop an ear” for sounds we should expect to hear. We touch, grasp, and hold to “develop a feel” for the tools, materials, and objects of practice. In some crafts we feel, smell, or taste to detect when something is going right or wrong. We co-operate with those who have already mastered the craft to develop a feeling for all of these senses in action in the rhythms, rituals, and social behaviors of practice – what it means to become and eventually be a member of this community of craft. We travel in the company of others on our journeys in practice.

From medieval apprenticeships onwards, programs of vocational education worthy of the name have encouraged apprentices to look at practice in the round to see its many sides. Historically this has been done in cooperation and dialogue with “masters” of craft and “journeymen.” The starting point has been, and arguably always will be, in developing an overall sense of the purpose, dignity, history, and currency of the craft and what it means to practice it well. Once this overall sense of the practice has been established, the values or “inner goods” of the practice (Dunne 2005) can begin to be realized. At this stage, Biesta’s *socialization* (2010) – induction into existing ways of doing and being culture and tradition can be introduced. At the same time, the apprentice can begin to focus upon particularly challenging/testing aspects of tasks, developing their skills through repetition and the forensic investigation of practice.

In order to develop a practice, Sennett argues, you have to repeat (practice) the skill until it becomes an ingrained routine and then by building up skills in sequence. He also notes that practicing although largely a solitary activity is not mindless repetition but often a forensic, investigative, experiential, and incremental process, which involves doing, judging, and improving at the same time. From this point onwards, Sennett contends skills open up through dialogue because the rhythm of solving and opening up needs to occur again and again in order for the apprentice to move beyond simple repetition of a practice towards ever higher mastery of a skill. For Sennett, the length of a practice session must be judged wisely to ensure that the number of times a practice is repeated is no more than an individual's attention span at a given stage and that as skill expands, the capacity to sustain repetition increases, so that the better your technique the more you can practice and improve it without becoming bored.

Sennett also points out that when a practice is simplistically organized as in a "one-off/checklist" means to a fixed end, the system becomes closed not open, so that the person being trained will meet a fixed target but will not progress (2008, pp. 37–38). In co-operating with a "master" who is more skilled than yourself, you enter into a dialogic open-ended conversation where each becomes more aware of the other's views/experiences and practices, expanding your understandings of one another. This is an exchange for mutual benefit, which involves questioning, re-phrasing, working together forensically to investigate concrete problems in order to understand "resistances" when things do not go as expected. In these "liminal" or "transactional" spaces the apprentice and the "master" can pay attention to the gap between the written page and the act (the gaps between the boxes in the checklist and experiences of practice). For each skill the apprentice learns, they need to develop, what Sennett describes as, a "quiver of techniques" to deal with differences in materials, tools, temperatures, machines, etc., as well as the range, context, and purpose of the practice. These might be developed for example by making, repairing (restoring, remediating, or reconfiguring) the object(s) of practice. Through the dynamics of observation, repetition, practice, and critical dialogue involved in working cooperatively with those who have already mastered the craft, the "unspoken and uncodified words and the thousand little everyday moves" (Sennett 2008, p. 77) that add up in sum to the tacit knowledge in a practice, start to become more explicit and a matter of habit for the apprentice.

Having explored issues in the development of vocational standards, including the role and nature of problem-solving, problem-finding, and tacit knowledge, we now turn to the third question of how to ensure that practice moves forward and that the pursuit of higher standards is not neglected in the name of the "quick-fix," marginalized as a luxury or caught in the vice of instrumental mediocrity.

The question then becomes how the lessons of experience (not only of the apprentice, but also the "journeyman" and the "master") can become the basis of a "dialogue between tacit knowledge and explicit critique" (2008, p. 51). For Sennett, this involves creating conditions where experience and ambiguity become the basis of a critical dialogue designed to enable people to work together in realizing the highest standards of practice.

Once again we return the issue of how to encourage problem-finding, problem-solving, curiosity in practice in a “liminal” or “transactional” space or threshold where apprentice (and possibly “master”) have left the tried and true, what they thought they knew and what they have not yet been able to replace, with anything else. This might involve beginning to question an already ingrained or existing habit in the interests of finding and re-ingraining a better habit. This can also include the modification of an existing habit or introducing a new way of thinking and acting which changes an aspect of practice or “transcends” existing practice to create a new practice or craft.

In circumstances when we are faced with a situation in which it is not clear what to do next, we enter into a dialogue between tacit knowledge and explicit critique where we can imagine or invent a new practice or simply improve an existing one. This might involve nothing more or less than an apprentice or “journeyman” finding their own way of making/saying/doing the practice – a practice which now has their own craft/skilled character stamped upon it – their unique style or way of doing. On the other hand, it might involve introducing an aspect of practice, which fundamentally changes the very way we go about the practice itself. In these “liminal” or “transactional” moments, the open-ended quality of the dialogue, coupled with the ability to critique and challenge what has until then been taken-for-granted, become powerful and integral drivers in the pursuit of the highest standards of practice.

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## Engaging, Modifying, and Transcending Practice

Becoming good and being able to excel in a craft has always involved engaging in the characteristic tasks of a practice which embody standards which challenge us because at some point they are beyond us. When this goes well, Dunne (2005) argues it leads us not only to the mastery of the craft but also to the development of the moral qualities which enable us to transcend it. These qualities mark us out not just as a practitioner in that domain of craft but also as a person in life.

Dunne identifies “internal goods” as intrinsic rewards that come from doing something well. For Dunne, an internal good arises only in the context of the practice in which a person becomes engaged. To really engage with a practice in the sense of striving to realize the intrinsic goods and not just treat the practice as a means for attaining external good, he argues, is to acquire qualities such as honesty and humility (for example, in admitting the shortcomings of our attempts); patience and courage in sticking to a task even when it does not offer immediate gratification; a sense of justice and generosity in co-operating with others in projects that require a kind of partnership which overrides the rivalries of individuals as they work together to rise and respond to the demands of the practice itself. In such circumstances, if and when a person really “comes to excel, it need not be at the cost of other people’s chances to develop *their* talents. Every achievement of excellence enriches all who participate in or care about a practice” (original emphasis, Dunne 2005, p. 153).

It seems likely that many people have been greatly short-changed in their education because they were introduced to activities not as practices, but rather as sites where decomposed

drills, exercises and ‘micro-skills’ were rehearsed as means, while a taste for the whole activity as an end was continually deferred or displaced. (Dunne 2005, p. 154)

Responding to the difficulties involved in realizing standards of practice therefore requires discipline. However, it is important to note that this discipline is *not* a suppression of desire but an awakening of a person’s interest and a drawing in of the person by the goods that the practice has to offer so that the person comes to care about these goods because of the immense number of possibilities opened up by the practice. The attraction or “pull” of the internal goods of a practice leads us to the pursuit and realization of the possibilities offered by the practice. It is through engaging these embodied practices that we extend our powers. In doing so, we find or realize ourselves in practice. Engaging in a craft can release us from the tyranny of pre-occupations with ourselves, by focusing and concentrating our energies upon goods and practices that transcend ourselves through partnership, in a tradition that is richly alive in the present, stretches back into the past, and through our participation can be extended forward into the future. From this perspective, the density and variability of the concrete conditions in which a practice is brought to life provide no basis for discrimination between “cognitive” and “practical” (or manual) domains, let alone for privileging one above the other (Dunne 2005 p. 155). In both “academic” and ‘practical’ subjects, learners are introduced to activities that are specifically patterned to each practice including,

... its own way of conducting inquiry, asking fruitful questions imagining or empathising with characters or situations, devising plausible hypotheses or interpretations, sifting and weighing evidence, making creative connections or shifts in perspective, identifying and reflecting on basic assumptions, becoming sensitive to different contexts, making critical judgements. (Dunne 2005, p. 156)

Separated or isolated from these practices Dunne argues, facts, concepts or propositions make no sense. It is only through discussion and in co-operation with others that learners can be encouraged and empowered to think and begin to exercise and develop their own minds to the full. As we progress beyond the basic stages of learning a practice and begin to excel, the conversation becomes more open-ended. We start to think critically about what has been taken-for-granted in the past. We begin to parry conventional thinking here, build on it there, reject it in places, and modify it in parts until we have discovered our own way of making, saying or doing. The journey is the same for any craft, from would-be, physicians, pharmacists, engineers, lawyers, poets, musicians, philosophers and teachers and artists to carpenters, plumbers, hairdressers, and chefs (Lipman 2003, p. 259). To enter into the practices of a craft is therefore to enter into a conversation with, and be in the “presence” of those who have gone before us in realizing that practice and those who are with us in pursuing, modifying, and transcending it in the present.

In learning to practice a craft, we discover how to build up skills in sequence, how to learn from investigative practice and repetition, how to problem-find and problem-solve, and how to move knowledge (tacit or otherwise) forward through explicit critique. We acquire the discipline and habit of craft through experience, and in this way, we learn how to evolve and improve our craft.



Sennett argues that it is,

For this very reason it has proved easier to train a plumber to become a computer programmer than to train a salesperson. The plumber has craft habit and material focus which serve retraining. Employers don't often see this because they equate manual routine with mindless labour. For good craftsmen routines are not static they evolve. . . . But figuring out how to build on existing skills - to expand them or using them as a base for acquiring other skills - is a strategy that helps orient individuals in time. The well-crafted organisation will want to pursue this strategy in keeping itself together. (Sennett 2008, p. 266)

In the stages and sequences of the work process, from the basic learning of a craft to its modification and transcendence, we learn how to make judgments in action (judging while doing). Understanding the inner sequence of development in practicing a craft, the phases in becoming better at what we do, enables and empowers us to move practice forward. Sometimes that move forward is for the better, sometimes (as in the case of the use of technocratic functional analysis, outcomes-based qualifications, and tick box assessment in vocational education) it is not.

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## Conclusion

Being fallible is part of the human condition (Dewey 1933). However making a mistake is often unhelpfully accompanied by a whiff of blame, and this can be a major barrier to recognizing and rectifying mistakes. The challenge for those with responsibility for vocational standards and assessment in England (and possibly elsewhere) is to admit that the deeply technocratic ambitions of functional analysis, outcomes-based qualifications, and tick box approaches to assessment have created more problems in vocational practice than they have solved. The beguiling and deeply influential prejudices underpinning such narrow technical-rational approaches to curriculum design, pedagogy, and assessment in England have served to diminish our understanding and practice of education in general, as well as relegating vocational education ever deeper into second, or even, third-class division status. The most problematic features of assessment practice in England have until recently been passed over in relative silence. The means, through which the external rewards of vocational education are distributed, in the form of outcomes-based qualifications and funding, rather than acting as helpful incentives to good practice, have subverted the intrinsic goods of vocational education by becoming its end purpose (Elliott 2001; Dunne 2005).

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## Implications for Curriculum Design, Content, and Pedagogy in Vocational Education

Shared experience of practice, mutual engagement in endeavors, careful observation, forensic investigative repetition, problem-finding, problem-solving, critical dialogue, and the development and exercising of professional judgment are simultaneously old and new territory for practitioners of vocational education. The origins



of many of these practices can be traced back to the history and traditions of craft since the middle-ages and even before.

Re-connecting the shared practices of craft to systems of vocational education, which have been dominated for almost 40 years by “absolutist” over-specifications of standards of quality, and narrow functionalist approaches to curriculum design, development, and evaluation, will not be easy. The grip of technocratic functional analysis and outcomes-based qualifications and funding upon vocational education is strong and will be difficult to dislodge.

Dunne (2005), Sennett (2008), and Young (2008) find common ground where they argue that there can be no skilled work without standards; that we need to embed some form of standards in guiding the development of vocational education and that long lists of knowledge, skills and attitudes, and outcomes-based qualifications are in urgent need of review and replacement. For Young, the answer lies in “bringing knowledge back” into standards of vocational education. Young is critical of what he sees as anti-realist and relativist tendencies in pragmatist explanations of knowledge construction and development. Young argues that knowledge needs to be brought back into the curriculum through the identification of context-dependent knowledge (a blend of codifiable procedural and principled knowledge) and context-independent knowledge (uncodifiable, theory implicit and tacit knowledge). Biesta (2014, p. 29) agrees with Young, “that the question of knowledge may indeed have disappeared from parts of curriculum theory and curriculum practice,” a phenomenon which he attributes to the “learnification of education.” According to Biesta, this has led to the language of education being side-lined by the language of learning. He argues that this has shifted the discussion away from questions about the content of education to questions of learning outcomes, often framed in terms of skills and competences. However, Biesta (2014) challenges the work of Young and his colleagues not only on the grounds of their dichotomized and abstracted discussion of knowledge but also in terms of their failure to recognize how pragmatism (particularly the pragmatism developed by John Dewey) actually “operates beyond the age old oppositional views of objectivism and relativism” (p. 30).

Accepting Young’s version of knowledge construction in vocational and other educational contexts, ultimately returns us to a curriculum composed of abstracted lists of different kinds of knowledge and absolute standards drawn up by experts who “know better.” In contrast, Biesta argues, Dewey’s pragmatic epistemology allows us to frame the content and pedagogy of vocational curricula so that problem-finding, problem-solving, and critical dialogue drive knowledge forward through mutual engagement and shared experiences of practice. Such practices have been cornerstones of the development of craft for centuries. Functional analysis, on the other hand, is a relative newcomer, detached and technocratic with a rather disconcerting need for prescription, control, and micro-management.

Almost 40 years of technocratic functional analysis, outcomes-based qualifications and assessment regimes based on formally explicit criteria (which it is assumed are capable of being defined independently of any specific experience or practice) have undoubtedly operated to erode our capacity to reconnect with shared practices, which supported the development of craft across the ages. This is not to say,

however, that it has erased our capacity to recognize when mistakes have been made in framing curriculum content, pedagogy, and assessment in vocational education, nor our ability to rectify them.

The reduction of vocational curricula to what Wolf (2011) describes as “bewildering lists of atomised skills,” has served to repress and distort the development of practice and approaches to assessment in vocational education. Addressing these problems will require politicians, policy, and educational professionals to reconnect with issues at the core of vocational practice and pedagogy. As Sennett (2008) points out, this will require us to return to a number of questions. Firstly, what we mean by good quality work? Secondly, how to make vocational standards meaningful and workable in practice? Finally the pedagogical question of how to create conditions in the workplace, where shared experience, mutual engagement, problem-finding, and problem-solving can become the basis of a critical dialogue which encourages and enables the consistent realization of high standards of vocational practice?

Dunne reminds us that practices (including vocational practices) cannot be realized through a technicist logic which has attempted to prescribe “outcomes” from the top-down in ways designed to get teachers and tutors to maximize these outcomes by making them accountable for doing so.

However, functional analysis, tick box approaches to assessment, outcomes-based qualifications, and outcomes driven funding regimes are now deeply entrenched and pervasive in systems and practices of vocational education internationally. Given their deficits, broad and deepening cracks in the system raise important questions about the value and impact of these approaches to vocational education and the wider economy.

It has taken almost 40 years for the inappropriateness and ineffectiveness of applications of technicist logic and functional analysis in approaches to curriculum design, pedagogy, and assessment in vocational education to be brought to light. It is encouraging to see that these systemic shortcomings are now becoming more evident and are being publicly reported. This will make it increasingly difficult (but not impossible) for those with a political or financial stake in the continuation of such approaches in systems of vocational education, to block recognition of their shortcomings.

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## **Appendix 1 Guiding Principles of Formative Assessment**

### **Making Learning Explicit**

This principle involves understanding the integrated nature of teaching, learning and assessment and the importance of being clear about what vocational tutors and learners want to achieve. The principle of ‘making learning explicit’ involves the use of key strategies such as, clarifying learning intentions and establishing learner generated and therefore learner owned criteria for success; identifying ‘steps to success’ (actions that will support achievement); helping the learner to ‘see’ what success might look like, feel like, sound like or taste like; and helping learners to identify how success will be known and how achievement will be recognized. This includes creating a culture in vocational

contexts in which all involved see ability as incremental rather than fixed; involving learners in planning both appropriately pitched content and meaningful contexts; enabling and planning for effective dialogic talk, where worthwhile questioning encourages learners to think ‘out loud and together’ (Mercer 1995); involving students in analysis and discussion not just about meeting the success criteria but how best to meet them and different ways to meet them (Clarke 2008).

## Autonomous Learning

The principle of autonomous learning involves learners taking responsibility for and exercising some measure of independence in their learning. It does not mean that they work on their own, although there might be occasions when they decide that this is the most appropriate thing to do. Promoting learning autonomy involves giving some level of choice to learners, and supporting them in developing the skills and confidence to make those decisions. A key feature of autonomous learning is that learners are able to become self and peer evaluators in order to decide on next steps in their learning without having to be reliant on someone else to tell them. Realistic self-assessment informed by knowledge of learning objectives/intentions and criteria for success and quality are crucial. From this perspective, self-regulating learning is not age or stage dependent, but is a learned process. Learners become more autonomous learners with guidance and through practice.

## Focusing on Learning

This principle asks teachers to pay attention to the nature of the learning that is promoted and valued. It foregrounds active learning with understanding at its core and encourages learning of intrinsic worth and long lasting value, rather than a mechanistic or narrow utilitarian approach to learning. This principle is closely linked to Dweck’s (2006) notion of a ‘growth’ mind-set rather than a ‘performance’ mind-set. Focusing on active learning involves an emphasis upon the process of learning, as well as what is to be learned. This means establishing systematic opportunities for timely review and feedback from tutors and learners, focusing on recognition of success and the identification of improvement and development needs. Clarke (2001) recommends that the processes of review and feedback should wherever possible include provision of time to *act* on feedback in the workplace/workshop/classroom/studio.

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# Supporting Vocational and Technical Learning in Post-16 Education in England

# 80

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## Abstract

This chapter focuses on systems, policies, and processes for supporting vocational and technical learning in post-16 education in England. In England, this sector of education consists of a range of levels and types of provision in both public and private providers of further, adult, and continuing vocational and skills-based learning. The analysis considers expectations, challenges, and responses at the education system level, at institutional level and at practitioner level in the context of shifting government policies. At the system level, the analysis considers societal perceptions of academic and vocational learning and the provision and quality of training and continuing professional learning for VET teachers. At the institutional level, policies and support systems developed by VET providers to support students in colleges and workplaces in partnership with employers on different forms of college and work-based training, including apprenticeships, are considered. At practitioner level, the chapter examines teaching, learning, and assessment strategies used by VET teachers to enable vocational learning in different settings, from

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classrooms, workshops, and laboratories in colleges and simulated learning environments to work placements in real working businesses. To support the highest standards of vocational and technical learning, colleges, VET teachers, and employers have to work in sustained partnerships to provide inspirational teaching in innovative learning environments, both college-based and in workplaces.

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**Keywords**

Supporting learning · VET · Post-16 education · Vocational pedagogy · Work-based learning · Apprenticeships

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## Introduction

In England, the label currently being used to describe the diverse sector of education that encompasses vocational and technical learning and hence caters for VET learners is post-16 education. In 2016, the government carried out a wide-ranging national review of post-16 education (BIS 2015), which is discussed in more detail in the next section of this chapter. Previously post-16 education has been referred to as further, adult, and community education, and these differing terms are still used by policy makers and practitioners. Other terminology that characterizes this sector of education includes lifelong learning, work-based learning, vocational training (rather than education), apprenticeships, and skills. The latest announcement from the government are “plans to provide opportunity for all and ensure we have the skills needed for a modern, post-Brexit economy” (DfE 2017). The aspiration and intention is to develop a workforce with “world class skills,” a sentiment which continues previous government discourses around developing a highly skilled workforce to meet the demands of the knowledge economy. These expectations are, however, difficult to realize in practice as there are many challenges for supporting VET learners at system, institutional, and practitioner level, which are discussed in the following sections of this chapter. The challenges relate to the perception and status of vocational versus academic learning across national, and international, education systems as well as the practical training and development opportunities for VET teachers, learners, and employers. Societal attitudes and practical challenges which impact on the quality and level of support for vocational and technical learning manifest themselves at all levels of VET provision in England: at national education system level, at institutional/VET provider level, and at classroom practitioner/work-based placement level. The next section focuses on expectations, challenges, and responses at system level.

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## Expectations, Challenges, and Responses at System Level

The range and variety of terms used to describe the sector that provides education and training for VET learners reflects both the attempt to find a label for a diverse sector and its status within the education system in England. The sector has been

described as the “Cinderella Service” (Randle and Brady 1997) which means “a person or thing that has been ignored or treated as less important than other people or things” (Longman Dictionary of Contemporary English 2017). This label reflects its inferior status in the English education system and the widely embedded perception that vocational and technical learning is not of equal status to academic learning. Also depicted as the academic/vocational divide and reflected in the words of a group of adult vocational learners as “Society’s view that academic learning is higher than practical learning” (quoted in Dhillon 2004b, p. 155). More recently, Bathmaker (2014) has suggested that vocational education can be portrayed as “education for other people’s children.” This portrayal captures the stigma associated with vocational pathways, as they are not options that parents or policy makers would choose for their own children. Despite reforms and policies espoused by successive governments over recent decades, the perception that vocational learning is second choice prevails, and this is a major challenge at system level.

Government rhetoric has espoused the vital role of vocational and technical learning as indicated in the introduction to this chapter (DfE 2017; BIS 2015), and previous governments of different political parties have endorsed this view. For example, in 2006 Education Secretary Alan Johnson described further education as the “engine for prosperity” (Johnson 2006) and the director of strategy and communications at the Learning and Skills Council, which at that time funded post-16 learning stated that “vocational learning is critical to the success of individuals, businesses and communities across the country” (Wye quoted in Johnson 2006). At the recent launch of the new T-level qualifications developed following an independent review of technical qualifications, Justine Greening, the current Education Secretary, declared “we are transforming technical education in this country. . . making sure that the technical education ladder reaches every bit as high as the academic one” (Greening 2017). It remains to be seen if this aspiration is realized over the coming years but the evidence from previous attempts is not encouraging.

The perception of VET as a second choice option in the English education system has profound negative effects, both on the self-esteem of learners on vocational pathways and the status of those who support vocational and technical learning in schools, colleges, and workplaces. Learners who study for vocational and technical qualifications are regarded as being less able than those who take academic qualifications. In a recent study of an educational partnership formed to deliver a generally vocational curriculum for 14–19 old learners in the northern part of the Midlands of England, Holmes (2017) found that “vocational skills possess less capital value than academic skills” (p. 150) and that government reforms over the course of his study contributed to the devaluation of vocational qualifications. In his research findings, he considers the impact of the devaluation of vocational qualifications on learners and quotes secondary school leaders who commented “we are saying one thing about vocational qualifications and practicing another” (Holmes 2017, p. 150). In an interview response, another member of the 14–19 educational partnership (the deputy head teacher of a secondary school), directly picked up the emotional impact of the perceived value of vocational qualifications on learners by stating:

I always feel quite saddened that they[vocational qualifications]appear, or perceive to be, devalued, because for the students that do them...it's often a route that they can be successful in, so to perceive them as being a second best...is very sad.... (Holmes 2017, pp. 153–154)

This evidence from a recent empirical study supports the view that despite government policies and reforms espousing support for vocational and technical qualifications parity of esteem for academic, vocational and technical education remains to be achieved. This is a major challenge for policymakers and practitioners who support vocational and technical learning in post-16 education. In addition to eroding the perception of VET as the poor relation in the education system, there is a need to provide high-quality training and continuing professional learning for VET teachers so that they can support learners to attain the “world class skills” advocated in policy documents.

There are two important facets to this issue. Firstly, the need to develop inspiring vocational pedagogies to engage and enthuse a diverse range of VET students in purposeful learning to achieve outstanding results. Secondly, the requirement to maintain (as a minimum), and ideally to continually extend, teachers' vocational and technical knowledge and skills at industry standards for the changing world of work. This challenge is being met at institutional level by some colleges, as the discussion in the later sections of this chapter will illustrate, but at national education system level it has suffered from neglect in the past.

Historically training for VET teachers has not been given the priority it has been accorded in the schools sector where teacher education/training leading to the award of qualified teacher status (QTS) has been a long-standing requirement for entry into the teaching profession. The award of QTS was regulated by the General Teaching Council for England (GTCE) until it was abolished in 2012 and is now the responsibility of the National College for Teaching and Leadership, whose “aims are to improve academic standards by recruiting and developing a workforce to meet the needs of our school system...” (NCTL 2017).

For VET teachers who may work in a varied range of post-16 education settings, such as further education colleges, private training providers, adult and community education centers, or in workplaces as trainers, instructors, mentors, coaches or assessors for apprentices, trainees, or other employees, the requirement to be qualified teachers is less clear. Although training and professional development courses for further education lecturers and tutors working in these settings have existed since the 1990s (see for example Dhillon and Moreland 1996), the award of Qualified Teacher Learning and Skills (QTLS) as a recognized teaching qualification equivalent to QTS did not take place until 2012 (SET 2017). This reflects the poor professional status of VET teachers in comparison to the status historically accorded to other teachers in the national education system. Thus, at a societal and education system level, it is not only VET learners who are perceived as second best but also the professionals who teach and support vocational and technical learning in a variety of post-16 education settings.

VET teachers like teachers working in academic schools, or universities, need to feel valued, respected, and empowered with the knowledge, skills, and opportunities



to develop creative pedagogies that most effectively meet the learning needs of their students. They also need to work in partnership with employers to provide learning experiences that reflect leading edge commercial and industrial practices in workplaces to equip their learners for the changing and demanding world of work. There is evidence that these challenges are being met by colleges, college leaders, and VET teachers at regional and local levels, despite cuts to funding (Boles 2015; AoC 2017) and recurring reviews and policy reforms at national level (Leitch 2006; Wolf 2011; Sainsbury 2016). At institutional level, there is evidence that the agency and passion of individuals and the collective and collaborative effort of VET organizations is transforming the life chances of learners on vocational and technical programs of learning despite the structural inequalities embedded in the national education system. The following section provides examples from empirical research that illustrate these responses.

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### Expectations, Challenges, and Responses at Institutional Level

The expectation that vocational and technical programs of learning will deliver the “world class skills” needed for the economy is expected to be met by the providers of VET, working in the range of post-16 settings described in the previous section. Some VET providers have responded to this challenge by working in partnerships and by developing detailed policies and support systems in colleges and workplaces. There are some outstanding examples of practice as well as poor/inadequate provision of support services for learners. The examples of excellent and outstanding student support services reveal the passion, drive, and commitment of staff working at institutional level to enable successful outcomes for VET learners. This is also evident in the workings of local and regional partnerships, some of which have been motivated by educational rather than just business reasons for delivering the best possible vocational and technical education for VET learners in their region, for example:

Initially it [the partnership] was a stance of colleges and others in the region **standing together** and saying. . .we have common interests, we have common learners, and **there is much we can gain from each other**. . . (Gillian, a college principal, bold text indicates original emphasis by the speaker)

I think they [members of the partnership] are actually genuinely enthused by the notion of extending learning to people who are disadvantaged and when they come together [in the partnership] the enthusiasm grows and becomes more than the sum of its parts as it were . . .there’s something deeply political about it. (Margaret, a university senior leader and Chair of the partnership)

Both of the above quotes, taken from a study of partnership working in post-16 learning (Dhillon 2004a), reveal that some senior leaders of VET organizations are driven by their individual and shared values and commitment to social justice to extend learning opportunities for people who have been disadvantaged or “failed by schools.” In some cases, this is linked to their own trajectories as learners, for

example, Stephen, a member of the same partnership as Gillian and Margaret quoted above and a college principal in the same region reflects:

I was the first person in my family to go to university and now, as a college principal, I am in a position of power to help others achieve their ambitions. . . I'm a resource winner, a business conductor, and with a lot of good people [members of college management team] who actually do it. . . as a result of that I'm able to leverage more than if I had just remained as a teacher . . .

I can bring some of my value systems to bear and to have an effect on more people, . . . last year this institution touched 44,000 different lives during the course of the year . . . the opportunities we've created by harnessing resources enable all that to happen . . . we're pushing kids to the limit to achieve this sort of excellence . . . (Dhillon 2004a, p. 252)

These voices of a moral agency and commitment to supporting VET learners recorded some time ago (Dhillon 2004a) and during the implementation of VET policies and reforms introduced by a Labor government can still be heard in the context of more current VET reforms under a Conservative government. For example, Dhillon and Bentley's study of two colleges (2016) documents the passion and anger of senior leaders and college governors with the failure of support for VET in the English school system, as illustrated in the data extract below:

. . . because if **we** [the college] don't do it who will – the learners have been **failed** by the schools in the area so we have to provide the best chances for them to do well and get the skills they need to find work or carry on with further and higher education and training. . . (senior leader, College A, bold text indicates original emphasis by the speaker)

. . . I'm really pleased to hear that as we need people with engineering skills and **we must provide the best skills training in the region** (college governor and CEO of a major engineering company)

. . . I want to congratulate the senior leadership team on all the hard work they're doing. . . **our principal is excellent** and all the team work relentlessly to get the best for learners and we as governors should be proud of the achievements of our college. . . **I'm really proud to be associated with** [name of college]. . . (Chair of governing body, College A)

This depth of passion and commitment to VET engenders an organizational culture that supports all learners whether they are engaged in college-based courses or apprenticeships delivered in partnership with commercial businesses. In such organizations, staff are prepared to “go the extra mile” to support learners and senior leaders able to proclaim “it's in our DNA. . . I don't need to be here, the staff run the college and everyone goes the extra mile for the student” (member of senior leadership team, College A). This type of organizational culture is difficult to measure in metrics but it certainly can be felt and observed, as shown by the observational data below:

The vibrancy of the organisational culture in the college is clearly apparent; students are running a charity fund raising event in the atrium, wall displays showcase inspirational quotes from writers and poets, e.g. ‘If you can imagine it, you can achieve it; if you can

dream it, you can become it.’ Photographs of college events, awards and trophies won by staff and students adorn the main reception along with branding logos of partner organisations, who are market leaders in commercial businesses and providers of vocational and technical learning to the highest industry standards (observations of a college governor 2016)

In this college, staff from all levels of the organizational structure, from senior managers to lecturers, technicians, receptionists, and car parking attendants, welcome learners and visitors with enthusiasm and care and share a determination to provide an outstanding and supportive learning environment. The will to transform the life chances of VET learners and provide the highest standards of vocational and technical learning is explicitly stated and tacitly embedded in the teaching, learning, and student support services provided to learners. The college declares that it is “proudly vocational” and aspires to support learners into higher levels of study and jobs by providing outstanding learning experiences, education, and skills development. While anticipating transformational changes to the VET sector, arising from government cuts to funding and implementation of revised specifications to technical qualifications, the college confidently sets out a corporate strategy that centers on the ability of its staff to respond to challenges and deliver outstanding support for learners.

The support provided for learners includes a raft of student support services and institutional policy documents, which clearly set out the types and levels of support available to learners, whether they are students in college-based provision or in work-based training with employers, as in apprenticeships. These policies incorporate system-wide national statutory requirements (DfE 2016) and institutional principles and processes developed by dedicated staff who have collective responsibility for safeguarding the emotional, social, and mental well-being of VET learners. In addition to ensuring the physical safety of VET learners in different configurations of vocational and technical learning environments, such as training restaurants, beauty salons, engineering workshops, success in learning requires sensitivity to the wider personal needs of individual learners. Staff need to be able to recognize the signs of safeguarding issues and identify learners who may be at risk from harm so that they can refer them to appropriate institutional support services and where necessary to external counselling or support.

The range of risks in relation to safeguarding the welfare of VET learners (and staff) has increased in recent years as wider threats to safety and wellbeing surface in education and training organizations and in the neighborhoods and communities in which they are situated. These risks include abuse (physical, emotional, sexual), bullying and harassment (including cyber-bullying), radicalization and threats from extremism. There is increasing evidence of mental health conditions affecting the learning and achievement of students on vocational and technical courses in colleges, as well as in schools. For example, during 2016/2017, the student support services team at one vocational college saw a 22% increase in safeguarding services users. They dealt with 637 individuals over 1002 counselling sessions providing support for VET learners with mental health concerns. These mental health concerns included anxiety, depression, and low mood. During the same year, the college had

to manage a 62% increase in severe mental cases amongst its students, which required support from external multi-agency partnerships. These figures are indicative of the challenges and increasing demands on student support services at institutional level. VET learners with Special Educational Needs and Disability (SEND), also known as high needs, may experience further risks and need additional safeguarding support.

Institutional responses to these challenges center on a student support services team and a detailed set of policies, which clearly document the roles and responsibilities of staff and the procedures to be followed for safeguarding the welfare of VET learners. The institutional policy documents provide the names and contact details of staff and their responsibilities in relation to safeguarding, with flowcharts of the process to be followed in supporting issues brought to their attention by learners, teaching/other staff or employers in partnership organizations. The policy documents are regularly updated to reflect changes in statutory requirements and improvements to institutional practice, based on evaluation and feedback from learners, staff, and partner organizations about the quality and effectiveness of the support provided. The policy documents are scrutinized and approved by the governing body in its regular cycle of meetings and the senior leader with institutional responsibility for student support services provides verbal and written reports on the provision to the governing body at these meetings. These policies and procedures contribute towards providing accessible and effective support for VET learners and recognize that the emotional and psychological well-being of learners is as important as the quality of the vocational and technical teaching and learning activities in classrooms, workshops, and workplaces.

The variability of learning environments is another challenge for institutions as there may be differing levels of facilities and access to support services in multi-campus organizations (Dhillon et al. 2008). Colleges may consist of state of the art shiny new buildings with high quality teaching and learning environments and other facilities for learners, e.g., childcare provision in on-site nurseries for students with children, on the main campus, but struggle to provide adequate facilities on other campuses/in workplaces. This is often due to the legacy of VET institutions and providers, which have evolved over time but the responsiveness of staff to the needs for VET learners can compensate for less modern facilities. Personal tutor systems, work-based tutors, assessors, and mentors can help to ensure that all VET learners are aware of the support services available to them and can access them when needed. The importance of people and communication is key to providing high quality, equitable, and consistent support for learners. The following section considers how some of these people, at practitioner level, meet the challenges of supporting vocational and technical learning in the different settings in which they work.

Communication strategies used at institutional level to make learners, staff, and employers aware of the support available for VET learners include posters in classrooms, workshops, and social spaces; monthly newsletters on college websites; copies of safeguarding policy documents provided for all staff, including those in partner organizations and available on college websites and promoted through social

media. The effectiveness of these strategies is monitored through audits and random sampling using techniques such as mystery customers, learning walks, open meetings with students and staff, and online surveys. They are also assessed by external auditors when there is an inspection of provision.

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## **Expectations, Challenges, and Responses at Practitioner Level**

The expectation that VET learners will gain “world class skills” from outstanding providers of vocational and technical qualifications presents significant challenges at practitioner level as it is here that teaching, learning, and assessment for VET qualifications takes place. VET teachers who undertake a range of roles, which are outlined below, are expected to develop vocational pedagogies that enthuse, engage, and most crucially lead to successful outcomes in terms of qualifications achieved by learners. The challenges they face at ground level arise from disparities in the resources and facilities available to them and the range and diversity of learner characteristics they need to support in their teaching and assessment for VET qualifications. The variability of learning environments and the different settings in which VET teaching, learning, and assessment takes place are significant, ranging from classrooms, workshops, and laboratories in colleges and simulated learning environments to work placements and supervised training in real working environments. The characteristics of learners also present substantial challenges as the previous educational experience of VET learners may continue to impact on their vocational and technical learning in post-16 education. Some learners may have been “failed by the schools,” as shown by empirical research data presented earlier in this chapter, and as the development of vocational pedagogies must center on the needs of learners, this is a key challenge for VET teachers. Furthermore, the identity and role(s) of VET teachers is not clearly demarked or widely understood as they need to be both teachers (experts in pedagogy) and experts in vocational/technical skills/occupational areas.

The term “VET teachers” encompasses a range of roles in relation to supporting and assessing vocational and technical learning in the different settings in which they work and a number of terms are used to describe these roles. These include “lecturers” and “tutors” (those on academic contracts in colleges), “instructors” (those paid at a lower rate than lecturers and may work in college-based provision, work-based training in companies, or in private training providers), “assessors” and “work-based assessors” (those who only assess trainees or students, usually in workplaces, but do not teach or support teaching/learning). In addition to these main distinctions in roles and responsibilities that are linked to different rates of pay for undertaking the role, other people such as mentors, coaches, critical friends support VET learners in a variety of formal and informal arrangements. This list of terms and roles and responsibilities is not exhaustive but seeks to convey the complexity and diversity of the work undertaken by VET teachers in post-16 education in England. The term “VET teachers” is merely a short way to refer to the range of roles and responsibilities

outlined here and is used in the following discussion of VET teachers' responses to the challenges they face in supporting VET learners.

Recent research data from a narrative study of VET teachers (Hooker 2016) has revealed the empathy they have with learners, which can be based on their own negative experiences of learning in school, for example:

I am quite aware of the fact that a lot of people have had horrendous experiences, particularly with maths . . . when I am teaching I try to always keep that in the forefront of my mind, that maybe this person may have had a bad experience of maths as I did, to be quite careful with them, the way I treat them and help them with maths (Hooker 2016, p. 99)

The data extract above illustrates personal qualities of VET teachers, some of whom may share bad experiences of learning at school making them even more sensitive to the needs of VET learners in post-16 education. It also indicates how they use this knowledge and experience to inform their pedagogic practice in a particularly troublesome area of learning: the teaching and learning of mathematics. Poor literacy and numeracy skills have been a long-standing challenge in VET and recent policy directives to colleges providing vocational and technical qualifications have required all learners to obtain "good passes" in English and Mathematics in addition to obtaining their vocational/technical qualification (AoC). In the English education system, "good passes" refers to passing GCSE (General Certificate of Secondary Education) examinations at grades A\*–C from the scale of A\*–G (Yorke 2017). These examinations are taken by all pupils in secondary school but VET learners do not all pass at grades A\*–C, many pass at grade D. Thus, they may be perceived as failures and this perception has been exacerbated by the government stipulation that colleges must ensure that VET learners with Grade D must retake those examinations and pass them with a grade C or above (AoC 2017). The implications of this policy play out in the classrooms and workshops of VET providers and have to be tackled by the responses and strategies of VET teachers and their managers and leaders.

Perceptions of failure can have long-lasting effects on the confidence and self-esteem of learners and pose additional challenges for VET teachers in supporting achievement of successful outcomes in examinations and other forms of assessment for qualifications. These negative perceptions can come from the views and attitudes of parents as well as experiences in schools as recalled by John, a retired RAF (Royal Air Force) officer:

My Mom [Mother] always used to say Brian's the brainy [intelligent] one . . . my brother was much more academic but I could pull an engine apart and put it back together (quoted in Dhillon 2004b, p. 154)

This memory of lack of approval from his mother had stayed with John throughout his life despite a highly successful career in the RAF and a portfolio of achievements in technical and vocational learning. However, on a more positive note this example also shows that learners can overcome such barriers to learning

with the support of inspirational VET teachers and others who are passionate about vocational and technical education. As the earlier discussion in this chapter has shown, this includes senior leaders, managers, and governors of VET organizations and the employers who work in partnerships with them to provide workplace learning. Another facet of post-16 education is that it gives second chance opportunities for learners to achieve their ambitions and gain qualifications which they have not managed to get from secondary schooling, e.g., a good pass in mathematics. VET teachers are the critical players in developing and implementing teaching, learning, and assessment strategies that enable this to happen.

In addition to their sensitivity to diverse learner needs, VET teachers respond to the challenges of developing inspiring teaching by working in cross-curricular teams to combine pedagogic expertise with vocational and technical expertise to develop methods and resources that will enthuse and engage VET learners. These methods include team teaching, learner-centered methods such as group work, research activities, problem-based learning, and carefully planned teacher-led presentations and demonstrations of practical skills using digital technologies. Team teaching, which consists of vocational/technical skills tutors planning and co-teaching with mathematics and/English tutors in classroom/workshop settings, is particularly effective in contextualizing numeracy and literacy skills for VET learners. This method of co-teaching supports both the achievement of successful outcomes in more academic examinations, such as GCSE, while also enabling learners to master the vocational and technical skills needed for employment in a changing world of work. It also supports the professional development of VET teachers in creating innovative vocational pedagogies for their areas of work.

In developing innovative vocational pedagogies, teachers also work in collaboration with employers and leading industry experts. These collaborative activities range from inviting guest speakers, such as CEOs (Chief Executive Officers) of leading companies, engineers, designers, awarding winning chefs, to come and give inspirational talks to VET learners on college-based courses to undertaking industry placements themselves to remain at the cutting edge of work-place practice. The knowledge and skills exchange through these activities is two-way, whether the arrangements are developed by a proactive individual teacher or part of more formalized partnership agreements, as is often the case in delivering apprenticeships. The importance of learning from others is fundamental to the continual process of finding effective teaching, learning, and assessment strategies for vocational and technical learning, just as it is for other education contexts and for the world of work.

Learning from activities such as learning walks, peer observations of other teachers and work-based assessors, reflections on practice with mentors, and engagement in professional organizations, such as the Society for Education and Training (SET 2017), can be empowering forms of professional learning for VET teachers. These activities can assist teachers in meeting the challenges of supporting vocational and technical learning and enabling VET learners to achieve their full potential. However, this can only be the case when innovations in teaching methods are driven by confident VET teachers who are recognized as professionals in pedagogy and experts in industry standard vocational and technical skills. This is not always

the case in post-16 education as performativity measures, such as graded classroom observations of teaching performance, can become a tool that instils fear and terror in VET teachers rather than being a process for enhancing teaching, learning, and assessment. To maximize the potential of these types of processes, VET organizations need to develop high levels of trust, a key characteristic of outstanding leadership (Dhillon et al. 2017) and of effective learning in VET providers (Thomsen et al. 2015). The discussion in the previous section of this chapter has illustrated how outstanding leadership in some VET organizations is engaging staff and partner organizations in supporting VET learners to achieve their ambitions.

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## Conclusion

This chapter has explored systems, policies, and processes for supporting vocational and technical learning in England using empirical research data, relevant policy documents, and the author's extensive professional experience as a teacher, teacher educator, and researcher in the field of post-16 education. The voices of VET teachers, learners, teacher educators, and leaders and managers of VET organizations illustrate expectations, challenges, and responses at three levels: at education system level, at institutional level, and at practitioner level. In the voices represented in the empirical data, there is evidence of passion, commitment, and determination to provide high-quality, and in some cases outstanding, vocational and technical learning for VET learners. This passion and depth of feeling seems to be driven by a moral purpose and individual and collective agency and not just a business case, unlike what might be expected from people in VET organizations operating in a marketized system that is funded on a business model. The evidence discussed in this chapter suggests that despite the challenges at system level, at institutional and practitioner level some leaders of VET organizations and their staff are able to provide outstanding opportunities that can transform the life chances of VET learners.

At education system level, the legacy of VET as the Cinderella service (Randle and Brady 1997) and perceptions of VET as second choice continue to persist despite successive attempts to reform vocational and technical qualifications in the hope of achieving parity of esteem with academic qualifications (Johnson 2006; Wolf 2011; Sainsbury 2016; Greening 2017). The rhetoric of skills and "world class skills" needed for economic growth is a relatively enduring expectation that post-16 education is supposed to deliver, by colleges and other organizations working in partnership with employers and/or private training providers. However, in recent years, government funding for the sector has been cut (Boles 2015; AoC 2017), and the people who work and learn in the sector continue to be under-valued in English society. This, of course, is not restricted to the cultural or national context of England as these perceptions of VET also exist and persist in other countries.

The picture at institutional and practitioner level is less gloomy. There are instances of poor and inadequate VET provision with rogue providers of vocational and technical qualifications but also examples of excellent and outstanding practice, as illustrated by organizations such as College A, mentioned earlier in the chapter.



The leadership teams of such organizations manage to balance external accountability measures and financial pressures with the will and determination to create an organizational culture in which all staff and learners are motivated to exceed expectations and take pride in their work and learning. VET teachers and staff providing student support services “go the extra mile” to support VET learners both in and outside formally scheduled teaching and learning sessions to give individualized support where and when needed. This can mean VET teachers spending up to an extra hour with a learner/group of learners to explain an assessment task because the learner (s) were unable to get to the formally timetabled session/workshop. This type of dedication to the needs of VET learners is not without cost (usually unpaid), but it does demonstrate the commitment of VET professionals to supporting the learning and development of individuals who may have been failed by the schools system. It also means that senior leaders can confidently assert, “It’s in our DNA as a college. . . staff at the college are passionate and driven by their determination to do the best for the learners” (Dhillon, 2016, personal communication).

Finally, a key message in drawing this chapter to a close is that strategies for supporting vocational and technical learning should center on the holistic development of knowledge and skills, whether these be vocational, technical, social, or professional, so that they can be applied effectively in the changing world of work.

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# Competence Diagnostics and Competency Development in Vocational Education and Training

# 81

Felix Rauner

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**Abstract**

With the PISA project, competence diagnostics has gained a significant international recognition. Although vocational training research initially assumed that it is not possible to develop an instrument for competence diagnostics applicable in the extremely heterogeneous international vocational training landscape, it finally succeeded with the COMET (Competence Diagnostics VET) method. The great challenge was to implement on the basis of complex tasks test instruments that correspond to the reality of the workplace. On the basis of a three-dimensional competence model and a measurement model derived from it, it was possible to depict the central idea of modern vocational education and training (enabling people to help shape the work place in a socially and ecologically responsible way) and to implement it in a test procedure. International test practice has shown that the application of the COMET methodology as an instrument of quality assurance also has an unexpectedly large didactic potential. This is due to the fact that the format of the test items is also suitable for learning tasks. In addition, the representation of the test results in the form of competence profiles representing its eight dimensions of the test instruments also allows for an expansion of the teachers' technical understanding on multiple professional competence. This is regularly shown by the reflection of the test results in the teaching staff, by the feedback events with the test participants, and finally by the higher quality of the competence development of the pupils/students.

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**Keywords**

Competence diagnostics · Shaping competence · Competence model · Competence profile · Learning tasks

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**Introduction**

Since the advent of the apprenticeship, vocational education and training has had a lasting, timeless form of organization and organization of vocational education and training. It has not only surpassed the industrial revolution with its potential for mechanization of traditional technical work but also the introduction of scientific management into industrial production through principles laid down by Taylor and aimed at the control of work and its detailed governance through management (Taylor 1911). However, structural change in industrial development in the twentieth century as well as in the transition to the twenty-first century, reinforced by the “digital revolution,” has not succeeded in replacing skilled work and mastery in the working world. On the contrary, we can see a re-examination of the quality of professional work done by craftsmen where craft seems to hold fundamental significance in the interaction of man with nature. These conclusions are suggested by three current philosophical works in which this thesis is justified from diverse perspectives. Richard Sennett explains in his book *Handwerk* (Sennett 2008) that practical action and thinking of every good craftsman are in a constant dialogue. All

efforts to separate this connection, as Taylorism's especially radical approach has attempted, create social crises. Referring to climate change, Sennett says: "We will have to learn [...] how to build houses differently, to transform the traffic system and to develop rituals that accustom us to an economical approach to natural resources. We will have to be good environmentalists" (ibid., 24). Furthermore, Janisch (2015) shows that craftsmanship and science have an indissoluble connection, echoed by Crawford (2015) who founded a motorcycle workshop and published a famous volume based on his experiences in his craft. The latter's comments on the link between professional skills and professional ethics are of fundamental importance for competence diagnosis and the didactics of vocational learning.

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## Realizing Professional Solutions to Modern Problems

The modernization of a heating system for a residential building installed in the 1980s is an everyday task for sanitary, heating, and climatic (SHC) engineering companies. A new challenge for the specialists are the local characteristics of buildings and the wishes of clients whose desires are not always realistic, as customers are rarely familiar with the latest heating technology. Consultation with customers and the translation of customer wishes, formulated after a detailed consultation into specification, realistic planning, and implementation of the plant, include – in addition to observing the functionality of the plant – the utilization value of costs and costs and work planning that considers safety, occupational safety, and health regulations. Creativity is of course required throughout.

A professional solution can only be expected if all aspects relevant to heating modernization are taken into account. Above all, the requirements for comfort, costs, and energy efficiency must be weighed up. A reduction in the complexity of professional tasks, as occasionally suggested by examining experts (see, e.g., Griffin 1990), is not *possible* – unless the specialists ignore the realities and risk inadequate or illicit solutions that endanger their employees or damage the reputation of their operation. The concept of *holistic* problem-solving illustrated in the example provided herein applies to specialists in all professional disciplines.

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## The Characteristics of Vocational Training

The features of professional work mentioned above must be taken into account in the modeling of occupational competence and in the development of a procedure for competence diagnostics. The clarification of characteristics that distinguish professional from general education becomes important in the context of education policy initiatives that improve transitions from vocational education to higher education. Benchmarks for the measurement of professional competence development can be stated as follows:

## **Ability to Work**

Contrary to the thesis of “de-occupation,” the professional form of work has changed in its content, but not in its fundamental importance for employees and enterprises (Kurtz 2001; Lempert 2007). This implies that vocational education and training will be measured by the degree to which it delivers the competences defined in professional profiles, for example, whether the trainee can be entrusted with the title of professional. Regarding health- and safety-relevant competencies to be mastered in a profession are concerned, they have to be mastered unequivocally and have to be periodically reviewed for currency.

## **The Contents of Vocational Education**

The content of vocational education and training is purposive, as the working world, and beyond it the use-values established in society, arises from the objectification of purposes, interests, and needs. Professional work and vocational training therefore always imply dealing with purposes and interests and the need for compromises in evaluating divergent goals and criteria when undertaking professional tasks. An objective, value-free (“pure”) vocational education is therefore a contradiction in itself.

## **Shaping Competence**

Based on a historical process, society experiences the ongoing process of dealing with and balancing given creative alternatives and the values and purposes incorporated in them. There is no right or wrong world of work and life, but a process of development and change – a process of design – in which, in each case, given possibilities for social and ecological responsibility must be exhausted. Education therefore means the ability to contribute to the shaping of the working world and society with social and ecological responsibility by exploiting the given scope for design (Rauner 1988; KMK 1996). On the other hand, the notion of purpose-free education conveys an understanding of the world which is abstracted from participation: an educational concept which makes it easier for the “educated” to adapt to the given social structures.

## **Vocational Identity and Professional Ethics**

Motivation theory has found its way into educational research, since motivation is a significant intervening variable, with the aid of which learning effects can be explained. For vocational education and training, motivation is of particular importance in terms of occupational commitment. It originates from the link between professional identity and professional competence (Blankertz 1983) and establishes a sense of quality and responsibility – a fundamental prerequisite for the introduction

of flat corporate structures, with a shift of competencies and responsibility to value-adding work and business processes. In vocational education and training, the building of vocational identity and the professional commitment resulting from that is an equally relevant goal alongside the development of professional competence.

## The Education Paradox

Learning in the workplace is faced with the dilemma of how to acquire professional skills without first acquiring the appropriate theoretical knowledge. An answer to this is that professional beginners become skilled learners by learning what they need to, for example, trainers support learners by confronting them with work situations that challenge them. The reflected work experience is therefore the most important source of learning for professional competence development (Schoen 1983; Fischer 1995, 2000). If teachers, trainers, and vocational researchers are aware of the specificities of vocational training, there is no need for the many rules and regulations in designing, organizing, and researching vocational education and training.

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## Modeling Vocational Competence: A Prerequisite for Competence Development

Competence models have a mediating function between the guiding ideals and objectives of learning areas (e.g., science education) and the development of test tasks for measuring competence. This results in further development of competence models as well as the measurement models derived from them, which have to:

- Include educational goals and guiding principles which can be justified by education theory, which are internationally accessible, and are therefore not linked to education and training systems or specific courses and forms (such as dual vocational training).
- Be in line with the basic findings of teaching, learning, development, and evaluation research.
- Be tailored to learning areas that allow the content dimensions of the competence models to be adequately represented.
- Provide a concrete guide for the development of test tasks.

Further critical requirements for vocational education and training are:

- The use of open test tasks, since only these are able to reproduce real professional tasks.
- Professional tasks that generally require the weighing of alternative solutions, which can be assigned to a solution area defined by specific requirements. It must therefore be “marked out,” since the solution areas must in principle be open to unpredictable solutions (see Euler 2011, 60).

In established competency research, competence is defined as a domain-specific cognitive performance disposition – a cognitive potential that enables tasks and problems to be solved in a specific domain (i.e., a profession or professional field). This pragmatic definition, based on a research perspective, does not, of course, preclude the continuation of theoretical theories and research on the abilities and educational concepts that elude large-scale competence analysis. What Jürgen Baumert et al. said about these questions in the first PISA report is still true: “One cannot stress emphatically enough that PISA does not intend to measure the horizon of modern general education” (Baumert et al. 2001, 21). In a transversal sense, this also applies to competency diagnostics in vocational education and training.

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## Measuring Vocational Competence: The Three-Dimensional COMET Competence Model

The measurement of professional competence requires a theoretically and normatively justified competency model that can be designed according to psychometric criteria to form a measuring model (see Martens and Rost 2009, 95 ff.). Competence models have the function to operationalize the basic criteria that problem-solving in the workplace must meet, as well as the related guiding principles and objectives of vocational education and training, and to lead the construction of test tasks in a sufficiently specific form.

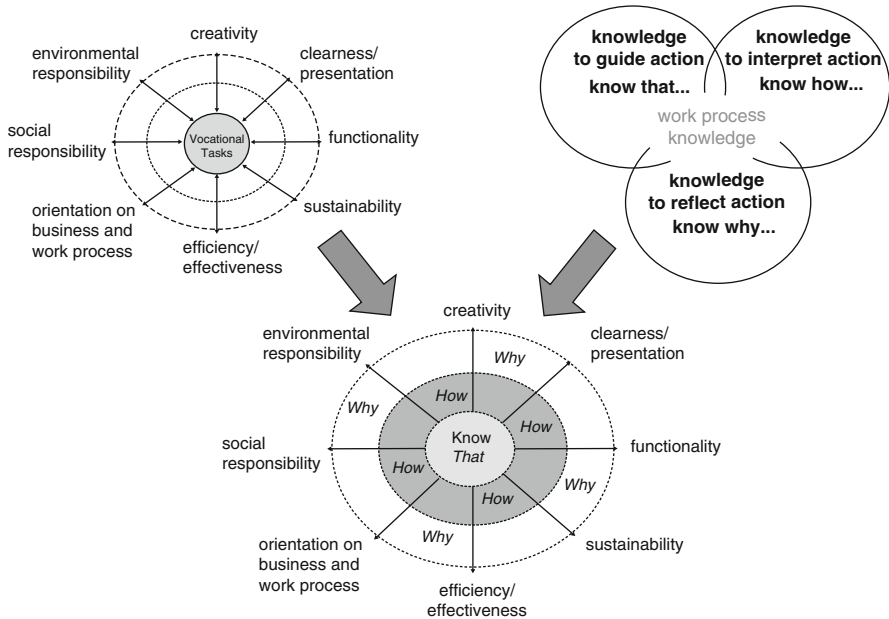
The criteria of holistic task solution in the COMET model can be interpreted as dimensions of multiple (professional) competence, where the degree depends on the level of work process knowledge (Fig. 1).

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## Components of Professional Competence

1. *Functionality* refers to instrumental competency and thus to context-free specialist knowledge. The ability to solve a task is fundamental to all other requirements for solving professional tasks.
2. *Clearness/presentation*: The result of professional tasks is anticipated in the planning and preparation process, documented, and presented in such a way that the client (supervisor, customer) can communicate and evaluate the suggested solutions. It is therefore a basic form of professional work and professional learning.
3. *Sustainability*: Professional work processes and assignments always refer to “customers,” whose interest is a high usable value as well as the sustainability of the task solution. In highly separate work processes, employees’ awareness of the value of employment and the sustainability aspect of the solution of occupational tasks often disappear. With the guiding principle of sustainable problem-solving, vocational education and training counteracts this phenomenon.
4. *Efficiency/effectiveness*: In principle, professional work is subject to the aspect of profitability. The context-oriented consideration of economic aspects in the solution of professional tasks characterizes competent action of experts.





**Fig. 1** Shaping of multiple competences represented through the levels of action guiding, interpreting, and reflecting work process knowledge

5. *Orientation to business and work processes* includes solution aspects which take into account the hierarchical aspect of the business process, as well as the upstream and downstream workspaces in the process chain (the horizontal aspect of the business process).
6. *Social responsibility* particularly affects the aspect of human work organization and organization, health protection, and, where appropriate, the social aspects of professional work that extend beyond the professional context.
7. *Environmental responsibility* is a relevant criterion for almost all work processes. This is not a matter of general environmental awareness, but rather the occupational and specific environmental requirements for occupational work processes and their results.
8. *Creativity* is an indicator that plays an important role in solving professional tasks. This is also the result of very different scenarios in the solution of professional tasks.

### Competence Levels

For the modeling of competence levels, the COMET competence model is based on the four-level competence area model of Bybee (1997), which has also been included in the PISA project (basic science education) as follows:

*Nominal competence:* At this first level of competence, the trainees have a superficial, conceptual knowledge, without this already being guiding action in

terms of professional competence. The meaning of professional disciplines does not extend beyond the use of terminology.

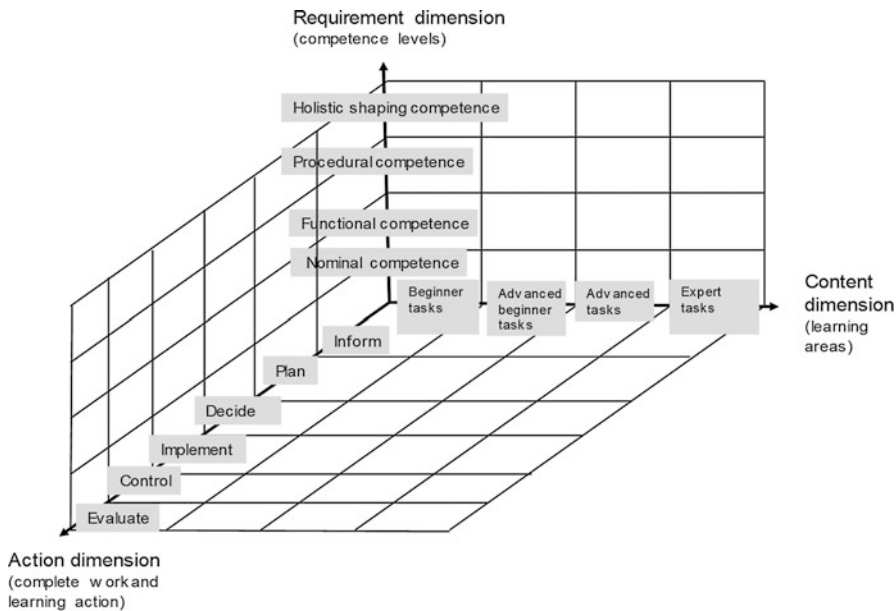
*Functional competence:* At this level of competence, the technical and instrumental abilities are based on the basic skills required for this, without their being interwoven or interrelated with their importance for professional work. “Professionalism” expresses itself as context-free, expert knowledge and corresponding skills.

*Processual competence:* Vocational tasks are interpreted and dealt with in their references to company work processes and situations. Aspects such as profitability, customer, and processor orientation are taken into account.

*Holistic shaping competence:* At this level of competence, professional tasks are perceived in their respective complexity and solved taking into account the diverse operating and social conditions as well as the divergent demands on the work process and the work results.

### Three Dimensions of the COMET Model

During the identification of the basic criteria of work-related problem-solving, an abstraction level was chosen in the COMET project, which ensures that these criteria are applied across all occupations (Rauner 2017). The three-dimensional COMET competence model differentiates between the *requirement dimension* (level of competence), the *content dimension*, and the *action dimension* (see Fig. 2 below).



**Fig. 2** The three-dimensional competence model. (see Rauner et al. 2009b, Band I: chapters 1 and 2, b; Band II: chapter 1, 2011; Band III: chapters 1 and 2)

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## The Requirement Dimension

The modeling of the *requirement dimension* is based on the theory of complete (holistic) solution of professional tasks as well as three successive levels of knowledge to guide, interpret, and reflect action.

The competence levels are allocated to eight competency components, which are of fundamental importance when it comes to the solution of professional tasks.

## The Content Dimension

Describing the content dimension in the form of a systematic systematization model, which can claim general validity for vocational education, the novice to expert paradigm is appropriate. According to this, the professional fields of action and the test assignments assigned to them can be differentiated by levels for beginners, advanced beginners, advanced, and experts.

## The Action Dimension

This illustrates the concept of the complete learning and work action. In the vocational-pedagogical discussion, a distinction is made between the purposively rational and the creative-dialogical type of action (Brater 1984).

Both types of action are of fundamental importance in all professions, with varying significance. The concept of complete work action has a clear affinity with the purposively rational action. This type of action is particularly pronounced in specific work projects and processes in which the scope for action and design is rather small. For the creative-dialogical type of action, an open objective and a course of action which can only be planned within limits are characteristic. The sequence of the steps of action arises from the work process itself. As the subjects of the learning process, the learners determine the course of the educational process very decisively. For the design of test tasks, the differentiation according to types of action is particularly important since the dialogical form of the task solution limits the scope of the conceptual-planning solution of tasks.

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## Open and Realistic Test Tasks

The basic premise that technical and economic (professional) tasks are not solved “correctly,” but rather more or less appropriate to the situation, and that solutions always represent a compromise between criteria to be weighed against one another, presents a very specific problem for competence diagnostics in the field of vocational education and training.

The format of the test assignments is consistently based on the practice of professional work as well as the guiding principle of a training focused on process

and shaping competence. This results in three basic requirements for the design of test tasks:

1. The degree of complexity must be chosen in such a way that the contextual understanding – and not just a sum of individual skills – can be measured.
2. Open test tasks are necessary, since the solution of professional tasks of specialists must be balanced among alternative solutions.
3. The test tasks must be characteristic and representative of the particular profession. It is not necessary to represent the respective occupational profile in its technical scope – completely – through test tasks.

The scaling of the test results is performance-based (Martens and Rost 2009, 97 ff.). If a candidate only offers the presentation and justification of a working solution, their competence differs from another candidate, who succeeds in developing a solution in which criteria defining the second and third levels of competence are also taken into account. Based on a rating scale consisting of 40 items (five per competence criterion), the raters assess the task solutions.

When using open, complex test tasks, it is crucial to ensure that the evaluators (raters) independently of each other have a high level of agreement when evaluating the task solutions. If this is the case, one speaks of a high degree of interrater reliability. A psychometric test of the rater behavior is performed following the rater training as well as after each test run. The so-called Finn coefficient is used as a measure of the interrater reliability. It has been shown that “the Finn coefficients in the COMET projects are invariably in the range of high reliability as the target criterion of 0.7, defined for this study, was usually reached or exceeded. Overall, interrater reliability can be described as satisfactory” (Haasler and Erdwien 2009, 154 f.; Martens et al. 2011, 105). “Reliability for the competence levels of both vocational education and training theory as well as for the whole construct of professional competence are very high” (Erdwien and Martens 2009, 72, Table 1).

**Table 1** Implementation of reliability tests for the three declared levels of competence (based on the results of the first test date 2008)

Competence level	Competence dimension	Alpha value
Functional competence	Clearness/presentation	0.93
	Functionality	
Procedural competence	Sustainability	0.92
	Efficiency/effectiveness	
	Orientation on business and work process	
Holistic shaping competence	Social responsibility	0.93
	Environmental responsibility	
	Creativity	
Professional competence	All 40 rating criteria	0.97

## Representation of the Test Results

The representation of the COMET test results aims to:

1. Illustrate the professional competence development of the test groups at the level of, e.g., classes, federal states, or national states according to various aspects, in the form of:
  - (a) The competence shape – differentiated according to an overall point value as well as the attained competence levels (in a competence model)
  - (b) The competence level as competence profile (net diagrams)
  - (c) The percentile bands to illustrate the spreading of the results within and between test groups
  - (d) The heterogeneity or variance of the shaping of the competence aspects
2. Represent the professional identity as well as the three dimensions of professional commitment.
3. Graphically illustrate the many connections that result from the interrelations between the test results and the results of the context survey.

The representation of the test results through percentile bands makes it possible to cluster different information about different groups (school locations, sectors, years of training, etc.) vividly. The mean mark (MW) shows the mean value of the groups. By comparing the various mean values, differences in the average performance become visible.

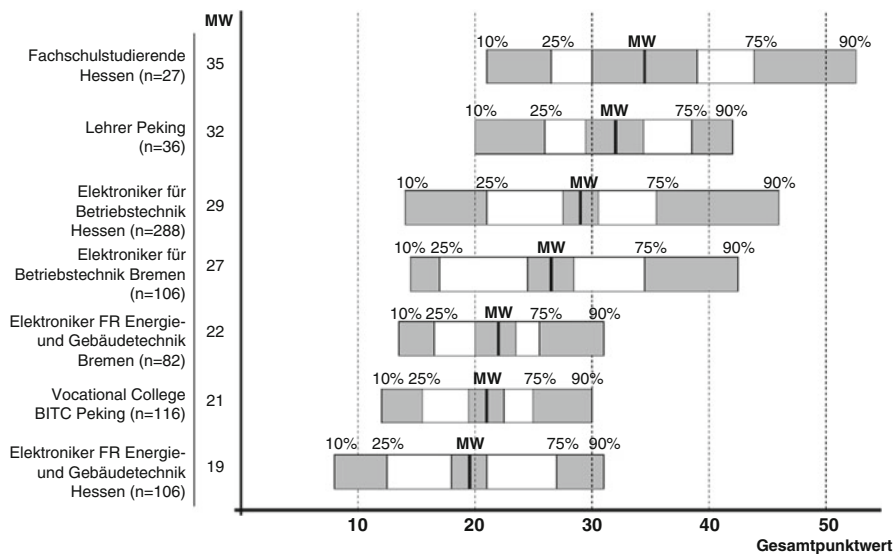
Whether these differences are significant is shown by the gray-colored areas around the mean values on the bands, the confidence intervals. In these areas, the “true” average is 95%. A further important illustration of the percentile bands relates to the spreading of the results. The white areas (including the confidence interval) represent the values for 25–50% and 50–75% of a group, respectively. In this range, the values for half of the test participants are grouped around the mean value. The outer gray areas finally include those cases that form the lower (10–25%) and upper (75–90%) regions, respectively. The best and worst 10% of the results are not covered by the bands, in order not to distort their width by individual outliers (See Fig. 3). For comparing several test groups, bar graphs are used as in the examples in Fig. 4 below.

Net diagrams are used to illustrate the competence profiles of the test group.

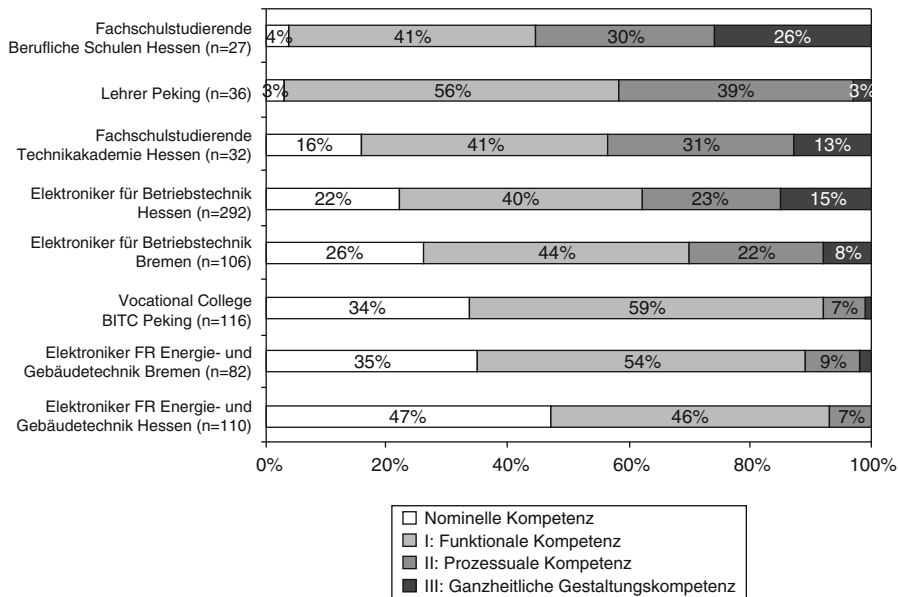
This form of representation of the test results is also chosen for feedback to the test participants and their teachers (Fig. 5).

Net diagrams illustrate two further test values:

1. The overall point value (GPW) and the shaping of the eight competence aspects (K1–K8).
2. The variation factor V. It indicates the extent to which the competence profile is homogeneous (uniform) or one-sided.

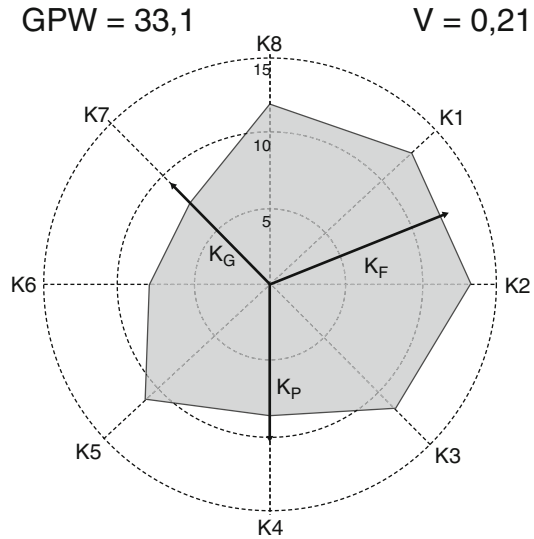


**Fig. 3** Example for percentile bands showing professional competence (according to test groups, results of 2009)



**Fig. 4** Percentual spreading of the test participants according to competence levels for eight test groups (results of 2009)

**Fig. 5** Representation of a competence profile (extract of a feedback chart for a trainee)




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### Conclusion: What Is Important for Competence Diagnostics?

First, it is important to understand that professional competence should be able to utilize all the scope for creativity (solution scopes) in the working world, taking into account all the relevant criteria and the values incorporated therein. Does a task solution fulfill its purpose? Which side effects intensify or reduce the solution variants? These and similar questions show that the proposals for the complexity reduction of test tasks involve risks: safety, health, environmental responsibility, and the existence of companies are at stake (e.g., if their offers are highly functional but cost-prohibitive for customers). The competence diagnostics of vocational education and training is challenged to depict this reality of the professional world of work.

An extension of competence diagnostics for the examination of employability at the end of a vocational training is possible. A modernization of the examination system on the basis of the COMET competence model increases the quality of the test results (MHB, Chap. 6.1).

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### Implications of the COMET Competence Model for the Design of Professional Education Programs

#### What Distinguishes Learning Situations of Work Tasks in COMET?

Learning tasks are aimed at professional competence development. They are similar to project-oriented forms of learning, since the tasks are realistic and are based on the concept of the complete task solution. If learning tasks

**Table 2** Examples of professional fields of action/activity

Logistics manager	Automotive mechatronics engineer	Caring professions
1. Import-export orders	1. Service/maintenance	1. Care during the care process
2. Procurement	2. Repair	2. Carrying out initiated steps
3. Marketing/tendering	4. Retrofitting	3. Training, guidance, and counseling of patients and relatives
4. Forwarding and logistics	4. Diagnostics	4. Administrative tasks/management
5. Business process/controlling		

are also able to be solved practically, it is useful to speak of “work and learning tasks.”

Learning tasks include a situation that:

- Is typical of a professional field of action
- Is formulated from a customer perspective
- Is open to alternative solutions, as is the case with professional practice.

Learning tasks have a practical advantage. Project-based learning is preserved, especially when the didactic concept of the complete task solution is taken into account. However, the organizational and temporal conditions are uncomplicated for the execution of learning tasks.

This also means that these tasks can be edited to varying depth and breadth.

The first reference point for identifying learning-supporting work and learning tasks are the training professions. In addition to the professional qualification profiles (professional skills), they describe the professional fields of action as follows (see Table 2).

---

### **The Learning Objective: Dealing with Heterogeneity Is Aimed at the Individual Promotion of Professional Competence**

Formulating and substantiating learning objectives without prescribing the learning process but rather through exploiting the potential of a learning situation in a subject-oriented manner is based on the educational skill of the teachers. What is common in the design of educational processes is the idea of a learning-oriented instruction. Accordingly, the didactic action of the teacher has to be structured according to the learning objective as there is a direct relationship between the learning objectives and the didactic planning of the lesson. However, this concept of planning,



designing, and evaluating teaching is often problematic because it ignores the reality of vocational education and training, which is geared toward the occupation or workplace. The following schematic representation illustrates how learning objectives can be achieved through developing competencies in vocational education (Fig. 6).

## Developing Learner Competences

The COMET competence model offers a solution that is oriented to the guiding principle of mediating professional competence by processing and solving professional tasks that achieve the quality of development tasks. The overarching educational objective, the ability to completely solve occupational tasks, cannot be called into question, since incompletely solved professional tasks often involve large risks. The empirical competence research shows that the great degree of heterogeneity within and between test groups (e.g., classes) persists even if the teacher succeeds in raising the competence level of his/her class (see Fig. 7).

If the professional competence (development) of trainees or students of technical colleges is represented in the form of competence profiles (see Fig. 8, p. 15), learners and teachers can answer important questions such as:

- Did the trainee/student solve the problem completely?
- If not, which solution aspects were not or inadequately taken into account?
- Is the competence shaping similar for all students?
- If this is the case, the teacher is challenged to promote the underdeveloped sub-competences, e.g., by means of appropriate learning situations.
- On which level of knowledge was the task solution justified?

The competence profiles of the students are a good basis for the design of differentiated teaching (individual support).

This form of diagnostics (evaluation) also depicts the level of knowledge at which the trainees/students are able to solve professional tasks: on the level of action guiding, interpreting, or reflecting work process knowledge.

The strengths and weaknesses of task solutions or of project results can be discussed so that each learner/student recognizes how their solution or the project result of their work group can be classified. The standards are always the same and seek to answer the following questions:

- Has the task been solved completely in the sense of the situation description?
- Were the solution aspects weighed against each other in relation to the situation?
- At which level of differentiation was the task solution justified with reference to the result and the procedure?

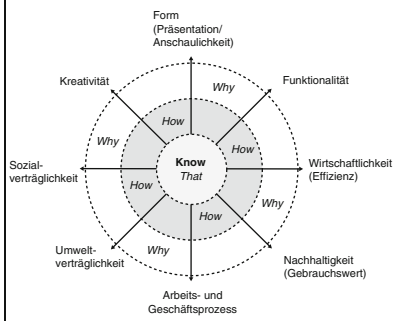
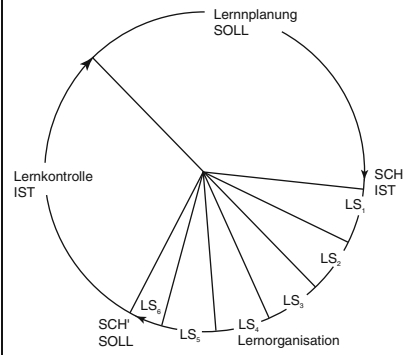
<p>Trainees grow into a profession by learning to solve increasingly complex professional tasks in a complete and responsible manner: the professional abilities as well as the understanding of and the responsibility for one's actions form an indissoluble connection.</p> <p>Therefore, the potential of the learning situation of triggering competence development is particularly important. Professional competence arises from the reflected work experience.</p>  <p><i>Schematic presentation of work process knowledge</i></p>	<p>The teacher defines the learning objectives for his/her lessons: desired learning behavior of the students = planning of learning/classes.</p> <p>He/she organizes learning by arranging the learning steps in an optimal manner:</p> <p>Attempting to achieve the desired learning behavior of the students = organization of learning;</p> <p>the teacher checks whether the student Sch has become student Sch' as a result of learning: control of learning</p>  <p><i>Schematic presentation of classes oriented at learning objectives according to Möller 1969, p. 20</i></p>
<p>The degree to which skilled trainees (apprentices/students) can make use of the scope for solutions and/or scope for their work in the area of professional tasks is the indicator for the extent of professional competence</p>	<p>The didactic action of the teacher is based on the type of the purposeful action and corresponding didactics, e.g. in the concept of programmed learning.</p>
<p>Teacher as “development worker“ and “learning consultant“</p>	<p>Teacher as “teaching system“</p>

Fig. 6 Develop competences to achieve learning objectives

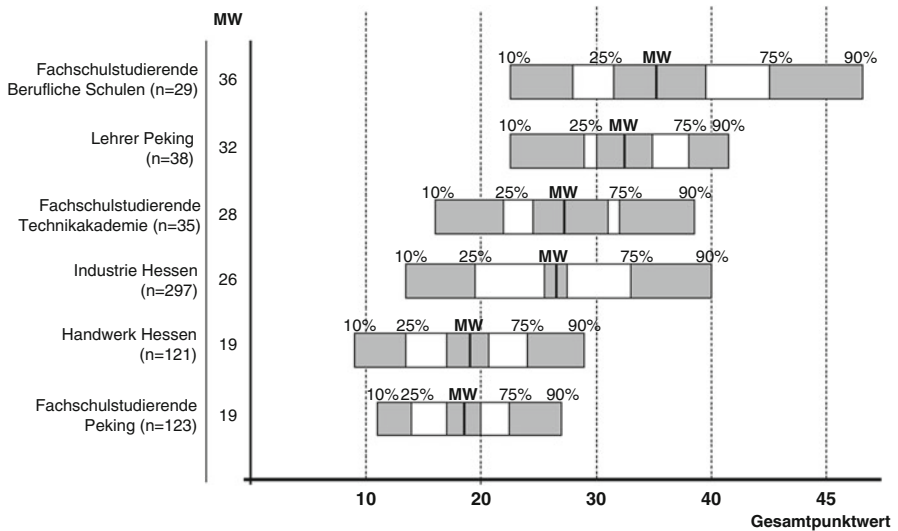
## Design and Organization of Vocational Education and Training Processes: Opening Up Action Scopes and Learning Opportunities

Planning and preparation of project-based learning are confronted with a dilemma. Detailed planning largely defines the objectives, contents, and course of didactic action. However, a good teaching plan is only possible if it opens up problem-solving scopes for the students. A first reference to dealing with the described dilemma can be found in the already discussed educational paradox: Vocational beginners become skilled learners by doing what they desire to or are required to learn. The instructor is not allowed to simply present the students with what she/he wants them to learn. This is where the new role of teachers comes into play, namely, the opening up of shaping and decision-making scope for the trainees/students, thus moving from knowledge mediator to process facilitator.

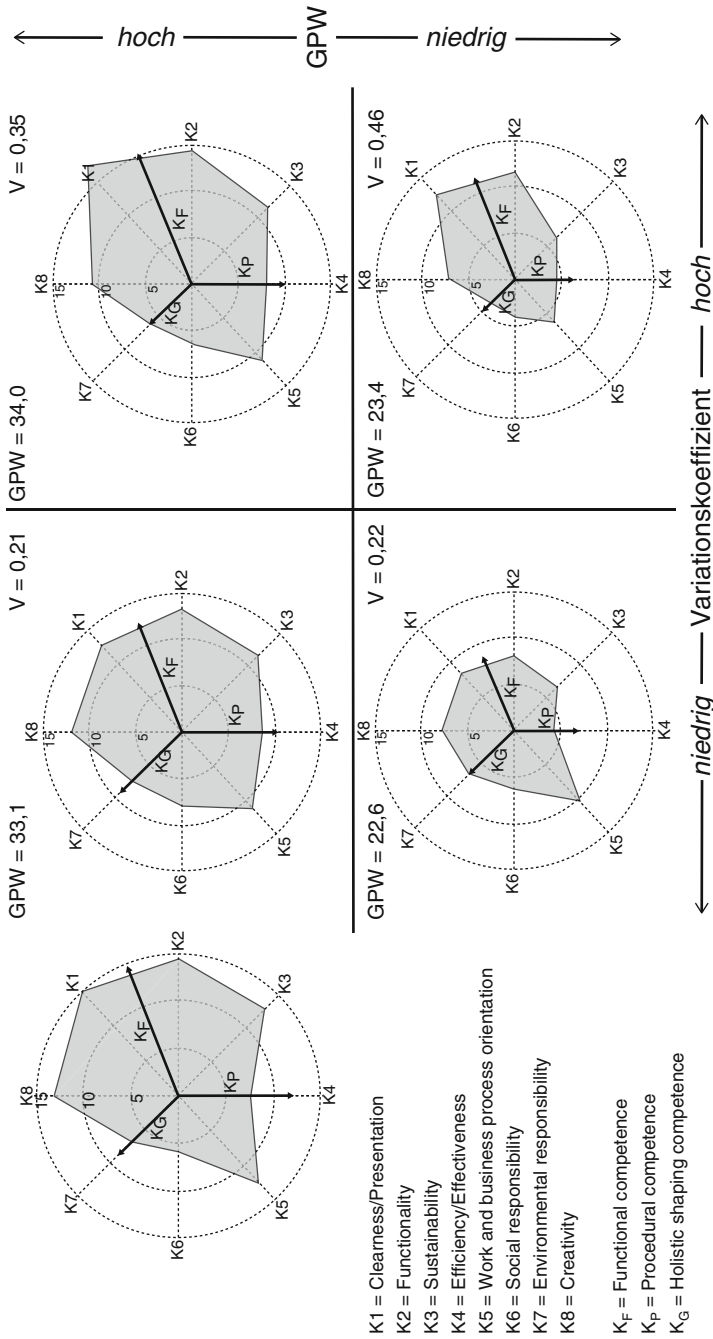
Steps in the design of a professional education process can be outlined as follows:

*Step 1: Selection of a customer assignment with “appropriate” learning potential and formulation of a learning task*

A central role in the design and organization of professional education processes is the selection of suitable customer assignments and their formulation as learning tasks. Based on the selected assignments, the teacher can create learning situations with appropriate situation descriptions. The question from the point of view of the learner is thus: Where do I see the challenges that the job provides for me? When asked what he can actually learn by dealing with the new situation, he will not find an



**Fig. 7** Percentile bands for the professional competence between test groups on class level for trainees (results 2009)



**Fig. 8** Average competence profile of a test group of students of technical colleges (type “vocational training”),  $n = 27$  and (Fig. 2) differentiation of the competence profiles according to the overall point value (GWP) and the variation factor: **(a)** E\_B, class Nr. 7,  $n = 26$ ; **(b)** E-B, class Nr. 5,  $n = 18$ ; **(c)** E-B, class Nr. 24,  $n = 19$ ; **(d)** E-B, class Nr. 23,  $n = 17$  (Rauner et al. 2011)

answer until the task has been solved. At this point, the teacher is particularly responsible for the fact that the learners can learn something while working on the learning task. In order to fulfill this responsibility, he/she has to clarify very clearly the experiences that (individual) learners have already made and the knowledge they have acquired. Only then can the challenge through which they can gain new work experience be described. The work and learning process structure is represented in the diagram below (Fig. 9).

Learning tasks and their possible solutions leave open the level at which they are solved and have an individual development potential for the trainees/students. Issues that teachers should consider in this first step are:

- The learning task has to be selected in such a way that it has a corresponding learning potential for the learning group and all trainees/students on the way to reaching employability (see the professional profiles and the vocational curricula).
- The learning task should pose a challenge for the low-performing as well as the high-performing learners and offer correspondingly challenging possibilities for solutions.
- The learning task must be described from the customer perspective. In the case of extensive tasks, the question arises of a work-division procedure in groups. This form of learning organization is very challenging as the coordination of the work-based learning includes the cooperation between the groups and all participants should benefit from the learning processes and results.
- The combination of the partial solutions and the new knowledge must be planned carefully.
- How should the group inform each other about what has been learned?

### *Step 2: Analysis of the situation description of the customer and professional specification*

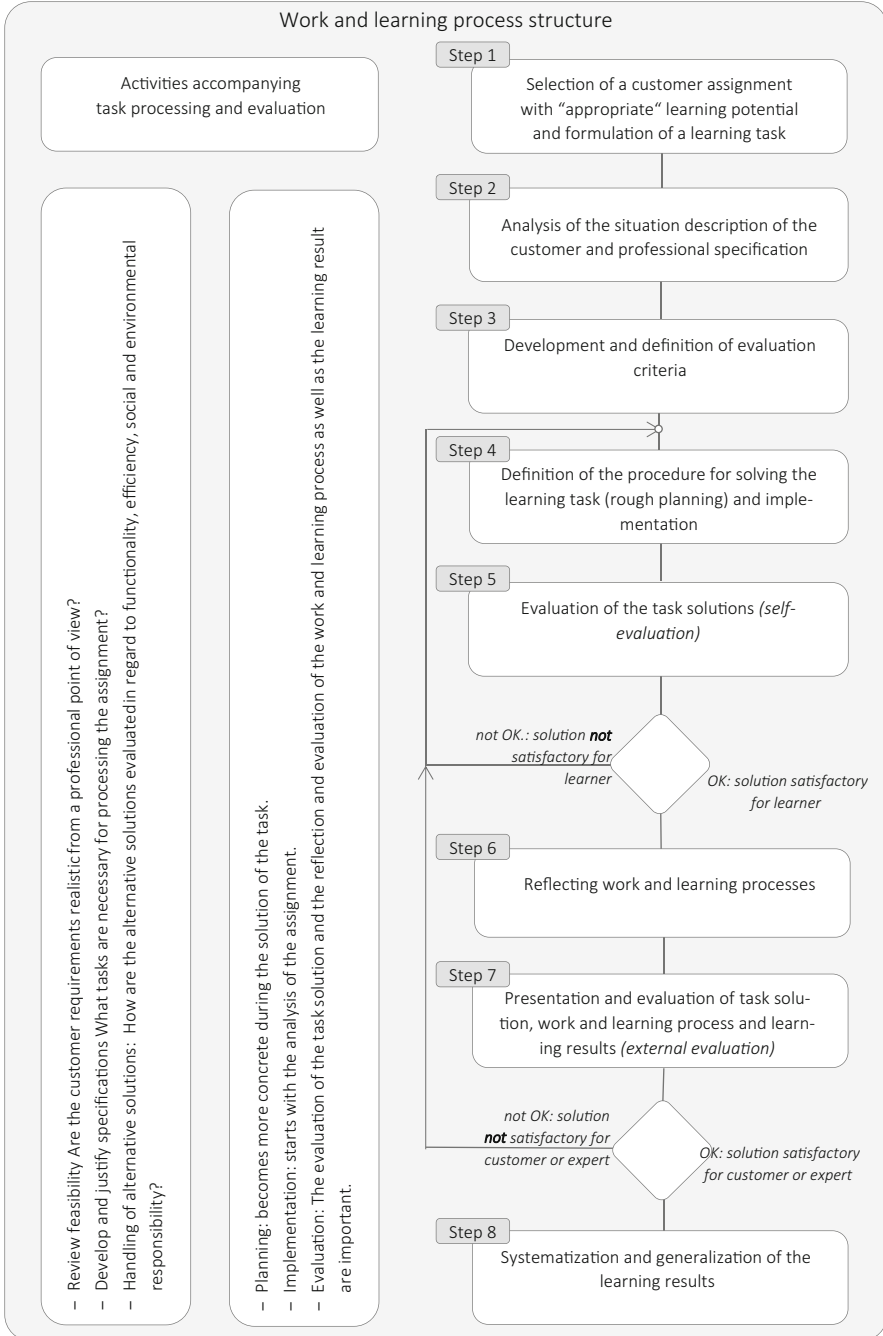
All learning tasks are described from the customer perspective. The task of the learner as skilled expert then becomes:

- To check the requirements of the customer for their feasibility
- To check whether individual requirements contradict each other and how to resolve these contradictions by weighing all requirements against each other
- To check whether the customer has overlooked requirements that are technically possible

### *Step 3: Development and definition of evaluation criteria*

The results of empirical teaching research show that the development of evaluation criteria (and their application in the self-evaluation of work and learning outcomes) increase learning success with regard to:

- The scope and evaluation of alternative solutions
- The possibilities for design and organization of the task solution (work process)
- The reflection of the learned content and the learning process



**Fig. 9** Work and learning process structure

**Table 3** Evaluation criteria for task solution, approach, and competence

Task solution	Approach	Acquirement of new skills
Does the task solution have an appropriate sustainability value for the customer (contractor)?	Has the planned procedure proven itself?	What prior working experiences and knowledge could be used?
Was the task solved completely?	Has the description of the situation been translated into professional requirements?	What knowledge and skills had to be acquired to solve the task?
	Were there deviations from the requirements of the customer and if so, why?	Where and how was the teacher's knowledge and know-how used?
Were alternative solutions weighed against each other and justified?	In which steps did prior knowledge not suffice for the task solution?	What resources have been used solving the task (technical books, Internet, etc.)?
Was the presentation of the results (for whom) successful?	What help has been used for problem-solving?	Was the know-how of individual students (students learning from students) helpful?
How is the quality of the task solution assessed based on the evaluation criteria?	What mistakes and deadlocks arose and how were they corrected?	What role did experimenting play in the acquisition of new competences?

Since the evaluation criteria describe not only the expectations of the result but also the process of the task solution, they form a good basis for reflecting what was learned and the quality of the task solution.

The evaluation criteria for solving open tasks allow learners to make their competence development transparent (Table 3).

#### *Step 4: Procedure for solving the learning task*

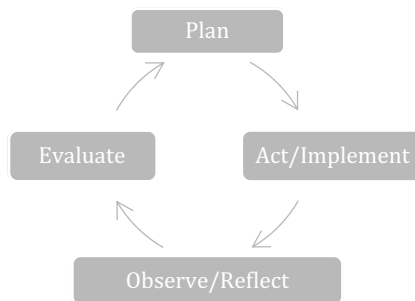
In the course of designing a learning situation or a project, planning is provisional because, as a task progresses, experience is gained and unpredictable difficulties arise which must be solved. Frequently the newly acquired knowledge suggests a modified approach.

The practical experience thus provides the basis for decision-making for further planning. This possibility of decision-making is particularly important in the case of challenges to which a competence-promoting potential is attributed (Fig. 10).

On the way to finding a solution, planning, executing, and evaluating are therefore alternating steps in the process of learning situations and in the execution of projects. This “cautious approach” is an explanation for the dissolution of the described training paradox in the context of action learning.

Teacher's help should be process- and not product-related. References to information sources, methods of learning, experimental possibilities, software tools, or

**Fig. 10** Steps to solve challenging situations



even mathematical methods are part of the process-related aids, which give the trainee the chance to solve the task him-/herself.

*Step 5: Evaluate the solution (self-evaluation)*

When the solution for the task is found, the process of learning is not yet complete. Now it is important to evaluate the quality of the task solution. As a rule, it turns out that different solutions have been developed by different trainees/students or working groups. The competence profiles (Fig. 11) show the differences. The COMET rating method is useful in this process (Table 4).

*Step 6: Reflecting work and learning processes*

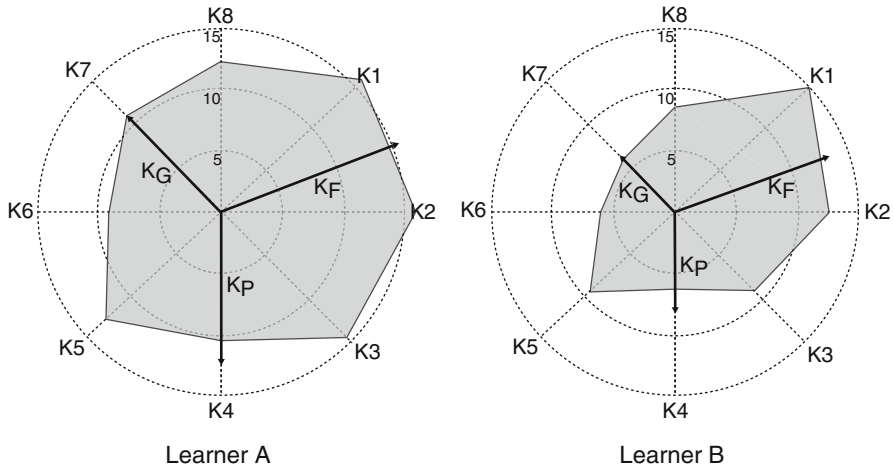
The following questions are designed to help with taking into account different perspectives in the reflection process.

Questions for the reflection process:

- How did I proceed during task processing (what was my first, second, etc. step)?
- What could I solve without difficulty due to prior knowledge?
- What did I consider especially for solving this task?
- How exactly did I proceed within the respective steps?
- Why did I proceed this way and what are the reasons for my choices?
- Which methods did I use?
- Which “cliffs” were contained in the task and what did I have to learn anew?
- What new learning methods did I have to acquire in order to completely solve the task?

(continued)





**Fig. 11** Varying solutions (Final report 2010, Hessen)

- How do the estimated challenge and the actual learning growth converge?
- How did I organize my work and what will I do differently next time?
- At which “cliffs” did I use the teacher’s support?
- What were the most important tools for solving the task?

Note: Depending on the organization of the task processing, the questions must be answered individually and/or in the group.

*Step 7: Present and evaluate task solution, work and learning process, as well as learning results (external evaluation)*

The presentation and assessment of the task solution, work and learning process, and learning results are of high didactic value:

- The satisfaction/dissatisfaction of the “customer” with the presented task solution is clarified.
- The sustainability of the task solution is assessed by professionals (learners, teachers, trainers, etc.).
- Questions concerning the success of the procedure (including the use of methods) and its optimization for further use for learning situations/projects are clarified.
- Explanations, justifications, and considerations are assessed for their appropriateness and conclusiveness, taking into account alternative solutions and procedures.

**Table 4** Evaluation chart for use in the classroom, example electrician (Katzenmeyer et al. 2009, 202)

	Criteria/indicators	Notes	Fully met	Rather met	Rather not met	Not met at all
Clearness/presentation						
1	Presentation appropriate for client? For example, description, operating instructions, cost plan, construction plan					
2	Presentation appropriate for professionals? For example, wiring diagrams, installation plans, terminal plan, cable plan, program printout commented					
3	Solution illustrated? For example, technology scheme, map, sketches					
4	Structured and clear? For example, cover page, table of contents, page numbering, company contact information, customer contact information					
Functionality						
5	Functionality given? For example, dimensioning/calculation OK, protection, necessary interlocks, end switch					
6	Practical realization taken into account? For example, electrical and mechanical construction possible?					
7	Presentation and explanation correct and technical state of the art taken into account?					
8	Solution complete? For example, are all requested and necessary functions given?					
Sustainability						
9	Use value for clients? Are useful and helpful functions taken into account? Automatic fault detection, changes possible					
10	User friendliness for users? For example, operability, operator guidance, clarity, alarm and operating displays					
11	Low susceptibility taken into account? For example, preventive error information, redundancy, partial solubility, are the material properties optimal for the application?					
12	Long-term availability and expansion taken into account?					

*(continued)*

**Table 4** (continued)

	Criteria/indicators	Notes	Fully met	Rather met	Rather not met	Not met at all
Efficiency/effectiveness						
13	Cost effective? For example, time and human resources, material use					
14	Follow-up costs taken into account? For example, electricity costs, maintenance costs, standstill costs in the event of loss of control					
15	Economic aspects taken into account? For example, standstill costs in case of component failure weighed against production costs?					
Work and business process						
16	Process organization in own company and at customer's premises, e.g., time and assignment planning, basic conditions for installation work clarified?					
17	Work process knowledge (work experience), e.g., does the solution have a structure that shows the workflow? Are upstream and downstream processes taken into account?					
18	Limits of own professional work? For example, structural changes, orders for other trades, foundation for control cabinet, scaffolding for sensor assembly taken into account					
Social responsibility						
19	Humane work and organizational design, e.g., ergonomics, serviceability					
20	Health protection taken into account? For example, toxic fumes, radiation, noise, risk of injury prevented					
	Actions in an emergency possible and explained?					
	Hazard analysis for assembly, operation, service, disruption and disassembly carried out?					
21	Occupational safety and accident prevention?					
	Work on ladders and scaffolding, PSA, instruction of third parties, hazard notes, labeling of dangerous substances					

(continued)

**Table 4** (continued)

	Criteria/indicators	Notes	Fully met	Rather met	Rather not met	Not met at all
	Environmental responsibility					
22	Recycling, recyclability, sustainability, e.g., ROHS material, PVC-free material, prevention, reduction, and recycling of waste					
23	Energy saving and energy efficiency, e.g., energy-saving lamps, EFF class for motors, minimize standby losses, displays with LEDs instead of lamps					
	Creativity					
24	Does the solution show problem sensitivity? For example, customer wish fully captured and implemented?					
25	Design scope exhausted? For example, useful additional functions planned?					
26	Economic aspects taken into account? For example, standstill costs in case of component failure weighed against production costs?					

- Experiences with different learning methods and structures of work organization are exchanged.
- Knowledge development, new experiences, and new abilities are described and evaluated, and the question “What else was learned?” is answered.

Of critical importance are reflections on:

- The methodological approach
- The ability to work together
- How conflicts were handled

#### *Step 8: Systematize and generalize the learning results*

The gradual generalization of professional experience in the process of dual vocational education and training leads to concepts and theories available to the individual as generalized “tools of thought” as well as tools of communication and reflection, which point to the real context from which they originated.

Generalization is about decoupling the work experience from the concrete learning situation and the task solution in order to make it available for the following customer orders. Teachers are now encouraging their students to become aware of their extended specialist understanding and to use this in their thinking, action, and skills in a professional way.

## Conclusion

In this chapter COMET as a competence diagnostic framework has been theorized and explained with reference to empirical examples taken from studies in various contexts. As a multidimensional tool for competence analysis, COMET adopts a step-by-step approach to understanding students' strengths and weaknesses and is able to assist teachers to plan the appropriate didactic interventions in a systematic manner. The goal of holistic shaping competence is key to realizing the ultimate purpose of professional vocational education.

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# Supporting TVET Learners' Success with Peer-Facilitated Learning and Active Citizenship

# 82

Nick Zepke

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## Abstract

The needs of learners in technical and vocational education and training (TVET) have been widely researched and documented. The same is true of ways to support such learning needs. This chapter addresses one specific question: what support do TVET learners need to enable them to acquire behaviors, knowledge, and attitudes to succeed in TVET, employment, and life? Success appears in many guises. It can mean achieving officially desired outcomes such as retention, completion, and employment. It can also mean achieving less measurable outcomes such as deep learning, well-being, and active citizenship. The chapter first introduces an overarching *success framework* before exploring how the widely used student engagement pedagogy can support learners to achieve both official and personal success outcomes. It then develops two specific constructs applicable to TVET and found in *success frameworks* and student engagement: facilitated peer learning and active citizenship. Peer learning is here connected to teacher-facilitated but peer-run mentoring; active citizenship to educational experiences in classrooms, institutions, and workplaces that support flexibility,

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resilience, openness to change, and diversity. Finally, practical applications of support strategies from one form of peer learning are provided.

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**Keywords**

Technical and vocational education and training (TVET) · Success frameworks · Student engagement · Peer-facilitated learning · Active citizenship

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## Introduction

This chapter addresses one overarching focusing question – what support do learners in technical and vocational education and training (TVET) need to succeed in their study? A paragraph in the summary of UNESCO's (2015) General Conference on TVET offers a summary:

In addition to knowledge, skills and competencies relating to occupational fields, learning processes should build on foundation skills and further deepen understandings of the scientific, technological, social, cultural, environmental, economic and other aspects of societies. TVET should be holistic and develop transversal and entrepreneurial skills, skills for health and work safety, cultural development, responsible citizenship and sustainable development, as well as knowledge of labour rights. (Paragraph 29, General Conference, UNESCO)

Researchers into TVET echo this view that vocational knowledge, skills, and attitudes, while necessary, are not sufficient for TVET learners to achieve all learning outcomes (e.g., Billett 2009; Tyson 2016; Webster and Sausner 2017). They posit two distinct meanings of vocation. One focuses on occupation – the ability to practice a vocation competently. The other is more about preparing learners for a journey or trajectory, “a calling” that prepares learners for life, including life beyond employment. Tyson (2016) speculates that this second type of learning is akin to vocational *Bildung* – a German word that suggests that TVET is also a lifelong process of personal vocational development and maturation that includes ethical and aesthetic knowledge/capability as active citizens, capacity for wise reflection and judgment, relationship building, and the development of personal autonomy.

The chapter explores how vocational competence and *Bildung* support TVET learner success. It responds to the focusing question in four sections. The first explores a possible overarching success framework for TVET students to frame the chapter. This focuses on generic institutional and teaching program policies and practices that support learner success. The second section summarizes key findings from student engagement research. These sketch a pedagogy for TVET that shows how success frameworks might be implemented in practice. It explores three propositions from student engagement: successful students invest in their own learning; instructors and institutions enable engagement; and success requires supportive environments. While these are general principles of engagement, particular interest has emerged in how learner voice, learning partnerships, and practicing citizenship while learning can affect TVET. Hence the third section discusses the use



of facilitated peer learning to develop the active citizenship of TVET learners. The chapter concludes with some examples of how facilitated peer learning and active citizenship might work in practice.

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## Toward an Overarching Success Framework in TVET

Supporting learner success belongs in the first place to educational policy and the TVET providers that implement it. Since the late 1990s many governments have adopted policies that expect learners to succeed in education and the workplace and as socially integrated citizens. Success in TVET is often judged by whether “hard” quantifiable outcomes such as retention, persistence, achievement, completion, and employment are achieved. To support learners attain such hard outcomes, policies must set measurable standards and goals toward which institutions, teachers, and learners strive. However, meeting hard outcomes does not give a complete picture of learner/learning success. Learner’s own goals and experiences independent of hard outcomes are equally important. One approach that reaches beyond hard outcomes like retention and completion focuses on soft outcomes (Butcher et al. 2006). Such outcomes are derived from students’ cognitive investment in, active participation in, and emotional commitment to their learning (Reschly and Christenson 2012). Numerous governments and international agencies have developed frameworks of soft outcomes also labelled “key” or “twenty-first-century competencies.” Voogt and Pareja Roblin (2012), for example, analyzed eight such frameworks from around the world. They found they shared a number of similar competencies: collaboration, communication, ICT literacy, and social and/or cultural competencies, and most also included creativity, critical thinking, productivity, and problem-solving. Such soft outcomes are not easily quantified but offer important learning outcomes that require support from institutions and inclusion in teaching programs.

Researchers in California Community Colleges constructed a *success framework* for TVET using both hard and soft outcomes (Booth et al. 2013). They asked nearly 900 students from 13 California community colleges what they thought supported their learning successes. They found that learner support must be integrated into students’ daily experiences with administration, teachers, peers, and members of the community. They concluded that learners are more likely to succeed when they are directed, focused, nurtured, engaged, connected, and valued by institutional and program practices. Learners are *directed* if they have a goal and know how to achieve it, *focused* when they stay on task by keeping their eyes on the goal, *nurtured* if they feel they are supported to succeed, *engaged* when they actively participate in learning activities, and *connected* if they feel part of the institutional and wider community. While all success factors contain hard and soft outcomes, hard outcomes dominate the *directed* and *focused* factors. Where everyone knows what outcomes must be achieved and understands that the curriculum is directed to and focused on such outcomes, the road to success is set out. *Engaged* and *connected* success factors include both hard and soft outcomes. Hard outcomes such as retention and completion can be met where learners engage and connect with the curriculum. Soft

outcomes such as positive energy and commitment are also embedded in engagement and connection. The *nurtured* and *valued* success factors are personal and subjective and align more with soft outcomes than the others.

Other researchers too have generated practical suggestions about supporting successful hard and soft learning outcomes in TVET programs. To abstract a reasonably systematic overview of this literature, the chapter investigates support in terms of what TVET providers and teaching programs can do to enable learners achieve success. For example, Kuh et al. (2005) investigated the practices of 20 successful higher education institutions in the USA. They found that these organizations focus on supporting student success, foreground learning, establish high expectations, aim for continuous improvement, invest money in support services, support diversity, and prepare students for learning at work and in the wider community. Only a small sample of what this might entail can be noted here. But there is consensus that a learning- and success-centered provider and program culture are part of the learning experience; that enrolment processes, course advice, and monitoring of progress are evident, user-friendly, and efficient; and that communication channels between learners and providers are clearly established, well publicized, and open (c.f. Tinto and Pusser 2006; Ramsden and Callender 2014; Tinto 2015). Researchers also agree that providers that support student success offer a wide range of student services. Examples include child care, pastoral care, financial advice, counselling, health services, library support, resource centers for minorities, employment services, study skills assistance, and active learning and support networks. In short, providers and teaching programs that build and maintain *success frameworks* support learners' total well-being (Field 2009; Gill 2009).

Another key aspect of a *success framework* is what providers and program leaders do in TVET programs to direct, focus, nurture, engage, connect, and value learners. Again, relevant research literature is rich and varied and can only be selectively summarized here. But Chickering and Gamson's (1987) time-honored seven principles of good practice synthesized what teachers and programs can do to support learners in higher education including TVET. The principles are encouraging teacher-learner contact, developing cooperation among learners, using active learning techniques, giving prompt feedback, emphasizing time on task, communicating high expectations, and respecting diversity. Together, these principles help learners meet both hard and soft outcomes in a *success framework*. More speculative but equally serving both hard and soft outcomes is the work of Arvanitakis and Hornsby (2016). They contribute to a TVET *success framework* with four future proficiency clusters. The first is creativity and innovation. Programs placing critical thinking, problem-solving, and reflection at the heart of learning support learner success in times of rapid technological and social change. The second proficiency cluster centers on resilience. Learners encouraged to adapt to change are nimble and flexible, learn from mistakes, and persevere. The third proficiency cluster is teamwork. Programs in which individual and collective success are considered equal help prepare learners for success in life. The final proficiency cluster is design thinking. Here providers and their programs place learners' success first with the entire system designed to meet this outcome.

## A Pedagogy for Success

Yet, designing an overarching *success framework* is only a first step in supporting TVET learners' success. *Success frameworks* offer a variety of high-level principles designed to help learners and instructors visualize meeting both hard and soft outcomes. However, such high-level principles can neglect the day-to-day pedagogy required to support learner success. Student engagement is mentioned as a key ingredient in most *success frameworks*. It is a well-researched pedagogy, a meta-construct and template for action-based teaching and learning that implements the strategies in *success frameworks*. Student engagement offers a heuristic shortcut for understanding the complex behaviors, thinking, and emotions that lead to successful learning (Reschly and Christenson 2012). The overriding purpose of TVET is to engage learners to develop their vocation and life skills by achieving outcomes expected in program design, industry, and wider society and by learners themselves. But like all learning and teaching, student engagement is complex. Its complexity lies, first, in its generic and applied nature. It offers a pedagogy that must be adapted to many different contexts (Reschly and Christenson 2012). Second, it blends learning and teaching without separating them. Barr and Tagg (1995) introduced the term "learning paradigm" in which students are not just receptacles for instructors' knowledge, but co-producers of knowledge with shared responsibility for their learning. Third, it applies at all levels of TVET – at secondary schools, at higher and further education, and in the workplace.

Student engagement research provides the TVET community with evidence-based and practical approaches to teaching for learner success. Kuh (2009) and Pascarella et al. (2010), for example, show that student engagement is an important predictor for retention and improved grades in higher education. It is also positively correlated with a range of softer outcomes such as critical thinking, cognitive development, self-esteem, satisfaction with life, and the building of positive relationships with others. With such evidence governments, providers, and instructors can implement engagement as a pedagogy for TVET that supports learner success in training programs and subsequently in productive employment. Kuh et al. (2008) found that right behaviors by learners and teachers support engagement and success. Fredricks et al. (2004) suggested that engagement is not only about right behaviors but also involves students' cognitive investment in and emotional commitment to their learning. Cognitive engagement points to investment in deep learning of concepts and skills, of individual construction of meaning, and of transforming meanings (Marton and Säljö 1976). Emotional engagement results from feelings of psychological well-being such as a sense of belonging and security in relationships both inside and outside the learning context (Wimpenny and Savin-Baden 2013). Together these modes of engagement are critical for achieving success in vocation and life more generally.

Carey (2013) goes even further. He views engagement as an expansive idea that in addition to fostering active behavioral, cognitive, and emotional student participation in learning involves building a sense of identity with, belonging to, and involvement in the work of their teachers, providers, and occupations. Lawson and

Lawson (2013) go wider still with a multidimensional view of engagement. They synthesize student engagement using a sociocultural ecological lens tracing student, teacher, provider, and external environment perspectives. Kahu (2013) suggested that while engagement occurs within a specific learning context, it has positive proximal and distal consequences, such as satisfaction and well-being, citizenship, and personal growth, thus highlighting a connection between well-being, citizenship, education, and engagement both inside and outside the learning context. Leach (2015) endorses Kahu's holistic model of engagement with the following definition:

Student engagement is understood as the time and effort students invest in educational activities. The consequences of their engagement – their success in their study, their personal growth and the contribution they make to society through active citizenship – are affected by personal and contextual antecedents as well as the actions taken by teachers, institutions, families and friends to facilitate their engagement in an active partnership.

In TVET student engagement supports learner success by offering a learning culture that helps achieve hard and soft outcomes both in vocational and personal development.

## **Proposals for a Student Engagement Pedagogy**

Many different behavioral, cognitive, and affective characteristics of student engagement have been proposed as models for quality teaching since the 1980s (e.g., Entwistle and Ramsden 1983; Kuh 2009; Zepke and Leach 2010). These models have had a major impact on educational practice. The National Survey of Student Engagement (NSSE) has been particularly influential with its survey of behaviors assessing mainly the achievement of hard outcomes. While this offers a powerful data set about behaviors that engage students, Zepke (2017) used a “meta-synthesis” (Erwin et al. 2011) of over 500 research publications to make 10 proposals that engage learners to achieve both hard and soft outcomes. This section now summarizes Zepke's proposals for a supportive student engagement pedagogy under three general headings: (i) learners invest in their own success; (ii) instructors and providers are vital enablers of engagement; and (iii) engagement requires enabling external environments.

### **Learners Invest in Their Own Success**

Four proposals under this heading were arranged into two pairs around self-belief and diversity. The first proposal stated that learners' self-belief is vital for success. All learners have individual and collective strengths. A strengths-based approach assumes that learners can achieve hard and soft outcomes if they have self-belief and are supported to develop it. Self-belief requires pedagogy that builds strengths and is not fixated on problems. Strengths-based learning is rooted in *appreciative inquiry* (Bushe 2013). This de-emphasizes the negatives people bring to learning. *Appreciative inquiry* requires learners and instructors to demonstrate in word and deed that learner strengths are appreciated, that learning activities and assessment methods

vary so that different strengths come into play, and that affirming feedback focuses on strengths while recognizing weaknesses. The second proposal suggests that learner motivation grows from self-belief. Learners invest in their own success when able to learn autonomously, enjoy learning relationships, and feel they are competent to achieve their own and others' objectives (Ryan and Deci 2000). Of the three motivational factors – autonomy, belonging, and competence – feeling competent is the most important. Examples of this proposal in action include learning tasks and activities that enable students to feel competent to develop strengths without hiding weaknesses; feedback on completed tasks that is timely and specific, reinforces strengths, and provides guidance on how to address weaknesses; and group activities that encourage interdependence, a sense of belonging, and the opportunity for individuals to work autonomously with others.

The second pair of proposals under this heading focuses more on student engagement as a pedagogy that recognizes and values individual and group differences. The first proposal in this pair is that TVET learners' different social and cultural learning capital is recognized, valued, and built to increase feelings of self-worth and competence. This suggests that whether due to social class, culture, ethnicity, age, gender, geographic location, or sexual orientation differences influence how students engage and whether they succeed. For learners from minority “nontraditional” groups to feel like fish in water (Thomas 2002), learners must have the social and cultural capital needed to succeed in TVET. But they often lack support and do not bring the “right” social, cultural, and vocational competence to engage and succeed in TVET. A curriculum that builds social and cultural capital supports, for example, specific learning needs of minorities in a learning group, adopts strategies based on *appreciative inquiry* to acknowledge practices of minority groups, and offers feedback that is aware of social and cultural differences. The second proposal in this pair is that engaged learners are deep learners. The Higher Education Academy in the United Kingdom (n.d.) brought together numerous characteristics of deep learning from the research literature. Examples include examining facts, ideas, and practices analytically by matching them to learners' existing knowledge structures, linking ideas and practices to different social and cultural settings, looking for meaning, solving problems, distinguishing between argument and evidence, and developing curiosity and personal interest in the subject.

### **Instructors and Providers Are Vital Enablers of Engagement**

The previous proposals highlight the importance of teachers supporting TVET learners' confidence in self. This next cluster of three proposals comprises the following: (i) quality teaching and institutional support enhance engagement; (ii) vocational knowledge engages students; and (iii) quality teaching adapts to changing student expectations. According to Trowler (2010), questions of how quality teaching can support student success dominate engagement research. Engagement-enhancing practices are many. As observed above, Chickering and Gamson's (1987) seven principles for good practice still serve well as a guide for engaging teaching in TVET. But instructors must remain aware that to engage their learners often requires specific applications of generic ideas. This is particularly true

for teaching in TVET where specific vocational knowledge, skills, and attitude are taught and general teaching approaches must be adapted to meet TVET requirements. For example, conceptual understandings and practices must meet the changing requirements of an occupation. Such understandings involve key terms, concepts, and principles and how they can be applied in the “real world.” Teachers must also respond to changes in technology and keep abreast of changes in evaluating and interpreting knowledge and practices. This last point is critical in times of ever-changing learner expectations. Examples of instructors meeting learner expectations include being on top of changes happening in the world of work and employment, particularly in technology. Providers and instructors also need to keep up with changes in the way learning support like library services, pastoral care, and support networks are delivered to keep up with changing learner demands.

### **Engagement Requires Enabling External Environments**

The three proposals in this section suggest that learning generally, and TVET particularly, does not just occur in formal instructional settings. The first proposal captures the idea that learning is lifelong and lifewide. It adds an extra dimension to student engagement in TVET. It suggests that learners inhabit multiple learning spaces simultaneously and can draw inspiration from them. Barnett (2010) lists a number of potential learning spaces. Formal learning in credit-bearing courses is one space. Learning at home, work, and even the pub and on the train can provide unaccredited but personally stretching spaces that can transfer knowledge, skills, and attitudes to TVET learning programs. The second proposal in this cluster focuses on soft outcomes of TVET. It proposes that learners are citizens and should become active citizens in TVET. Learners want to feel they have a voice in what and how they learn and “student voice” has become a powerful metaphor for active citizenship. Where educators give students voice and opportunities for collaboration, engagement rises. Klemenčič (2011) suggests that participation serves as an indicator of democracy and results in a culture of dialogue. The third proposal is that student engagement is linked to well-being. Personal and social well-being is achieved in TVET in supportive relationships and sense of trust and engagement with others. Personal well-being requires autonomy, competence, engagement, and self-esteem; social well-being involves social engagement, sound interpersonal relationships, and social competence.

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### **Facilitated Peer Learning and Active Citizenship in Practice**

Peer-facilitated learning and active citizenship offer two practical learning approaches supportive of TVET learner success. Both approaches draw on *success frameworks* and student engagement pedagogy. Voogt and Pareja Roblin (2012), for example, found that *success frameworks* share similar curriculum goals such as collaboration, communication, creativity, critical thinking, citizenship, productivity, and problem-solving. Student engagement invests heavily in the notion of *partnership* as a way to transform the learner from *consumer of teaching* into a *producer of learning* (e.g., Neary et al. 2014; Nygaard et al. 2013). According to Arvanitakis and

Hornsby (2016), a combination of peer-facilitated learning and active citizenship helps “future-proof” learning by enabling learners achieve success now and in the future. They propose that “future proofing” requires TVET learners to apply ever-changing knowledge, skills, and values in their own context for the betterment of their occupation and society. But the idea of future-proofing TVET challenges current curriculum thinking and practices. From a philosophical standpoint, Biesta (2013) argues that curriculum is currently far more concerned with accountability and performativity than the needs of learners in a changing world. He suggests a switch in curriculum focus from the individual to the collective, the democratic, and the political. Tagg (2003) agrees from a practical standpoint. He advises instructors to focus on collaborative activities and real-world applications so that learners engage with each other to achieve hard and soft outcomes.

Future proofing involves learners pursuing occupational training objectives and vocational “Bildung” by drawing on the experiences of peers as well as the knowledge and skills of their instructors and experienced practitioners. Modelled on Wenger’s (1998) version of learning communities, such learning partnerships result in mutual engagement and joint enterprise, working together to achieve common goals and sharing responsibilities and resources (McIntosh and Cross 2016). There are many slightly different versions of peer-facilitated learning: peer-assisted study sessions (PASS), peer-facilitated study, peer-assisted learning (PAL), learning communities, supplemental instruction, and transition mentoring are some examples. Research has found that whatever the form, all versions contribute demonstrably to learner success. For example, there is a strong correlation between students regularly attending PASS and an approximately 10% increase in learning success, a lowering of the failure rate, and an increase in high achievement (Fostier and Carey 2007); a meta-study of published research on peer-facilitated learning shows an average improvement of 15% obtaining A, B, or C grades (Gosser 2015); and in another meta-analysis, Hattie (2012) shows that every facet of a robust peer tutoring model has a high effect size. All forms of peer-facilitated learning are designed to enable learners to grow as vocational practitioners and as citizens who learn actively, thrive on such learning, and feel connected to vocation and society. Some versions are developmental, others remedial.

Peer-assisted study sessions (PASS) provide a prominent example of peer-facilitated learning. I discuss PASS now in greater detail as a representative example of peer-facilitated learning. The purpose of PASS is developmental, not remedial. It supports and supplements learning by employing the combined agency and power of instructors, student facilitators, and learners working together in voluntary but usually timetabled sessions. It contributes to student engagement, retention, and learner well-being, supports active and collegial learning, improves learner-instructor and peer relationships, and opens channels of communication between learners and their vocation giving learners agency and voice (Zacharopoulou et al. 2015). By working in learning communities, learners become “stakeholders” or partners in their own learning, active citizens. According to Carey (2013), student voice is already a vital part of learning processes through quality assurance and student feedback, for example. But he suggests that such uses of student voice allow learners to speak while not necessarily being heard. Fielding (2004) argues that



restrictive uses of learner voice must be expanded by learning that is active and democratic and contributes to decision-making about curriculum, learning activities, and assessment processes. According to Trowler (2010), confident and proficient learners exercising their voice become co-producers of learning, active co-workers in organizational structures, and identity builders in the wider community. Having exercised their voices in their own learning contexts, learners gain the potential to influence their occupation in the future.

Like other forms of peer-facilitated learning, PASS integrates and nurtures the use of learner voice and agency. It contributes to future proofing TVET by supporting learners to become co-producers of learning and active citizens. Agency works on two levels. On one it shows appreciation of learners' strengths in achieving their own learning goals and those of peers. As mentioned previously, strengths-based teaching, rooted in *appreciative inquiry*, recognizes that students bring cultural, age-related, educational, character-related strengths, among many others. According to Bushe (2013), recognizing these strengths develops more agentic individuals who engage in independent and interdependent learning and feel competent to achieve their own and contribute to their peers' success. On a deeper level, agency is about students having power to shape their own learning. Examples of agentic students sharing power in democratic classrooms have been published over the years (e.g., Shor 1996; Ody and Carey 2013). Ody and Carey report on a transition program into higher education using senior student facilitators to prepare learners for university life. The program enabled learners to work with peers how to learn necessary content, attitudes, and skills but also how to take part in discussion groups focused on cultural, economic, and political issues. Shor writes about a radical experiment in power sharing that led to autonomous peer learning. One former student reports that: "we decided what the class talked about. We asked the questions. . . . We shaped the class. We co-developed the curriculum" (Shor 1996, p. 223).

PASS programs are widely offered internationally in secondary schools, in further and higher education, as well as in six international PASS national centers (Keenan 2014). While PASS programs are offered to a wide range of TVET learners, most information about how they work is available from the higher education sector (e.g., Keenan 2014; Ody and Carey 2013; van der Meer and Scott 2009). Most frequently they aim to transition learners to the next level of TVET learning. Multiple case studies suggest that programs are typically organized in small groups and tailored to meet the needs of diverse learners and subjects. But they also share a remarkable consistency in approach. They often involve hour-long structured group sessions. Each session is facilitated by trained PASS leaders, often advanced learners from within the community of practice. Leaders are advised by an instructor who is familiar with PASS facilitation skills and the content underpinning the sessions. PASS sessions are voluntary and integrate how-to-learn with what-to-learn. Participating learners review course content through active learning exercises and activities and work together to develop sound study techniques and strategies. They compare experiences and understandings; clarify readings; discuss, analyze, critique, question, and solve problems; and propose changes to programs and assessment protocols. Abilities in problem-solving, understanding what is expected, key concepts, and proficiency in the language of the vocation



are all key competencies facilitating success. Also embedded in PASS programs are growth in self-confidence, critical reflection, planning skills, effective communication, and relationship building.

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## Conclusion

This chapter addressed the question “what supports do learners in TVET need to succeed in their study?” The answer offers a complex array of factors. They are complex because while TVET offers a coherent concept of purposes and processes, it is also incredibly diverse. It occurs in schools, in further and higher education, as well as in workplaces. It seeks to develop knowledge, skills, and attitudes that prepare diverse learners to work in a wide variety of vocations in multiple contexts as competent practitioners/employees but also active citizens able to contribute constructively to the future of their vocation and to society. It is argued that to lay the foundation for their success in this complexity, they must achieve hard and soft outcomes set by vocations and themselves. Hard outcomes are measurable, officially set outcomes such as retention, completion, and vocational competence. Soft outcomes are less measurable and include deep learning, well-being, and active citizenship. These success indicators require three levels of support: a general policy orientation resulting in overarching *success frameworks*, student engagement pedagogy that engages both learners and instructors, and a work program that applies two specific practices applicable to TVET and found in *success frameworks* and student engagement: facilitated peer learning and active citizenship.

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# Vocational Diversification and Influences of Social Class and Gender in Educational Decision-Making: The Case of University Technical Colleges in England

# 83

Ann-Marie Bathmaker

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## Abstract

University Technical Colleges (UTCs), introduced in 2010, represent a new form of vocational education for young people in England. They contribute to an increasingly complex landscape of education and training, promoted as a creative means of meeting the diverse educational needs of young people (Fuller and Unwin, *Lond Rev Educ* 9(2):191–204, 2011). UTCs respond in particular to national and international policy agendas that seek to promote participation in STEM subjects (science, technology, engineering, and maths). They have been

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championed by the UK's Edge Foundation as providing a "highly regarded" course of study "with clear progression routes into higher education or further learning in work," especially careers in technician and degree level engineering.

However, there is very limited research evidence to show whether young people and their parents understand the different options available, how decisions to attend a UTC are made, nor whether the education offered in these new institutions enhances or conversely limits the opportunities of students who attend them.

This chapter draws on data from a project that carried out detailed case studies in two UTCs in England during 2014. The project addressed the following core question:

What impact does vocational diversification in the form of UTCs have on the decision-making and experience of boys and girls from different class backgrounds?

The research used a holistic approach focusing on the whole institution in relation to the introduction and development of new educational policies. This encompassed analysis of "the situated, material, professional and external dimensions" (Braun et al., *Discourse* 32(4):585) of the schools, recognizing the schools' origins (and that of their communities), their ethos and culture, their physical environment and resources, and their staff, students, and families as well as external influences. The chapter offers an analysis of policy enactments (Ball et al., *How schools do policy: policy enactments in secondary schools*. Routledge, 2012) in the two case study institutions and considers how these enactments may reinforce or challenge historical patterns of gender and class divisions in vocational education in England.

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**Keywords**

Vocational education · Social class · Gender · Decision-making

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**Introduction****UTCs**

University Technical Colleges (UTCs) were introduced in England in 2010. They are government-funded schools for 14–18-year-olds, which focus on one or two technical specialisms. They are the brainchild of Lord Baker, former Conservative Minister for Education under Margaret Thatcher, and are backed by an Educational Trust established by Lord Baker and the late Lord Dearing. Each UTC works with employers and a local university to develop and deliver their curriculum. They are expected to commit at least 40% of time to the technical specialism, which can also include working in teams and problem-solving. They are smaller than traditional secondary schools, catering for approximately 600 students in total. They are subregional and have a catchment area that may extend across a number of local authorities, and they are not academically selective. In 2014, when the data for this project were gathered, there were 17 UTCs. By 2018 a total of 50 were in operation.

The rationale for UTCs is linked to arguments about labor market need for high level technical skills. At the time of this research, the UTC website stated:

The UK needs advanced technical skills at all levels if we are to prosper in the 21st century. Whether in manufacturing, wind farms, rail links or hi-tech hospitals we need a workforce that can develop new products, stretch and reuse existing resources, and meet all the challenges of the future.

UTCs are meeting the needs of the skills gap and by 2016 more than 30,000 students will be able to follow this new technical education pathway.

<http://www.utcolleges.org/about/overview/> (Accessed 30 Aug 2014).

The website promoted UTCs in two ways. Firstly, there was an aspirational vision of what they do that distinguished them from other schools:

University technical colleges (UTCs) are government-funded schools that *offer* 14–18 year olds *a great deal more* than traditional schools. They *teach* students technical and scientific subjects in *a whole new way* and are *educating the inventors, engineers, scientists and technicians of tomorrow*. [author's emphasis]

<http://www.utcolleges.org/about/overview/> (Accessed 30 Aug 2014).

Secondly, there was a rather more pragmatic claim about the progression achieved by UTC students:

Amongst the first UTCs no student has joined the ranks of the unemployed. Every student continued in education, or went into employment or training. There were no “NEETs” [Not in Education, Employment or Training] and this is our aim for all UTCs.

Lord Baker, Chairman, Baker Dearing Educational Trust

<http://www.utcolleges.org/about/baker-dearing-educational-trust/> (Accessed 30 Aug 2014).

## UTCs as a Policy Ensemble

The notion of policy ensembles (Ball et al. 2012) provides a way of conceptualizing the clustering of a number of key policy imperatives shaping the work of the two UTCs in this study. The UTC initiative in itself represents a clustering of policy ideas. The headline focus is on the teaching of technical and scientific subjects, which fits with a UK government policy emphasis on the importance of STEM subjects:

The government believes that if we want the UK to remain a world leader in research and technology we will need a future generation that is passionate about, and skilled in, science, technology, engineering and maths (STEM).

<https://www.gov.uk/government/policies/engaging-the-public-in-science-and-engineering%2D%2D3/supporting-pages/inspiring-students-to-study-science-technology-engineering-and-mathematics> (Accessed 20 Aug 2014).

But UTCs also bring together other significant policy “ideas,” one of which is particularly relevant to the focus of this chapter. This concerns the promotion of school choice through the provision of an array of different types of school,

particularly those independent of local authority control, as outlined in the UK Department for Education's *School Choice Framework* (2013: 3):

There are now more types of state school to choose from, including more Academy schools which are run independently from the local authority. The government has a school reform programme that allows interested parties – such as education providers, charities, community groups, teachers and/or parents – to establish new education facilities such as Free Schools, Technical Academies, University Technical Colleges and Studio Schools.

These schools are established in response to parental, student and/or community demand for a specific type of provision.

UTCs (along with Studio Schools) add a further dimension to school choice in England, as they recruit young people from the age of 14, the beginning of key stage 4, rather than 11, which is the regular transition point from primary to secondary education in England. While 14 has become a transition point in recent years for some students who follow an alternative, vocationally oriented curriculum for part of the week, usually in colleges of further education, such provision has tended to be taken up by young people deemed to be disengaged from education.

#### **Floor standards: secondary schools**

The UK government currently sets and assesses state-funded secondary schools' performance against minimum requirements referred to as 'floor standards'.

A school will be below the floor standard if:

- Fewer than 40% of pupils achieve five or more GCSEs at grade A\*-C or equivalent, including GCSEs (or iGCSEs) in both English and mathematics
- The school has a below median score for the percentage of pupils making expected progress between Key Stage 2 and Key Stage 4 in English
- The school has a below median score for the percentage of pupils making expected progress between Key Stage 2 and Key Stage 4 in mathematics

The median school score for pupils making expected progress in English and in mathematics is 73 per cent for each in 2013.

The recommendations of the Wolf Review will be implemented for performance measures based on 2014 results. This means that, for example, no vocational qualification can count for more than 1 GCSE and a maximum of two vocational qualifications per pupil can count in performance tables measures. These changes will make the floor standard more demanding.

**Fig. 1** Floor standards for secondary schools 2013 and 2014. [http://www.education.gov.uk/schools/performance/fs\\_13/index.html](http://www.education.gov.uk/schools/performance/fs_13/index.html). Accessed 29 Aug 2014

While the above might suggest difference and innovation, it is set within a context where GCSE performance policy – an “A-C economy” (Gillborn and Youdell 2000) – dominates the work of all secondary schools. Interviews with staff indicated how the pressure to meet GCSE “floor standards” (see Fig. 1) was ever-present in constituting teaching and learning practices in the two UTCs.

The A-C economy had a further significant effect in shaping how the UTCs in this study were constituted in practice. As discussed below, a considerable number of students chose to move to a UTC as a reaction against the effects of the A-C economy, whereby “Students are objectified as talented, borderline, underachieving, irredeemable, etc.” (Ball et al. 2012: 78). At both UTCs, there were students who believed they had been objectified negatively in this way and had moved to escape how they were positioned in their previous schools.

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## Who Wants to Be an Engineer? Students’ Enactments of Policy in Two UTCs in England

The analysis of the data below draws on Ball, Maguire, and Braun’s work on policy enactments (Ball et al. 2012; Braun et al. 2011). However, their work focuses specifically on staff rather than students, whereas this chapter turns its attention to students. The exploration of how young people choose to study at a UTC suggests that students play a highly important role in how policy becomes enacted – in shaping what constitutes a UTC – and how its mission and practices evolve on the ground. Of course staff also contribute to the enactment of UTC policy, but in what follows, the focus is on who the students are and how this shapes and redefines the enactment of UTC policy. The data on which the analysis is based were gathered in 2014 and involved a questionnaire distributed to all Y10 students at each UTC and interviews with 16 Y10 students at each UTC.

### The Two UTCs in Context

*New UTC* specialized in new technologies and was located in a medium-sized town in England. The area had a predominantly white British population, with 93% of residents from a white British background and only 3.4% from a minority ethnic background (Town area profile 2013).

There was engineering and manufacturing industry in the area, including some larger companies, and a considerable number of small- and medium-sized enterprises. The biggest areas of employment were wholesale and retail trade (including motor vehicle repair) (18% of the population) and manufacturing (12%). 32% of the population had no qualifications or only a level 1 qualification.

The history of secondary school education in the town was not strong. The two local schools achieved lower than national average results at GCSE and had been in and out of special measures. Young people regularly went out of the area for post-16 education. The creation of a UTC in the area was part of a bigger regeneration plan. The UTC was in a brand new purpose built building, which was funded through



sponsorship from two councils, the partner university and the regional development corporation, and match-funded by central government. While the UTC served the local area, like all UTCs it had a remit to serve the wider region, and students came from up to 25 miles away each day.

*Established UTC* specialized in engineering and science and was located on the edge of another medium-sized town in England, which was part of a much larger urban conurbation. The specific area surrounding the UTC had a predominantly white British population (c. 90%). However, the town as a whole had a significant and growing minority ethnic population, with just over 21% of the population from a minority ethnic background, 15% of whom were Asian.

The biggest areas of employment in this area were skilled trades, elementary occupations, and manufacturing. 25% of the town's population worked in skilled trades (including motor vehicle repair) or elementary occupations, while nearly 15% were employed in manufacturing.

In the immediate area of the UTC, around 50% of the population had no qualification above level 1, and low qualification levels were a particular concern in the town as a whole (Town Council 2011a, b).

## Who Attended the Two UTCs?

### Schools for the Boys

Very few girls attended either of the UTCs in the study, as shown in Table 1.

Anecdotally, this pattern appeared to be typical of participation across UTCs in England, but there were no data to confirm this at the time of the study, neither on the UK's Department for Education nor the UTC website. However, a 2014 document produced by WISE, a UK organization that aims to increase the gender balance in the UK's STEM workforce and which aimed to support UTCs in recruiting more girls, offered the following comment:

despite offering direct pathways to rewarding and successful careers in STEM, UTCs are struggling to attract girls in significant numbers and are at risk of being seen as 'schools for boys' by many parents unless they are pro-active in challenging stereotypical perceptions. (WISE 2014: 3)

### Schools for "Ordinary" Kids

In this study, students were categorized by social class based on what they said about their parents' occupations, their parents' participation in higher education, and whether they stated that they were eligible for free school meals. Not all students chose to respond to these questions, so that 17 out of a total of 103 responses were not

**Table 1** Breakdown by gender of all Y10 students who completed questionnaires at the two UTCs

	New UTC	Established UTC
Female	12	6
Male	66	19
Total students	78	25

**Table 2** Breakdown by social class of all Y10 students who completed questionnaire at the two UTCs

	Both UTCs	New UTC			Established UTC		
	TOTAL	Female	Male	Total	Female	Male	Total
Working class	59	8	37	45	2	12	14
Middle class	27	3	16	19	4	4	8
Insufficient information	17	1	13	14	0	3	3
<b>TOTAL</b>	<b>103</b>	12	66	78	6	19	25

**Table 3** New UTC: social class, gender, and ethnic background of all Y10 students who completed questionnaires

	Middle class	Working class	Insufficient information	Total
White male	16	32	13	61
White female	3	8	1	12
Asian male	0	2	0	2
Mixed race male	0	1	0	1
Other male	0	2	0	2
<b>TOTAL</b>	<b>19</b>	<b>45</b>	<b>14</b>	<b>78</b>

categorized by social class. Based on the information students gave, the majority were from working-class backgrounds. Interviews with both working-class and middle-class students suggested that the students categorized as middle-class came mainly from aspiring middle-class backgrounds, rather than secure middle-class positions (Table 2).

### Schools that Reflected the Ethnic Background of the Immediate Local Population

Both UTCs in the study were located in areas with predominantly white British populations. This was reflected in the ethnicity of students attending the two UTCs, with only 10 from backgrounds other than white British out of a total of 103 students. The questionnaire offered the students the following categories to define their ethnicity: white, Asian, black, mixed ethnic group, and other.

At New UTC, out of 78 students, a total of 5 came from backgrounds other than white, all of whom were male (see Table 3). There were no students (girls or boys) who identified as black, and no girls who identified as Asian, mixed race, or other.

At Established UTC (see Table 4), out of 25 students, a total of 5 identified as black, Asian, or other, none identified as mixed race, and no girls identified as black or Asian.

While the lack of diversity among the student population can be explained in relation to the immediate local populations surrounding the two schools, it should be noted that UTCs have complex transport policies that are intended to enable students from a wide, regional catchment area to attend the school. This picture of who attended the UTCs therefore raises questions about which types of school might encourage students to decide to travel out of their locality and how this impacts on participation by students from black and minority ethnic backgrounds.

**Table 4** Established UTC: social class, gender, and ethnic background of all Y10 students who completed questionnaires

	Middle class	Working class	Insufficient information	Total
White male	4	9	2	15
White female	3	2	0	5
Black male	0	2	1	3
Asian Male	0	1	0	1
Other female	1	0	0	1
<b>TOTAL</b>	<b>8</b>	<b>14</b>	<b>3</b>	<b>25</b>

## Why Were They There? Deciding to Study at a UTC

Tables 5 and 6 show the reasons that students gave for deciding to move to each of the UTCs.

### Enacting the UTC Vision: Actively Choosing Technology and Engineering Subjects

The Edge Foundation, which actively campaigns for UTCs, expresses the belief that young people from the age of 14 will choose a pathway “based on their motivation, talents and career aspirations” (Edge Foundation 2012: 8) and that UTCs provide a route for those who are particularly interested in science, engineering, and technology. However, the student responses in Tables 5 and 6 show that only some students actively chose to attend the UTC for these reasons.

While at Established UTC the specialism was the highest named reason for choosing the UTC, named by 14 or nearly three fifths of all the students and by 5 out of the 8 girls, this nevertheless means that 11 students did not choose the UTC for its subject focus.

At New UTC, the proportion of students who chose to study at the UTC because of its specialism was smaller. 22 students gave this reason, including only 4 out of 12 girls, which means that 56 students were attending the UTC for other reasons.

### Reacting to the A-C Economy

There were two main alternative reasons for attending either of the UTCs; firstly to have a fresh start, and secondly, the UTC was deemed better than their previous school. Interviews with students at both UTCs suggested that these reasons were associated with students’ experience of the impact of the A-C economy at their previous school. Ball et al. (2012) observe that focusing attention on certain students means the relative but systematic neglect of others. Once it came to working toward their GCSEs, students in both UTCs appeared to be well aware of being neglected in

**Table 5** Why study at the UTC? Breakdown of New UTC questionnaire responses by gender, class, and ethnicity

Reason	Total	m/c white boys	w/c white boys	No s/c white boys	BME boys (all w/c)	m/c white girls	w/c white girls	No s/c white girls
Fresh start	35	7	15	5	1	2	5	0
UTC deemed better; previous school deemed poor	25	4	11	6	1	0	3	0
UTC specialism	22	5	9	1	3	3	1	0
Bullying at previous school	2	0	2	0	0	0	0	0
Miscellaneous other reasons (proximity)	1	0	1	0	0	0	0	0
Had to move	1	0	0	1	0	0	0	0
Does not know why	1	0	0	0	0	0	0	1
<b>Total responses</b>	<b>88</b>	<b>17</b>	<b>38</b>	<b>13</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>1</b>
Total students in category	78	16	32	13	5	3	8	1

comparison with their peers. Their decision to move to the UTC was in reaction to this experience, rather than a strong desire to study engineering, technology, or science subjects.

Particularly at New UTC, a fresh start was the reason given most often in student questionnaires for deciding to move to the UTC. Nearly two fifths of students gave this reason ( $n = 35$ ). A further 25 responses stated that students expected the UTC to be a better school than their previous institution. This could at least in part be related to the specific location of the UTC, as the two other local schools were reputed to have a checkered history. At Established UTC, only 1 student said they were looking for a fresh start, but 7 out of 25 students said that they did not like their previous school and thought the UTC would be better.

## Where Were They Going? Students' Career Goals

Tables 7 and 8 show a categorization of the career goals named by students at each UTC.

Viewed positively, careers associated with the specialisms of the UTCs received the highest number of responses at both institutions. At New UTC, 28 students named jobs associated with the UTC's specialisms (including 1 in the armed forces) and a further 11 named trade jobs such as mechanic or welder. But 33 responses named jobs that were not obviously connected to STEM, such as chef, physiotherapist, and PE teacher. At Established UTC 12 responses named jobs associated with

**Table 6** Why study at the UTC? Breakdown of Established UTC questionnaire responses by gender, class, and ethnicity

Reason	Total	m/c white boys	w/c white boys	No s/c white boys	w/c BME boys	No s/c BME boys	m/c white girls	w/c white girls	No s/c white girls	m/c other girls
UTC specialism	14	3	5	0	1	0	4	1	0	0
UTC deemed better than previous school; previous school deemed poor	7	2	3	1	1	0	0	0	0	0
Fresh start	1	0	0	0	0	0	1	0	0	0
Vague idea that UTC was what they wanted	1	0	0	0	0	0	0	0	0	1
Miscellaneous other reasons (proximity; moved to area; mother chose the school; liked the look of the school)	5	1	0	0	2	1	0	1	0	0
Does not want to say	1	0	0	1	0	0	0	0	0	0
<b>Total responses</b>	<b>29</b>	<b>6</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>1</b>
Total students in category	25	4	9	2	3	1	4	2	0	1

the UTC's specialism (including 3 in the armed forces) and 1 named a trade job (mechanic). Seven responses referred to destinations quite unrelated to STEM (such as journalist, English teacher). These responses came from questionnaires, and the interview data suggested that a considerable number of students had no clear idea about the future or an ideal and idealized imagined future that might prove unrealizable.

### Constructing the UTC Narrative: Students as Policy Narrators

Given the picture above, which suggests that neither of the schools was filled with students who were passionate about STEM subjects, and heading for careers as inventors, engineers, scientists, and technicians, how did students enact and construct a meaning for the UTC?

**Table 7** Students' career goals: New UTC (Y10 questionnaire responses)

Career goal	Total	m/c white boys	w/c white boys	No s/c white boys	w/c BME + other boys	m/c white girls	w/c white girls	No s/c white girls
Career associated with UTC specialism	27	6	10	3	3	(3)	(1)	0
Various trade jobs	11	3	5	2	0	0	1	0
Armed forces for career with UTC specialism	1	0	0	0	0	0	1	0
Armed forces	10	5	2	3	0	0	0	0
Graduate jobs, not UTC specialism	11	4	4	1	2	0	4	0
Misc. unrelated to UTC specialisms	12	1	5	2	3	0	1	0
No response	9	2	2	3	0	0	1	1
Don't know	1	0	0	1	0	0	0	0
<b>Total responses</b>	<b>81</b>	<b>21</b>	<b>28</b>	<b>15</b>	<b>8</b>	<b>3</b>	<b>9</b>	<b>1</b>
Total students in category	78	16	32	13	5	3	8	1

Ball et al. (2012) identify a number of roles that different actors take on in the enactment of policy. One of these is the role of “narrator.” Narrators are involved in the interpretation, selection, and enforcement of meanings (Ball et al. 2012: 49). In Ball et al.’s study of policy enactments in “ordinary” secondary schools, staff acting as narrators are involved in “explaining” policy to colleagues, deciding, and then announcing what must be done, what can be done and what cannot (Ball et al. 2012: 50). They join up disparate policies into an institutional narrative, “a story about how the school works and what it does” (ibid.: 51).

In the present study, it was not just teachers who acted as narrators. Students “narrated” the UTC too, sometimes offering back a version of the narrative that they had heard from the principal and other teachers and sometimes constructing their own narrative about how the UTC worked and what it did. The following extracts offer three of the aspirational narratives constructed by students about how the UTC worked and what it did.

### **Narrative 1: An Opportunity to Get an Apprenticeship**

Narrative 1 perhaps best reflects the intended goals of UTC policy. Students at both UTCs described the UTC as a stepping stone to getting an apprenticeship with one of the sponsor companies or with other companies that might be involved in the school. In both institutions, representatives from companies got actively involved in the

**Table 8** Students' career goals: Established UTC (Y10 questionnaire responses)

Career goal	Total	m/c white boys	w/c white boys	No s/c white boys	w/c BME boys	No s/c BME boys	m/c white girls	w/c white girls	m/c other girls
Career associated with UTC specialism	9	0	5	1	0	1	1	1	0
Various trade jobs	1	1	0	0	0	0	0	0	0
Armed forces for career with UTC specialism	3	1	2	0	0	0	0	0	0
Armed forces	2	0	2	0	0	0	0	0	0
Graduate jobs, not UTC specialism	1	0	0	0	0	0	1	0	0
Misc. unrelated to UTC specialisms	3	1	0	0	0	0	1	1	0
No response	8	1	2	1	3	0	0	0	1
<b>Total responses</b>	<b>27</b>	<b>4</b>	<b>11</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>1</b>
Total students in category	25	4	9	2	3	1	3	2	1

teaching that took place in workshop sessions, and this was an opportunity to be noticed, as well as an opportunity to work on what were seen as industry-standard projects.

A white boy from a lower middle-class background at New UTC offered one example of this narrative.

They [staff from a sponsor company] come in Thursday, they're our sponsors. They come in Thursday all day, teaching us on the machines.

[...] if I'm on the computers doing the 3D CAD it's like what all the professionals use in industry and that.

[...] My dad said, here's a better opportunity, cos you can get an apprenticeship but at [previous school] you wouldn't get an apprenticeship as good as this or you wouldn't be able to get as far.

*What do you plan to do at the end of year 11?*

Hopefully I'll get an apprenticeship with [sponsor company]. If not I want to go to college and study either engineering or motor mechanics.

[...] *In what ways does here help you prepare for your future career like work experience...*

They give you 200 days, I think it's 200 days work experience.

[...] *What would you say to a friend who was thinking of coming here?*

Um. Great opportunity, but you need to use it wisely, you have to work.

## Narrative 2: A Route to an Idealized Future

Narrative 2 involved the construction of a wishful, idealized future, which was at some distance from the programs of study that the students were following. It was unexpected in the research to hear that five girls at New UTC said that they wanted to become architects. As told by a working-class girl at New UTC, this narrative seemed to involve a fairy tale imagined future. She had found a university in Texas that she wanted to attend:

It's one of the best universities for architecture and engineering in the United States so I want to try and go there.

*Ok and how did you hear about that and have that as an idea in your mind?*

Cos in student development we had to like research where places we wanted to go to and study afterwards. So I came across that university and it looks really good cos I could get, as an international student, scholarship and that.

[...] I don't wanna design like normal houses, I wanna kind of recreate Alice in Wonderland into a housing estate.

*Ok and what ways here are helping you prepare for that?*

Because I'm doing construction, so I'll have the upper hand of doing three years of construction so I'll be more likely to be accepted into a university.

*Ok, and this university that you've looked at, are the qualifications that you're doing here the right kind of thing to get you into there?*

Yeah, I need C and above to get into there.

A more probable narrative of a route into the architectural field was told by a middle-class white girl, who explained that a number of them would have a good chance of being offered an apprenticeship locally:

There's about three, four of us in construction who actually do try and it's more likely that all of us will get apprenticeships cos we're just like doing the work, improving all the time, so obviously they'll see how we work and they'll want those sort of people on their team.

*And is that something you've been told will be in your favour by careers people here?*

Yeah, they said. ..., when we first, before we chose construction or engineering, they told us about the apprenticeships and then they was telling us about how at the end of the year they'll be, the people who sponsor here will want to take on apprentices. And then so, they said the way to get that is to have all your work completed, when they come and visit, like always do the work, don't be sitting back talking, and just getting on with it really and just showing how you work in the place. If you work confidently, like you improve all the time, they're gonna want you on there. So they let us know how we're gonna get there.

Yet this narrative was also problematic, in conflating the intermediate skilled work of architectural technician with that of professional graduate skilled work of architect and for implying that the apprenticeship opportunities with partner companies would include apprenticeships for architectural technicians.



The data suggested that the notion of “architect” had been offered to the girls at the UTC as a means of reconciling them to having to learn construction or engineering. But this narrative seemed to be “very inventive, even fantastical” (Ball et al. 2012: 51) as part of the enactment of UTC policy. In reviewing this hoped-for career goal as part of the research, there was a sense of considerable unease with these narratives of aspirational imagined futures, which appeared to be not just idealized, but unrealizable given on the one hand the work of the UTC and on the other the rate of educational progress and achievement of the students that were interviewed.

### **Narrative 3: A Chance to Reposition Yourself as a Worthwhile Student**

Narrative 3 was not associated with the policy goals of promoting vocationally oriented study through UTCs. For a considerable number of students, moving to the UTC provided an opportunity to reposition yourself. In interviews, numerous students described how they were unhappy that they were deemed less important because their anticipated achievement at GCSE was not sufficiently high at their previous school. A number of them explained that they did not want to be denied the opportunity of taking GCSEs and were not happy that they were put in sets taking what they saw as less highly regarded BTEC or ASDAN qualifications.

One working-class girl at New UTC said that at her previous school “The teachers did not care about you if you weren’t in the top set.” The teachers only gave attention to the best students so “I didn’t really get much of an education.” Another working-class white girl presented a narrative of how different things were at New UTC – in her words “practically too good to be true”:

My parents wanted to look into it because they knew how, how bad I was at [previous school] and how I felt about my old school. So they met up with the deputy head and the principal, and spoke about all the options that they would be providing. And I was also sat with them and I thought that this school was practically too good to be true. It was all the options that they were giving you, not just GCSEs, of course they’re going to focus on GCSEs but they also focus on past that. They help you understand **all** your options and help you understand different pathways you can achieve and they’ll help you with that. And I also found it very useful for the fact that they also said to us that they will treat us like an adult if we respect them. If we act like an adult, they will treat us like an adult.

Which I found was very good for the fact that they understood that we are our own person and that we can go our own path.

The data suggested that this story of a new opportunity to make good either through a chance to take GCSEs or to follow an alternative route that was deemed worthwhile was an important narrative in both UTCs but that it might be vulnerable to drift, since the UTCs, like the schools that the students had moved from, were subject to the same GCSE floor targets and inspection requirements.

## Conclusions

Ball and colleagues suggest that “policies can be clustered together to form new policy ensembles” and that these new policy ensembles “can have unintended or unexpected consequences in schools” (Ball et al. 2012: 5). This chapter has sought to show how UTCs are shaped and constituted both by the official UTC policy ensemble of STEM subject specialisms and school choice but also by the overwhelming presence of an A-C regime. This regime directs schools’ attention toward getting students to meet performance targets, over and above any other considerations, which affects students’ positions and dispositions, and can have a considerable influence on how they view the opportunities available to them at the age of 14. For a considerable number of students in this study, the UTC represented a fresh start, rather than a pathway to a STEM-oriented employment future. Indeed, quite a number of students named science and engineering subjects as those they least enjoyed. The enactment of policy in this way might help to explain why the two UTCs could be described as schools for “ordinary,” mainly working-class students, schools for the boys, and schools whose ethnicity reflected the ethnic background of the local population, rather than including students from a range of backgrounds from across the wider subregion. The UTCs provided the sort of opportunity for which vocational education has historically been used in England: a second chance for young people who struggle with academic subjects and who are therefore deemed inferior (Fuller and Unwin 2011; Richardson and Wiborg 2010).

Yet the Edge Foundation, which plays a key role in promoting the UTC concept, made the following claims and demands in their 2014 manifesto:

University Technical Colleges combine rigorous academic study with stretching technical qualifications to boost the achievement and prospects of students in science, engineering and technology. They open up pathways to apprenticeships, higher education and long-term careers. We need a UTC in every major town. [...]

The next government should create more high-quality specialist 14-18 schools and colleges of these kinds.

[http://www.edge.co.uk/media/138357/edge\\_manifesto\\_290614\\_final.pdf](http://www.edge.co.uk/media/138357/edge_manifesto_290614_final.pdf) (Accessed 10 Aug 2014).

This study suggests that we should treat such demands with caution. We need to look carefully at how policy is constituted and enacted in practice, how this shapes what it means to study at a vocationally oriented school such as a UTC, and in what ways these sorts of specialist institutions enhance or conversely limit the opportunities of the range of students who attend them.

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# Development of Occupational Competence in Technical and Vocational Education and Training (TVET) College Students: Role of Assessment Feedback 84

Patricia Jacobs

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## Abstract

There is a general agreement that assessment feedback does not result in the automatic improvement of learning. Deliberate strategies for learning support aimed at student efficacy are therefore essential. While there are numerous studies on assessment feedback, it is not in the context of occupational competence needed for the twenty-first-century TVET student. This chapter offers a conceptual and empirical investigation of the interrelatedness of a competence assessment model and the impact thereof on the provision of meaningful assessment feedback. The competence assessment and development model (COMET) encompasses occupational competence diagnostics and equally so, the elements of teaching, learning, and training according to the COMET didactic approach for TVET (Rauner et al., *Competence development and assessment in TVET (COMET)*, Springer, 2013; Hauschildt, *COMET South Africa: final report and documentation of test results*, Bremen University, 2016) and served as a

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theoretical framework for this study. The findings illustrate the need for a competence model capable of providing meaningful, reflective, and transformative assessment feedback to equip students with occupational competence for the world of work.

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**Keywords**

Assessment feedback · Occupational competence · TVET · Assessment for learning

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## Introduction and Background

This chapter highlights the importance of structured occupational competence assessment and development model to enhance assessment feedback for learning in TVET. It is of particular relevance to examine a feedback model that exceeds the traditional feedback processes by providing empirical data that informs intervention processes and policy strategies in a systematic manner.

Feedback is regarded as part of assessment in numerous scholarly studies but is predominantly narrow and curriculum-based of nature. Feedback that serves as a “method for further action” (William 2011, pp. 121–122) is inherent in the origin of the term “feedback” first used by Norbert Wiener in 1946 and borrowed from an engineering “feedback loop” idea in which four key elements steer the process: first, a means to determine the desired state; second, to establish the current state; third, to compare the current state with the desired state; and finally, to attune the current and the desired state (Wiener 1948, pp. 96–97). This sequence of events illustrates the complexity of feedback and the need for a reliable model to support students to develop from a novice to an expert within domain specific occupational competence.

Pettifor and Saklofske (2012) reflect on the relationship between the quality of assessment and its potential for effective feedback by describing assessment as the process of obtaining the type and amount of good information needed to make informed decisions that will guide subsequent actions. Assessment in TVET generally encompasses formative (on course) and summative (end of learning) assessment according to specific assessment standards which are qualification driven, an approach, which limits the transformative potential of assessment for learning as assessment should serve the purpose of advancing and facilitating student learning. Research has found that assessment can positively inform learning when feedback by educators and students engaged in self-assessment, assist in modifying teaching and learning activities accordingly. This feedback should focus on what needs to be done, not on the ability as projected in “feedback by grades” (Black et al. 2003, p. 2). Pedder and James (2012) argue that when teachers and students use assessment information for supporting improvements in learning, the educational purpose of assessment is achieved. They refer to this as Assessment for Learning (AfL), where autonomous learning is a fundamental principle (Pedder and James 2012, pp. 33–48). Assessment for Learning moves the focus of assessment from being solely a process of grading, or endpoint testing, to assessment as a learning process (Webb and Willis 2010, p. 2).

TVET is closely linked to work as a social construct but equally so to an innovation agenda. The DHET *White Paper for Post-School Education and Training* identified the ability of a post-school system to prepare workers for the labor market or to enable individuals to earn sustainable livelihoods through self-employment or establishing a company or cooperative as a key imperative. “Everyone should be able to make a living for themselves and contribute skills to a developing economy” (DHET 2013, p. 8). Giving more feedback on the social learning environment where learners learn with and from each other is critical for active learning, but too often disregarded by educators, resulting in the inability to construct active learning environments that genuinely demand the student’s individual planning, elaboration, and evaluation (Keuvelaar-van den Bergh 2013, p. 13; Van den Berg et al. 2014, pp. 772–809). Research has shown that meta-cognition that leads to self-regulation and social learning enhances reflective thinking, knowing and doing, which is required for innovation in the competitive world of work (Pink 2005; Du Toit 2012; Jacobs 2015; Schön 1983).

Feedback, together with concepts like “feed up” and “feed forward” are essential for successful learning and development but are often overlooked. Feed up refers to – *where am I going*; Feed forward asks *where to next* and feedback reports on *how am I doing* (Chan 2015, pp. 113–117). Effective Feedback focuses on goals, progress made, and actions needed to improve the progress. The levels at which a task is being accomplished, process understanding and reflective competence, are critical for closing the gap between existing and preferred performance (Hattie and Timperley 2007, pp. 81–112).

Competence Measurement in Vocational Education and Training (COMET) was initiated and developed in 2006 in the domain of electrotechnology and later on adapted to other fields (crafts, administration, health care) by a team of researchers at Bremen University, Germany (Hauschildt 2016). COMET was designed to measure occupational competence by using open-ended test tasks that correspond to the processing of instructions and training objectives in the world of work (Heinemann and Rauner 2011). Responses are based on eight competence criteria, namely, presentation, functionality, sustainability, cost-effectiveness, business orientation, social acceptability, environmental compatibility, and creativity. These criteria are situated in the COMET pedagogy and structure of the test tasks where students are asked to solve complex, occupation-specific problems within the context of real work. This comprehensive competence model with its corresponding assessment methods offers improved insight into the strengths and weaknesses of TVET teaching, learning, and training (Rauner et al. 2013). Occupational competence as defined in the COMET model entails the readiness of students to solve complex, real work problems that are characterized by applications that are contemporary as well as future focused. Learning tasks are a fundamental component of occupational competence assessment and development where the levels of competence, skills, and knowledge for the target group range from being detailed help and specifications for beginners, to minimal assistance for advanced learners (Scholz and Heinemann 2013, pp. 107–110).

## Rationale for the Study

The vital role and potential of TVET to transform societies is emphasized in various literature and policy documents (Anane 2013; Dewey 1997; Mourshed et al. 2013; McClelland 1973; OECD 2014; DHET 2013; Rauner et al. 2013; UNESCO 2017).

In South Africa, policy and strategy documents such as the National Development Plan (NDP 2030), National Skills Development Strategy 3 (NSDS III 2011–2016), and Sustainable Development Goals (SDG's) (UNESCO 2017) outline high expectations of TVET as a “system that is responsive to sector, regional and national skills needs and priorities” (NSDS III 2011–2016, p. 16). TVET Colleges are reportedly failing to produce the appropriate skills, hence government's drive to upskill the labor market and alleviate unemployment. The implementation of “lean production” strategies in companies poses a risk to the employment prospects of these students. Lean production involves simplified process that eliminates costly and burdensome wastage throughout the system. Recently, the focus has shifted to linking lean-oriented improvements to the operational management of the production process in a holistic organizational approach deemed necessary to remain competitive in dynamic global businesses today (Armstrong and Diehl 2015, pp. 26–30).

The increase in youth unemployment in South Africa, in spite of numerous policies and strategies, from 32.7% in 2008 to 38.6% in 2015 is cause for concern (Statistics South Africa's Youth Labour Market Survey 2008–2015). Unemployment for males in 2008 was 28.4% and in 2015, 33.8%, while female unemployment rates pitched at 38% in 2008 and 40.75% in 2015. In South Africa, the youth of working age population numbers 19.7 million, which is 55% of the total working age population (Statistics South Africa 2015). This trend of increasing youth unemployed is further illustrated by the not in employment, education or training (NEET) statistics reported in the Quarterly Labour Force Survey (QLFS) of quarter 2: 2018, at a high of 39.3% (Statistics South Africa 2018). Clearly, an effective and efficient workforce is needed to counteract the poor state of youth employment, to improve social equity and livelihoods and enhance occupational competence required for the twenty-first-century workplace. Such twenty-first-century skills enable students to use technology, be efficient problem solvers, embrace participatory management of tasks, and adopt a global perspective (Greenstein 2012, pp. 187–188). The COMET diagnostic model encompasses the development of professional competence beyond technical training desired to activate such global developmental priorities.

The expectations of TVET in global debates and government priorities for national development are immense as illustrated in Strategic forums such as the African Union (AU), the European Union (EU), as well as multinational groups such as the G20, the OECD, and the International Labour Organization (ILO) and UNESCO. TVET is seen as a source of skills, knowledge, and technology needed to enhance productivity for knowledge-based and transitional societies of the twenty-first century (Marope et al. 2015, p. 11). In addition to knowledge, there is a significant focus on conceptualization, for what is described as a “conceptual age,” characterized by a move from the typical *Knowledge-worker* to an economy built on inventive, empathic and big-picture capabilities (Pink 2005, pp. 1–2).

## What Is Competence?

Jessup (1991) describes being competent as the ability to perform according to professional or occupational standards that extend beyond technical job requirements and include skills such as communication, to meet the requirements of a work role. Occupational competence within the COMET model is based on the assumption that the assessment and development of *readiness to act* in a specific domain is necessary for the accomplishment of occupational competence. McClelland already in 1973 launched the modern competence movement (McClelland 1973, pp. 1–14).

Rauner et al. (2013) conceptualizes the differences between competence and intelligence in the Table 1 below:

Vocational education as a fundamental element in development allows for individuals and societies to be responsive to local and global demands in terms of unlocking potential, expanding horizons and adapting to changes in global dynamics (Anane 2013, pp. 117–127). There is an increasing demand for adaptability to new demands, responsibilities and technologies in the workplace that requires more than intelligence but also a focus on competence. The didactic principle of transforming students throughout their course from a novice worker, working in an abstract manner according to rules, to an expert worker who responds to complex problems and change in a reflective, intuitive, and practical manner, necessitates teaching, learning, assessment, and feedback tools capable of influencing TVET systems beyond an examination focus.

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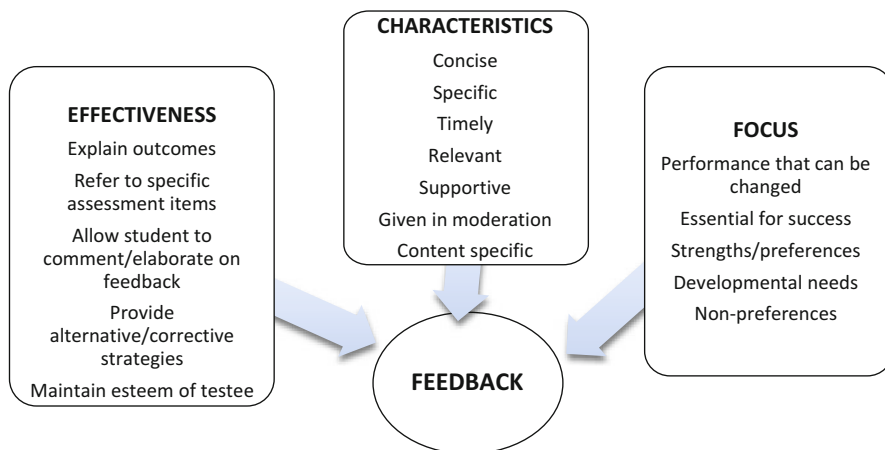
## About Feedback and the Need for a Competence Diagnostic and Development Model

Assessment for learning and development requires quality feedback developmental action as an integral part of the assessment practice (McShane and Von Gilnow 2009, pp. 50–54; Pedder and James 2012, pp. 33–48). It is imperative that corrective strategies be communicated as soon as possible after the assessment. Williams (2002) suggests feedback should focus on criteria such as the effectiveness, characteristics, and focus of the feedback process as outlined in the following diagram (Fig. 1).

**Table 1** Competence versus Intelligence

Criteria	Competence	Intelligence
Ability	Contextualized ability to adequately respond to specific situations and demands.	General ability to solve new problems.
Acquisition	Can be learned and is acquired through experience with specific situations and demands.	Stable over time and determined by biological factors to a significant extent.
Internal structure	Determined by situations and demands.	Determined by fundamental cognitive processes.





**Fig. 1** Feedback criteria

These criteria were assessed as part of the research study reported herein, to determine their value for diagnostic feedback to the extent where the impact on TVET learning could be identified and elaborated on. Diagnostic findings are fundamental to further occupational competence development and curriculum planning responsive to sector skills need and priorities (Botha et al. 2013, pp. 46–50; DHET; NSDS III, 2011–2016, p. 15). The imperative to transform policy into practice is an opportunity for diagnostic assessment towards occupational competence in TVET.

In support of research that can reform TVET, Owens refers to the concept of a new era in manufacturing that requires an *elite* worker who is equipped with reading, writing, and mathematics skills, as well as advanced problem solving capabilities. The need for elite workers necessitates creative, resourceful and tangible solutions as a precondition for addressing the skills gap characterized by mismatched workers attempting to do “today’s work with yesterday’s tools” (Owens 2015, pp. 37–39).

Feedback should not only focus on immediate improvement of student performance and education outcomes but more so, on capacity building for being effective practitioners in the world of work that requires more than structured thinking (Boud and Molly 2013, pp. 1–10). It is of particular relevance to examine a feedback model that exceeds the traditional feedback processes to provide the opportunity for comparative studies among, for example, holistic problem solving competence levels in occupations and tangible data to inform intervention processes and policy.

Harlen (2012) identified the purpose of summative assessment as being to ensure that what is assessed and how it is assessed, have positive impacts on learning. Feedback assists in regulating teaching and positioning it as a mechanism for the implementation of effective operational actions that will lead to new experiences pitched at a level that is not too difficult nor too easy for the student. Harlen further argued that feedback is most effective in promoting learning if it involves students in

the process of deciding what the next steps should be. Feedback therefore allows students to play a role in the collection, interpretation, and use of the evidence of their learning (Harlen 2012, pp. 87–102).

Finding a healthy balance between positive feedback that is optimistic, encouraging, and affirming and negative feedback that is critical and corrective can be challenging. Feedback without any critical content can be unrealistic, untruthful, and detrimental to student development, while oppressive, relentless and critical comments may discourage and de-motivate the student (Webb and Willis 2010, p. 6).

Several South African policy and strategy documents raise concerns regarding TVET educator competence, as echoed in the *White Paper for Post-School Education and Training* (2013), which states that “The most important indicator for the success of a (TVET) college is the quality of education offered by a well-educated, capable and professional teaching staff.” An assessment model that is innovative imposes profound challenges on educators’ structured, curriculum-based assessment conceptions, hence comprehending the conceptual change needed for assessment practice is imperative (Gulikers et al. 2013).

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## The Underpinnings of the COMET Approach

Rauner et al. (2013) identified the following components as key elements of a framework for vocational education:

- The concept of professional/occupational knowledge
- The learning objective “action and shaping competence”
- The objective of professional/occupational aptitude as defined in the professional profiles and curricula
- The theories of professional/occupational competence development

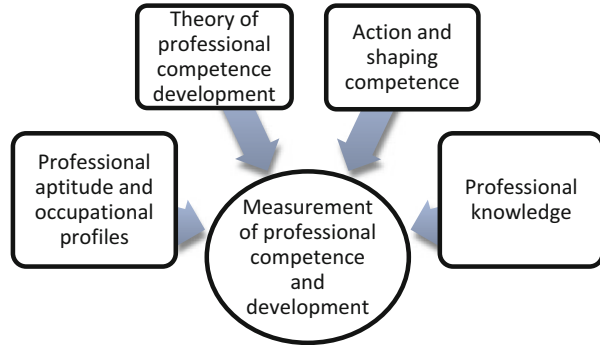
The conceptual framework for the measurement of professional/occupational competence is illustrated in Fig. 2:

The conceptual framework of the COMET occupational competence model includes a normative component based on the virtue of social agreement embedded in vocational training processes. A thorough and precise understanding of the anticipated results of programs and institutions of vocational education constitute the basis for the development of a competence model, as illustrated in the training objectives below.

The training objectives of a vocational institution are to develop the following:

- Professional Aptitude – Trainees are capable of performing the vocation according to rules and criteria of the selected occupation.
- Acting Competence – Activities inclusive of preparations followed by the evaluation of the results according to set criteria derived from work tasks to be solved.
- Shaping Competence – Professionally and socially contextualized work tasks completely accomplished and reinforced by reflective meta-cognitive evaluation.

**Fig. 2** Professional/ Occupational competence framework. (Rauner et al. 2013, pp. 19–20)



Taken together, the common objective for the above is “to learn an occupation” (Rauner et al. 2013, pp. 23–27).

Furthermore, holistic problem solving competence as a fundamental element of the COMET framework is embedded in eight competence criteria:

- **Functionality/operability:** The ability and evidence to perform a task that demonstrates technical competence, skills, and subject knowledge is an essential criterion for a proposed solution and serves as a prerequisite for further requirements related to COMET competence criteria for work tasks.
- **Clarity/Presentation:** The proposed solution is planned, presented, captured, and communicated meticulously to all stakeholders inclusive of customers to an extent where the outcome can be anticipated. The presentation must be factually correct and indicative of clear and organized thinking required for effective communication in the work context.
- **Efficiency/Effectiveness:** Taking the economic aspects of a solution in terms of expenses and benefits in the context of occupational duties into consideration is evident of professional work. Long-term costs and societal aspects such as the impact on the national economy should also be considered.
- **Sustainability/Utility:** A strong focus on sustainable and high utility value solutions related to customer care in terms of usefulness, durability, liability factors, maintenance, and repair in occupational work processes and context.
- **Business and work process orientation:** Preceding and following workflow processes are considered in finding a solution cooperative of aspects beyond the individual’s professional work. Relations in the business process chain regarding higher and lower tiers of the company hierarchy are considered.
- **Social acceptability:** The solution focuses on the impact thereof on social aspects beyond the work context such as a humane organization of work, health, and safety matters and the possible impact thereof on the social environment
- **Environmental compatibility:** Professional and technical ecologically friendly work processes and outcomes, which are relevant to the solution of the work task, are applicable to almost all work processes.
- **Creativity:** Finding creative and unique solutions for occupation-specific problems to be solved as a distinct aspect of professional competence. Creativity in a

specific solution demonstrates sensitivity and respect for the problem to be solved and is a relatively independent concept of professional work and leaning (Rauner et al. 2013).

The development of occupational competence in vocational education is further regulated and underpinned within the COMET didactic dimensions of content, action, and requirement wherein the content dimension is a critical part of the data analyses and refers particularly to subject domains. This impacts on the development of a solution space, where typical aspects of a solution are generated to cover the eight competence criteria, to assist in the analysis of test solutions. The Action dimension is applied to advance holistic problem-solving as opposed to fragmentation of solutions and is fundamental in the development of test tasks as well as the rating of solutions.

Finally, the Requirement dimension that is cumulative in nature is presented as Nominal competence, Functional competence, Processual competence, and Holistic shaping competence. Quantitative scores obtained serve as performance indicators for a criteria-oriented interpretation of test results (Rauner et al. 2013, pp. 41–47). Nominal competence implies that the cognitive domain specific performance is at a superficial conceptual knowledge level that does not adequately guide the solving of vocational tasks. Functional competence is based on basic technical, pedagogical, and subject knowledge to guide actions. Processual competence is achieved when domain specific, complex professional tasks can be adequately interpreted, solved, applied, and reflected on in the context of company work processes and situations. Holistic shaping competence is accomplished when vocational tasks can be solved completely, responding to divergent demands of the vocation and shows evidence of intelligent compromises (Rauner 2012; Hauschildt 2016).

## **A South African Case Study**

The research reported on herein is based on data obtained from a 2014 COMET large-scale assessment conducted in South African TVET institutions. The sample for the study was obtained from six public TVET colleges (seven campuses), two private TVET institutions, and three industry training academies offering specific study programs, namely, mechatronics, millwright, welding, and electrical engineering.

Respondents were selected after being exposed to the COMET model and on the basis of the respective academic staff accepting the validity of the test tasks. A pre-test, comprising a set of test tasks to expose students to the nature of the assessment, was conducted. Test tasks were validated and adapted where necessary to ensure content validity.

715 students of which 69.1% were male, 26.1% female, and 4.8% who did not indicate gender, took the test. Participants ranged from 17 to 39 years. We found 34.4% were in the 21–24-age bracket, followed by 20.3% aged 25–29 years, and 18.3% aged 17–20 years. Only 6.5% of students were 30–39 years.

The focus in this study was predominantly on the quantitative data, which was measured first and was followed up by a small-scale qualitative data collection to refine the results from the quantitative data.

Subject experts developed the COMET open-ended test tasks which were followed by a rater training seminar. Four test tasks per occupation (electrical, millwright, mechatronics, and welding) were selected. Occupational competence was measured on the three-dimensional COMET occupational competence and commitment model. A high degree of consistency, also referred to as inter-rater reliability, in the rating of solutions was a prerequisite for open-ended test tasks. The 40-item rater responses were validated by means of an exploratory factoring analysis based on the correlations among the 40 items. A typical test task comprises a realistic narrative of a problem that is typical and representative of the occupation at stake, to be solved by means of problem solving, using the eight COMET criteria. The degree of complexity must allow for the assessment of contextual understanding. The grading of the test outcomes is ability based, making it possible to differentiate test takers according to levels of solutions presented as being “functional,” “procedural,” or “holistic” of nature (Rauner 2010).

A feedback questionnaire measured the impact of assessment feedback on learning and the development of occupational competence. Eighteen TVET staff members involved in the COMET assessment development and rater-training exercise completed the questionnaire. Raters reported on assessment feedback criteria applying a 4-point Likert scale ranging from Strongly Disagree to Strongly Agree.

Focus group semi-structured interviews yielded valuable information to improve sense making of behavior and performance measured in the quantitative research. Data was collected at the sites where students were being trained and interviews were supported by direct observation of group dynamics where complex reasoning and thinking were facilitated to explore students’ underlying understanding of the problem. The interviews were adapted where necessary, according to emerging themes outside the initial questions.

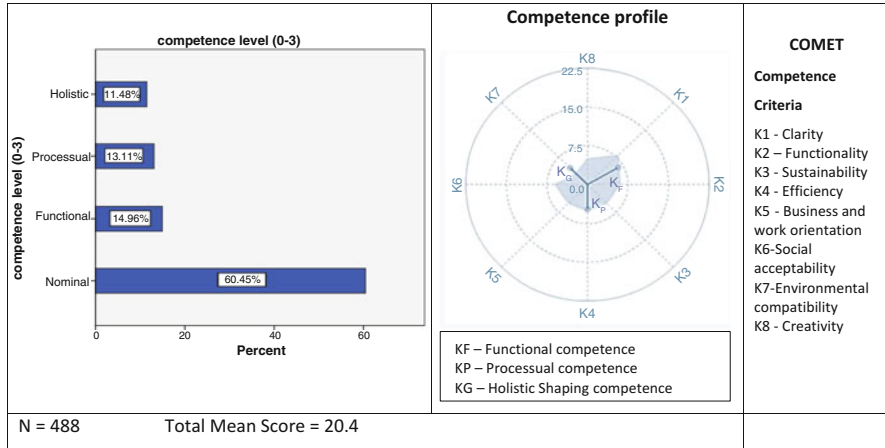
Three focus group interviews of approximately 60 min each were conducted with 62 students at three test sites after receiving the COMET feedback reports. The purpose of the semi-structured interviews was to ascertain the students’ reasons for the levels of occupational competence achieved in the COMET large-scale assessment, their understanding of and experience of COMET assessment versus the curriculum assessment and their values with regard to TVET.

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## Findings

The results of the 2014 COMET large-scale assessment in the South African study, in Fig. 3 illustrate the need for transformational Assessment for Learning.

One of the key findings was that 60.4% of the students functioned at a Nominal competence level. 14.9% of students achieved functional competence, which indicates that they significantly lacked proficiency in terms of occupational problem solving competence. Processual competence was recorded for 13.1% of respondents. Only a small percentage of respondents (11.4%) achieved Holistic Shaping



**Fig. 3** Occupational competence achieved per level

competence, indicating they are capable of solving complex occupational problems holistically.

The small percentage of students (11.4%) who achieved holistic problem solving competence limits TVET to respond to a demand for skilled labor that is responsive to global competitiveness and innovation. It was evident that the current TVET curriculum resulted in a “teach to test” paradigm that did not equip students sufficiently for the world of work. The OECD meeting in Paris in 2014 on youth unemployment identified the role of TVET to provide programs that are responsive to labor market needs, inclusive of work-based learning as one of the key imperatives. The poor capacity to solve complex problems within the framework of their occupational domain as measured during the COMET large-scale assessment is of massive concern.

### How COMET Assessment Feedback Influences Learning

For feedback to have a significant impact on learning, the learning context must be considered and assessment tasks designed to enable the establishment of information and interpretations about the difference between the current and desired performance (Hattie and Timperley 2007, pp. 81–112). The feedback regarding the efficiency of assessment models is therefore a critical element of feedback for learning. The possibility of COMET for positive Feedback in the TVET context was illustrated by the high convergence of responses of the Raters, on the following aspects inter alia:

The impact of the COMET open-ended test tasks to allow for specific feedback action is valued at 66% *Agree* and 22% *Strongly Agree* level which signals that assessment should be based on diverse, holistic problem solving skills.

The eight COMET competence criteria assisted staff with the self-evaluation of their work, hence strengthening their professional development to provide

feedback that is more accurate to students. The COMET “solution space” describing possible solutions and variants associated with the open-ended test tasks improved staff confidence and competence for the feedback process. Decisions on how to improve teaching and learning rely heavily on previous assessment outcomes and feedback.

COMET feedback reports provide a clear, graphic illustration to students on their performance, assisting in self-evaluation and reflection. COMET feedback can assist the students to be actively involved in shaping their progress from being a novice (beginner) to an expert (skilled) in their respective occupations.

Focus group interviews with the students showed the importance of assessment feedback from all stakeholders as engaged participants, capable of agency and not merely passive receivers of feedback.

There was a general consensus amongst students interviewed that their current TVET studies has the potential to improve their quality of life, but they raised concerns about the curriculum being effective to equip them sufficiently for the world of work.

Students valued the COMET assessment tasks that focused extensively on their levels of thinking, research requirements, creativity, and applied knowledge when compared with their current TVET curriculum, as a student reflected:

Curriculum Tasks at college are not scenarios. You just do theory. With COMET, you must think more, do a lot of research. You must do a lot of stuff such as being creative while at normal college work you study the text book and you give it back. We are not used to this type of (COMET) thinking. With COMET, you also need to understand how the outside world works.

All the respondents agreed that COMET occupational competence assessment and development had the potential to offer a TVET delivery model that is responsive to workplace readiness demands and opportunities. Another student opined:

Yes. You will be able to solve problems. Using creativity will help you solve tasks that you are not familiar with in the workplace. You can contribute to problem solving. Before you solve a problem, you must analyse it. If you do COMET tasks all the time you will be able to analyse any problem in record time.

Students expressed the need for more experience in the real-world workplace to improve the quality of TVET:

When you get to the workplace you feel that you know nothing. You know the name of objects but if you actually see it, you won't know what it is.

Students reported that feedback processes differed at various institutions and amongst staff at a particular institution. According to them, there was no evidence of a clear process and minimum standards of quality assurance:

We definitely receive good feedback with COMET tasks. We know where we went wrong vs. No, we do not receive good feedback. Lecturers must explain topics that most students fail.

The feedback from the focus group interviews highlighted the students' negative perceptions related to learning at a TVET institution. A possible reason for this is the gap between institutional learning and the reality of real work. In a company, students receive direct feedback on whether a solution is working or not when they perform a practical task. The difficulty students experienced in transferring knowledge from theory to practice in a fragmented learning system is a contributing factor as well. At higher levels of work process knowledge, requiring reflective thinking, it is even harder to understand the relevance of value-free knowledge in the workplace. The ability to transfer conceptual knowledge to practical competence is needed for personal development, but educator occupational competence is a further contributing factor. If the teacher has a rigid approach towards the curriculum, this transfer of conceptual knowledge to practical learning may leave poor prospects for students and employers. A prescriptive curriculum and assessment policy may impact on the potential of colleges to properly prepare students for the workplace, thus hampering TVET reform and student experiential learning processes.

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## Discussion and Conclusions

This chapter presented an overview of the COMET diagnostic model as a theoretical framework for teaching, assessment, feedback, and learning towards the development of occupational competence in TVET.

Empirical data obtained in a study of TVET students showed that poor occupational competence levels achieved could attribute to the lack of a focus on critical, creative thinking skills, the disjuncture between theory and real work tasks, as well as the neglect of the holistic solving of real work problems. A TVET didactic approach that focuses on applied knowledge appears to be insufficient in preparing students for the world of work.

The findings in this study endorsed the potential of an open-ended test task structure and the provision of a solution space to capacitate students and staff to solve domain specific, real work tasks, holistically. The rater-feedback questionnaire and the focus group interviews with students provided evidence of the relevance, effectiveness, and potential of the COMET occupational competence model to advance assessment for learning that results in feedback capable of improved teaching, practice, and learning in TVET.

Empirical findings from this investigation revealed that COMET allowed specific feedback actions to support the development of diverse, holistic problem solving skills. Rater-feedback substantiated the possibility of feedback beyond only grades for student performance, as well as better assessment methods and tools. Feedback amongst all participants in this study exemplified the potential of COMET feedback and feedforward reports to direct interventions and innovations in TVET.

Semi-structured focus group interviews generated valuable data for clarification of student performance as shown by the quantitative data in Fig. 3. Data from the interviews illustrated the limitations of the current assessment system to develop



professional competence. Students at all test sites indicated that holistic problem-solving of complex occupation specific problems was not part of their current assessment experience.

In conclusion, these research findings have implications for TVET curriculum design and theory capable of transformative change. The necessity for a comprehensive theoretical and empirical assessment feedback model to be developed in order to enhance occupational competence in TVET was abundantly evident.

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# Student Support Structures for Transitioning from Vocational to University Education: A South African Case Study

# 85

Seamus Needham

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## Abstract

The divide between vocational colleges and universities in South Africa, in spite of government attempts to institute articulation and progression policy, is still too great for many students to make the transition. A 5-year research and development project that brought colleges and a university together to collaborate around enabling TVET college students to progress from a professional financial planning program into a university qualification in finance revealed rather dismal outcomes if judged by throughput rates alone. Analysis of the reasons for the poor performance of these college students at university revealed significant disparities between the kinds of support offered at TVET colleges and that offered at university. Notwithstanding contextual differences, scholarship on student transitions to university and learner retention resonate with the findings of the qualitative research conducted into the project and its outcomes. This chapter focuses on students' experiences of transitioning from a vocational college to a

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university and concludes that fundamental differences in approaches to student support in the two institutional types impacted negatively on student transitions and outcomes.

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**Keywords**

Student support · Transitions · Learner retention · TVET colleges · University

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## Introduction

Successful student transitions from Technical Vocational Education and Training (TVET) colleges to universities in South Africa are minimal and poorly recorded. While official policy states that the primary goal of South Africa's public TVET college sector is to train towards employment, there is also an increasing policy focus on producing high-level skills and on an integrated post-school education and training system in South Africa (DHET 2013). A joined up system that enables effective student transitions is one of the aims of this policy focus.

An innovative research and development project which is the subject of this chapter brought public TVET colleges and a university into a partnership to create a pathway for adult college learners in a professional program, into a university qualification. As part of evaluating the project and its outcomes, students' experiences of their transition to university were probed, particularly to understand why the throughput rate of these students at university was so low. Scholarship on student transitions and student support was used to place this study into a larger international context, and findings from both the literature review and the qualitative enquiry revealed that student transitions into higher learning or work are fraught. Student data showed inter alia that support services in colleges and in university are currently not aligned or consistent, and illuminated differences in approaches to student support, a misalignment that was found to be a contributory factor in the poor success rates of students in the project. An overview of the South African education and training system follows in order to situate the research and development project that is described later herein.

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## South Africa's Post-School Environment

One of the first education and training policies in South Africa introduced after the end of apartheid was an outcomes based National Qualifications Framework (NQF) in 1995 for all education and training provision, under the oversight of the South African Qualifications Authority (SAQA). An overarching objective of the NQF legislation was to "facilitate access to, and mobility and progression within, education, training and career paths" for all South Africans and to "accelerate the redress of past unfair discrimination in education, training and employment opportunities" (SAQA Act 57, March 1995). The introduction of the South African

qualifications framework drew on the experiences of Australia, New Zealand, and Scotland (Allais 2007) and was initially composed of 8 levels which later increased to 10 levels in 2008. University qualifications were pegged at NQF Levels 5–10, which accommodated all undergraduate and postgraduate qualifications. In 1998, legislation for TVET colleges was passed that situated their offerings at NQF Levels 2–4, corresponding with Grades 10–12 in the formal schooling system, although an allowance of 10% allocation of programs at first year university level was made. Prior to 1998, many colleges had offered the majority of their programs at Levels 5 or first year university level (Akoojee and McGrath 2007) even though these programs were not formally recognized by universities to be equivalent.

From 2008, the South African NQF was revised into three sub-frameworks with a quality assurance body for each sub-framework governing compulsory school offerings, vocational/occupational programs, and university qualifications, respectively (NQF Act 67, 2008). Coherence and progression of professional qualification pathways remains a systemic challenge, with the National Committee on Articulation Policy (2013) noting that:

The South African Post-School Education and Training (PSET) system is riddled with conceptual and systematic challenges and incongruities. Users of the PSET system experience a lack of coherence and articulation between and within the sub-frameworks that constitute the NQF. (RSA Government Gazette 2014, No 37775, p. 7).

Despite the unifying aims of the South African NQF, learner transitions between TVET colleges and universities are significantly complicated by unaligned education and training legislation. At a regulatory level, post-secondary institutions in South Africa have different authorities that determine student and academic policies. Universities have had a long history as autonomous institutions similar to many Anglophone countries such as the UK and Australia (Polesel and Freeman 2015), and every public university in South Africa has its own juristic act (Higher Education act 1997).

In addition to structural changes since democracy, universities have experienced changes in their student cohorts and have put in place comprehensive measures to assist students' transition from school to university (CHE 2013). For instance, public universities have extensive support measures that include infrastructural accommodations for access, student wellness schemes, and professional staff available for academic and other support. Universities have considerably better financial resources to support interventions due to the funding formula that allows universities discretion in their allocation of resources. TVET colleges on the other hand, enjoy less autonomy and are centrally regulated by the Department of Higher Education and Training (DHET). Although each of the 50 public colleges are juristic bodies, they are bound by centrally driven policies and funding norms of the national government, such as uniform student support policies and guidelines for implementation by all colleges.

A national Student Support Services Framework was first introduced to public TVET colleges in 2008 (Department of Education 2008). This framework document

identified a number of barriers facing college implementation of student support services, such as fragmented student development services at colleges; minimal consultation between colleges and provincial departments; no state funding for student support services within TVET colleges; minimal staff allocations for student support services; a lack of understanding of the need for student support services; and a lack of financial and infrastructural resources to facilitate student support services (P. 3–4). A critical emphasis of the 2008 framework document was placed on academic support (DHET SSS, p. 6) in view of poor pass rates in TVET programs. The document acknowledged the lack of foundational knowledge (mathematics and literacy) and weak general subject knowledge of students and exhorted TVET colleges to focus on language, maths, and literacy as initial support interventions.

The stark contextual differences between universities and TVET colleges with regard to decision-making, funding, and student support provided the backdrop for a funded intervention that aimed to offer students a progression route from their financial planning program at college, into a university qualification, an innovative project that, it was envisaged, would boost the sparse local knowledge on post-school student transitions.

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## College to University Transitions in the South

Research into student transitions from TVET colleges to universities has in the main consisted of large-scale studies commissioned by the World Bank and UNESCO. In the early 2000s, a UNESCO study of TVET in Sub-Saharan Africa noted that for most of the countries, TVET was offered at secondary schooling level and that for the majority of students entering vocational schools, access to higher education was not an option (UNESCO 2002). Francophone countries generally had stronger articulation linkages between secondary and higher education TVET institutions. A 2008 World Bank study of higher education articulation and differentiation conducted in 12 African countries largely corroborated the UNESCO 2002 report findings. The World Bank Report (N'gethe et al 2008) found that most universities require school-leaving qualifications as a minimum for entrance. Exceptions were found in Francophone countries, where education followed the French model and nonacademic vocational institutions enjoyed high esteem. Generally in Africa, very weak linkages exist between technical vocational education and training (TVET) institutions and polytechnics and universities, and student transitions between these sectors is minimal. The report notes the introduction of qualifications frameworks but shows very little evidence that qualifications frameworks have impacted on student transitions and progression.

A 2013 UNESCO study of 13 Southern African Development Community (SADC) countries, similarly states that student transitions from TVET institutions to universities “remains uncommon and fraught with difficulties” (Chakroun 2013, p. 15). The report notes that:

TVET qualifications are not primarily designed with a view to progression to higher levels but with a view to the competencies required for a specific occupation or set of occupations. This typically means that TVET graduates have much less prior formal learning and are less prepared for higher education programmes than academic school graduates. Given the low esteem for TVET in many cases, it is not surprising that universities are concerned about offering places to TVET graduates, and there are particular, and rational, worries about levels of formal mathematics and scientific knowledge. (p. 42).

Further afield, UNESCO commissioned a study of student transitions from secondary school to universities in Asian and Pacific countries. A case study of Australian higher education systems revealed similar tensions between “the vocational curriculum” and its relationship to general or academic secondary programs. Indeed, Polesel and Freeman (2015) state that:

While the academic curriculum has been subject to remarkable stability and treated as canonical, often due to the power of universities and examination boards over its content and delivery vocational studies have been controversial, their establishment contested and their form subject to the interests of competing stakeholders. . . . Vocational programmes play a minimal role and sit uneasily within a senior secondary curriculum still largely used to teach, select and rank students for university. (pp. 10–11).

This brief review of African students’ transitions from TVET colleges to universities in the South reveals the range of tensions and difficulties in enabling student progression from vocational studies to university, since universities still prioritize general and academic school knowledge over and above vocational programs. Furthermore, poor retention and throughput continue to be features of a lack of progression from TVET college to university, for which the following section provides some theoretical framing.

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## Theorizing Student Retention and Throughput

A dominant theoretical framework which has implications for student support is Tinto’s work on student retention in higher education (2005, 2010). Tinto acknowledges that student retention and graduation can be attributed to students’ own social, aspirational, and academic attributes, but that there are factors within the control of institutions which affect retention and throughput. His 2010 research identifies four broad “institutional conditions” that affect student retention, namely, student expectations, student support, student feedback, and student involvement (p. 56). However, he argues that the most important factor affecting student retention is academic support offered in the classroom. On the other hand, Astin (1999) foregrounds student development through “student involvement,” which he defines as the “quantity and quality of the physical and psychological energy that students invest in the college experience.” (p. 528).

Longitudinal surveys of student retention in the USA have shown conclusively that student throughput rates differ significantly between high-income and

low-income students and that the rate of low-income students not completing higher education qualifications is widening (Tinto 2010, p. 53). Similar studies of South African higher education data have shown that student retention and completion rates are significantly affected by low income backgrounds rather than racial identity, and that support offered to students from low-income backgrounds is insufficient (HSRC LMIP Seminar, November 2017). Despite the dominance of Tinto's theoretical approach, there has been significant critique of "institutional" approaches to student retention and development, for instance, Rovai (2003) notes that Tinto's Student Integration Model has limited applicability for students who are not studying full time within a university, and McCubbin (2003) shows that non-traditional students, such as those with disabilities, are far less socially integrated within universities.

In South Africa, there has been minimal research on the TVET colleges sector and particularly on student experiences in vocational education. Jeffery (2015) traces student support approaches within South African higher education student development and notes post-apartheid transitions from targeted minority black student support to a more inclusive institutional approach for the majority of students. However, all of these approaches have tended towards a deficit model of support. In comparison with universities though, student support policy and implementation in vocational education are still in their infancy.

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## A Test Case of College to University Progression

In 2007, at the request of a professional body in the insurance industry, a traditional public university undertook to assist in developing a pathway for TVET college students in a financial planning program that enabled them to progress into an appropriate university finance qualification (Needham 2014). The qualification offered by vocational colleges was located at Level 5 (a first year university level), and the first year university level on South Africa's qualifications framework is described as follows:

This is an entry-level higher education qualification. The qualification is primarily vocational, or industry oriented. The qualification also serves to provide students with the basic introductory knowledge, cognitive and conceptual tools and practical techniques for further higher education studies in their chosen field of study. The knowledge emphasises general principles and application. This qualification signifies that the student has attained a basic level of higher education knowledge and competence in a particular field or occupation and is capable of applying such knowledge and competence in an occupation or role in the workplace. (p. 19).

The university agreed to collaborate with five public TVET colleges to ensure that the financial planning program offered at the college would enable students to access the university at a later stage. Consultations were held with the relevant university faculty as well as with the quality assurance body responsible for the industry accredited program being offered by the colleges.



The university agreed to amend its admission policy so that employed students who completed the part-time financial planning program at TVET colleges would be able to enter the second year of the university level Diploma. This was a significant concession for the sake of progression. On completion of the university qualification, students would furthermore be able to access a postgraduate certificate which would allow them to write an internationally recognized board exam set by the insurance industry, a process that would effectively take part-time students 5 years to achieve professional status. In order to lessen the financial burden on students undertaking this route, funding was obtained for the 5-year period.

In 2009, 100 part-time students, all employed adults in the insurance sector, were enrolled in five public TVET colleges for the Level 5 financial planning program. Students were required to have a school-leaving certificate in order to satisfy minimum university entry requirements and had to have worked in the insurance industry for at least a period of 1 year to qualify for the funding. Twelve of the enrolled students were people with disabilities that included visual impairment, deafness, and two quadriplegics. Of the 100 students admitted to TVET colleges in the Level 5 program, 77 students passed, of which 23 students enrolled for the part-time 2-year Diploma qualification offered at the university. Of these 23 students, 18 students managed to complete their first year and continued into the second year. However only 12 students completed the second year and were awarded the diploma, of which none were students with disabilities. Finally, at the end of an arduous journey, six diplomates entered the postgraduate certificate and were successful, making them eligible to write the professional board exam for financial planners.

An evaluation of the project outcomes clearly pointed to the low throughput rate which was of huge concern. How was this poor transition performance to be explained? In an attempt to find answers additional to the comparative literature, students were asked to respond to questions about their experiences at college and university, and to expand on issues that they felt had impacted on their progress, the results of which are reported below.

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## **Student Experiences of Transition and Progression**

Most of the students interviewed reported that they had found learning at TVET colleges physically difficult as the training facilities were much poorer than the corporate offices in which they worked. Students with disabilities struggled with physical access, and as a result of this, two of the five TVET colleges relocated to training rooms within large insurance companies which had better access facilities. Students did acknowledge though, the strong support from the college for their learning needs, as one college had dedicated an occupational therapist within their Student Support Services division to work with the students with disabilities. However, a few students noted that student support had waned at colleges towards the end of their program. Another student noted specific difficulties experienced by students with disabilities at the university:

...unfortunately, we do not have the necessary assistive devices to complete the course ...speech calculator, notes, tutorial memo's ...and it just lacked any accommodation for the visually impaired to make a success of it.

Concerns were also raised with the quality of the learning materials. Because university lecturers were unfamiliar with the format and requirements of vocational college-based qualifications, the learning materials were drawn from varying sources and updated during the delivery of the qualification, which was not ideal. No funding was allocated for additional curriculum development.

While students felt the college and facilitators provided insights into their industry, a few students raised difficulties in their teaching and learning experiences, especially with regard to assessment, as, in the words of a student, "the college assessment is not close to that of the university, therefore it (college assessment) does not prepare you for the work load." Students struggled with being exposed to widely differing assessment approaches between the college and the university. Within the Level 5 program provided by colleges, students were able repeat formative and summative assessments up to three times in order to prove their competency of the outcomes based qualification. At university, however, students were provided with only one opportunity to pass assignments. A further difference in assessment was that the program at TVET colleges involved recording workplace learning experiences in a log book. College staff were not involved in the workplace assessment and insurance companies appointed workplace mentors to supervise students. The workplace mentors, however, were not remunerated for their additional work, and in many cases, students did not get sufficient exposure to workplace learning areas necessary to complete their log books. At the university, students simply received no workplace exposure as the qualification they transitioned into was entirely theoretical.

A critical challenge identified at the outset of the project was that students would need subject knowledge assistance in mathematics, economics, and literacy skills to ensure their successful transition to university.

In this regard therefore, students felt that colleges did not adequately prepare them for university. One student noted the diversity of performances at university in their combined classes, and the high expectations of academic performance:

It is very intense... it is assumed by the lecturer that we all on par and will be able to work at the same pace. No extra classes are provided for those students struggling as well. In my experience I had to attend 5 extra classes, at a cost of R 100 per class.

Despite overwhelming support for the development of an innovative transition route, a few students expressed a note of caution, as in the following:

Yes, I have recommended this route to others as it is very informative and provides broader understanding of the insurance industry. But I would caution them when it comes to the university program as the levels between the two programs is very different. It would be great if some of the modules in the TVET College program could be swapped for more in-depth modules about economics and finance.

The project definitely showed the possibility of student transitions from vocational colleges to university, but serious questions remained about the role of student support offered by institutions involved and revealed the stark differences between them. The following section highlights these contextual differences in the light of the literature drawn on.

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## **Broader Institutional Issues and Their Impact**

The introduction of a Level 5 professional qualification within South African TVET colleges provides an example of the influence of privatization aspirations (Ball and Youdell 2007). Vocational colleges provided this qualification as it afforded additional third-stream income for the colleges. Colleges had to appoint external industry recognized facilitators to teach this qualification as this was an accreditation requirement of the industry accreditation body. Facilitators were hired on a contract basis for the duration of the qualification, which did not build the internal capacity of the college to develop their own staff expertise in this area. In addition, industry facilitators did not hold teaching qualifications and were poorly equipped to provide academic foundational support. Student support services were drawn on but these resources were stretched as the funding did not extend to colleges for support services. Despite this, most students felt well supported by the colleges they were enrolled in. However, no provision was made for additional learning needs that could enable successful progression to university studies. From an industry perspective, the sole purpose of this qualification was to address the professional needs of the long-term insurance industry, and broader public provider commitments to holistic development and progression of learners were largely ignored.

Critiques of Tinto (2005) and Astin's (1999) institutional approaches to student retention and development provided by Rovai (2003), McCubbin (2003), and Rutschow et al. (2012) were validated in the public university's approach to student development. As students in the project were studying part-time and after hours, they were unable to draw on the range of the university's student support services as in the case of full time students. Despite a much larger and better resourced student support services division, students at the university were more poorly served than they had been at TVET colleges. In particular, students with disabilities struggled to complete their qualifications at the university. This was not due to a lack of commitment by student support personnel, but rather that public universities remain ill-equipped and under-resourced to serve a range of people with disabilities when they are not full-time students attending class during day time hours. From an academic perspective, students had little recourse to additional academic support and were required to pay for additional support. Most of the students in the progression route had been out of school for years and their completion of the industry-based qualification within TVET colleges did not prepare them sufficiently for academic disciplinary study.

While the academic and inclusive support people with disabilities received from TVET colleges enabled most of these students to complete the requirements of the industry-based qualification, this support did not assist them to adjust to the rigors of

a traditional research university where options to repeat assignments were not available. Most students struggled to cope with the academic requirements of the university qualification, and they were not able to access additional foundational knowledge in disciplinary areas such as mathematics, economics and English. Students also struggled with literacy skills for the completion of assignments at the university, as the industry-based qualification at vocational colleges did not prepare them for academic essay writing.

Student support services in the vocational colleges and the university were fully supportive of this progression project. However, the support services provided at the college and at the university differed substantially in their approaches to student development. At the colleges, student support services were deployed to ensure that students achieved an industry-recognized qualification that enabled them to practice as insurance brokers. This involved working closely with all students to prepare portfolios of evidence that demonstrated competence in the outcomes-based qualification. But this support did not prepare students for disciplinary-based learning and academic study at a traditional academic university. The university's student support services proved too limited for part-time students, and they were unable to provide the academic and foundational support needed by most students to complete the transition to university successfully. While this intervention was able to prove that progression from a professional industry recognized qualification to a disciplinary-based qualification at university is possible, such innovative projects are likely to achieve only limited success if approaches to student support, for instance, are so divergent. Bridging the gap between college and university will need more creative alignment and appreciation of the needs of students as they transition between traditionally separate learning contexts.

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## Conclusion

Research into student transitions in Southern and Sub-Saharan Africa has shown that there is minimal student progression from vocational institutions to universities. The student transition and progression project in South Africa revealed important learnings that ought to be taken into account for successful student transitions between these educational sectors. The student transition project attempted to enable employed students within the South African insurance industry to undertake a professional qualification route through college and university. In examining why such a low throughput rate was achieved, some theorization of student transitions as well as the experiences of students were examined to try and determine the issues that impacted their success. Most of the student support literature places a strong emphasis on the integration of students into institutional support systems and adequate academic support, noting though that part-time students are considerably less integrated and supported at institutions than mainstream full-time students. The dangers of privatization imperatives were also discerned.

While there was considerable evidence of institutional student support offered to the cohort of students in the project, the support stemmed from fundamentally

different approaches. Support provided by public TVET colleges was to ensure that employed learners completed a workplace qualification. Support within the workplace for these employed students was generally weak as workplace mentors were unfunded, yet were expected to mentor students as an additional part of their workload. A more flexible assessment approach allowed learners to repeat formative and summative assessments and this in part contributed to high throughput rates at TVET colleges. Students found that no additional funding was provided for the academic support required by them in their transition to academic university programs. While TVET colleges provided strong student support, they were unable to build their internal capacity to continue offering the industry Level 5 program as their accreditation body would only approve instructors from the insurance industry to teach the course.

A range of challenges confronted students upon their arrival at university, as student support there did not enable them to address subject knowledge deficits and they struggled to comply with the academic requirements of economics, mathematics, and literacy. Support offered to part-time students was substantially limited as most student support structures were only available during daily working hours. Additional academic student support offered by the university had to be paid for by students as the funding provided did not include student support. Students with disabilities struggled with infrastructural access to venues and with limited accommodation for their range of disabilities.

In sum, the project showed that competing approaches to student support did not serve the students within the professional qualification route. Despite significant frustrations, nearly a quarter of the student cohort persevered and obtained a university diploma. Very few students were, however, able to sustain the necessary level of academic involvement and only six students completed a postgraduate qualification. Future interventions of this nature would need to incorporate student support structures into the academic planning, conceptualization, and resourcing of these from inception, if such initiatives between post-school institutions are to succeed. This would necessitate a coordinated approach from institutions that to date have operated largely in siloes, and the recognition that resourcing student support adequately is critical for student progression, more especially in South Africa's post-school education and training sector.

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# Systematizing Student Support Services in TVET Colleges: Progressing from Policy

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## Abstract

The expansion of Technical and Vocational Education and Training (TVET) in order to address goals of economic participation and poverty alleviation through skills development, particularly for youth, is currently on the agenda of many developing countries. In South Africa TVET has only recently emerged from decades of neglect and marginalization, and national policies are attempting to rebuild the profile of vocational training institutions through targeted advocacy and funding. In light of employment imperatives however, narrow human capital and productivist perspectives have tended to dominate, at the expense of broader human development outcomes which have been under-theorized in the literature. This chapter focuses on students who typically enrol at public TVET colleges and the significant barriers to success that they confront, not least of which is the

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negative stereotyping which is still part of the TVET experience. While policy initiatives have recognized the wide-ranging support services that may be needed, many colleges are still a long way off from adopting a holistic and systemic approach to student support, for which funding is only gradually coming on-stream. To date there have been some sponsored intervention programs, one of which is highlighted herein for the potential it has shown in the psycho-social support of students as they build skills for both life and work.

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**Keywords**

TVET · Skills development · Student support · Student success · Psychosocial support · Human development · Capability

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## Introduction

Technical and Vocational Education and Training (TVET) has in most developing countries been tasked with economic upliftment through skills development and with social inclusion of under-represented and/or disaffected youth. Widening participation of the eligible youth cohort is a goal in that agenda, as is improving academic success of academically under-achieving students who enter vocational colleges largely as a second choice or second chance. A policy strategy to increase participation and student success has been to enhance student support services at TVET colleges, inter alia to promote learner-centeredness and the removal of barriers to learning. Scholarship around these concerns has, however, problematized student disengagement and one-dimensional approaches to student success, in addition arguing that TVET should be focused on human development rather than crude human capital development imperatives (Lopez-Fogues 2016; Ngcwangu 2015; Powell 2012; Strathdee 2013; Winch 2000). Drawing on South African initiatives in this regard, this chapter posits that student support services are critical to achieving both access and success, and to attaining the goal of widened participation. Policies on student support services and institutional interventions are described in light of the contextual realities of TVET reform in South Africa and the typical backgrounds of students who enter college vocational programs, and the chapter highlights an initiative that has been showing some success in providing psychosocial support to college students. Initiatives such as the latter, though have to date been unfunded systemically, and have relied on private or donor funding.

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## TVET Reform in South Africa

TVET goals of skills development and inclusion (Karmel 2010; Leney and Green 2005) have been articulated in various UNESCO and multinational documents such as the Bologna and Lisbon declarations in established TVET contexts, and the Bandung Declaration in developing TVET contexts. In particular, the inclusion



agenda has been tied to enhancing employability and to widening the tertiary education sector so that it extends beyond university studies (Grubb 2003). By broadening the scope of post-school studies, it was envisioned that more opportunities could be made available to those historically under-represented in education and training.

The South African government is committed to the expansion and improvement of the TVET sector. For instance, its White Paper on Post School Education and Training (PSET) (DHET 2013) proposed that the TVET sector headcount enrolment be expanded from 350,000 in 2010 to 650,000 by 2013 and to one million by 2015, where headcount enrolment refers to the number of students who register in a year. The NATED programmes are offered on a semester or trimester basis which means that the same student could enrol 2 or 3 times during the same year, potentially resulting in misleading participation figures. With the introduction of bursary funding for vocational students in 2008/2009, by 2014 there were over 700,000 students enrolled in public TVET colleges, and a further 80,000 students in private TVET colleges (DHET 2016, p. 25).

Since the advent of democracy in 1994, TVET in South Africa has undergone extensive reforms to address its discriminatory past. By 2003, the approximately 150 racially separated, unequally resourced colleges were merged into 50 multi-campus colleges so as to redistribute resources across campuses in each of the nine provinces (DoE 2001). Since 2006 the college sector has been recapitalized through significant injections of state funding in an attempt to address its “Cinderella” status (Wedekind 2016). In 2009, there was a government department restructuring which resulted in the establishment of the Department of Higher Education and Training (DHET) which now regulates all education and training outside of formal general schooling, including adult learning centers, public and private skills development, vocational colleges, and universities. This broad remit of the DHET is referred to in policy as the “post-school” sector.

In addition to institutional and governance reform, colleges have also undergone curriculum reform since 2006, introducing in 2007 a new qualification, the National Certificate Vocational (NCV) (DoE 2006). The NCV had the initial intention of replacing the traditional National Accredited Technical Education Diploma (NATED or N courses) programs which were theoretical modules undertaken in college settings, to be complemented by work-based training thereafter. Modernized learnership programs leading to occupations were meant to replace the traditional apprenticeship system but this met with resistance from various quarters (largely from industry familiar with the historical programs), and the new NCV programs were allowed to continue in parallel with the NATED programs, (Wedekind 2016, p.17) Colleges also have the option of offering training which attracts public funding from national industry sector authorities or private funding from companies.

The new NCV programs were designed to be more cognitively demanding with a modernized content, in addition to having a practical component. The NCV program has three certificate levels, the final level being an exit level with a certificate equivalent to a school leaving certificate and has a stringent assessment regime and pass criteria. Given the “typical” TVET student described herein, annual pass and completion rates in the NCV have been low, albeit that these have improved somewhat since the rollout of the NCV in 2007 (DHET 2016).

## Widening Participation in Post-Schooling

The post-school system has been described as a low participation, high attrition sector (Fisher and Scott 2011) with chronic failure rates. In South Africa in 2011, a national census found that about 60% of adults had not graduated from high school, and only 12% of adults had higher education. While this had improved considerably since the 2003 census in which 70% of adults had not graduated from high school (Statistics South Africa 2012) it still indicates that the majority experience in South Africa is that of not completing school. Considering youths at a post-school age (20–24-year-olds), only 12% entered post-school education while 16% remained in general academic schooling, 21% were in employment, and 51% were not in employment, education, or training (NEET) (Branson et al. 2015). An earlier study had reported that 2.8 million youths between the ages of 18–24 were NEET (Cloete 2009). These statistics point to a crisis of participation among youth and raise questions about the potential for inclusion and social justice goals of TVET systems.

Moreover, while there have been significant increases in student numbers, TVET college attrition and pass rates have been low. In 2014, there were over 702,000 headcount students enrolled in TVET colleges, compared with under 360,000 students in 2010 (DHET 2016, p.25). However, of the 151,000 TVET students who wrote the exit level NCV4, N3, and N6 programs (which are matric and post-matric equivalent levels), there were reported pass rates of 35%, 48%, and 42%, respectively (DHET 2016, p. 26). This is despite indications that a substantive number of TVET students already possessed a school leaving certificate upon entering TVET colleges (Branson et al. 2015; Cosser 2011a). It would appear that even high school graduates are not coping with TVET studies.

The reasons for the low pass rates are debatable. Explanations proffered have been the onerous pass requirements of the qualifications themselves, the level of difficulty of some subjects, low levels of academic preparedness of students, poor resourcing of student support, inadequate teacher preparation, inappropriate pedagogies for vocational learning, and so on. However, there have been few empirical studies into the causes of TVET students' poor performance (see FET Institute 2013a; Papier 2009), thus evidence is still largely anecdotal.

Despite the low pass rates, many students attending TVET colleges did not display a negative attitude to the college itself. In a study conducted among vocational students, interviews revealed that they were “studying their passion” and “preferred learning things practically” (Needham and Papier 2012). However, TVET and high school students were concerned about the economic prospects of a TVET education, confirming earlier survey findings in this regard which suggest that factors informing student perceptions of vocational learning are related to the status of college in relation to university, and to employment prospects (Cosser 2003). It is clear from the limited research that TVET college students face significant hurdles societally and personally along the road to achieving positive outcomes pursuant to their obtaining access to vocational studies, and they require significant on-course support at colleges once enrolled.

Therefore policy imperatives for widening participation in post-schooling necessitate an understanding of the dynamic patterns underpinning student participation and the attendant student profiles. Letseka et al. (2009) suggest that participation in TVET is an “interweaving of choice and constraint, of aspiration and actualisation” (Letseka et al. 2009, p. 11). While the TVET student population is diverse, TVET colleges by and large are the recipients of students who have not gained access to high status education institutions, are from low socioeconomic and education attainment backgrounds, and/or are often early school leavers (Cosser et al. 2004; Cosser and Sehlola 2009). Studies suggest that TVET has not always been a first choice for students, including for those at TVET colleges (ibid.). A review of the literature on student choice and transition into higher education, as well as a follow up study of actual destinations taken by students, confirmed that student choices are constrained by personal and social economic circumstances as well as institutional factors (Cosser 2009; Cosser et al. 2004; Cosser and du Toit 2002; Cosser and Sehlola 2009). While nearly 90% of those surveyed said they intended studying further, only 47% found themselves in TVET colleges or universities. The reasons Grade 12s gave for entering TVET were as follows: 40% of those in TVET wanted to improve their marks to enter university, 28% could not afford university, and only 22% entered TVET to improve their prospects of employment. The findings suggest that while there were students who were interested in studying at TVET; the majority of students at TVET colleges were not there by first choice but were constrained by funding and/or previous academic achievement from attending university as a first choice institution.

In South Africa, public colleges especially bear the brunt of this social stigmatization and consequent low self-esteem of vocational students. As demonstrated in other countries, the task of lecturers in this context is thus more burdensome, as they engage “in emotional labour unrecognised by their normal workload” (Avis and Bathmaker 2004; Brockmann 2013; Robson and Bailey 2009).

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## Theorizing TVET Goals and Student Profiles

### Human Capital Perspectives

Human capital theorizations of TVET students provide insufficient understanding of the complexity of students’ lives. However, this perspective which draws on the conception of the “21st century learner” remains dominant and can be traced through “networks of documents, events and bodies that transcend borders and hemispheres” (Williams et al. 2013, p. 792) to a particular notion involving the increased economization of the learner and corporatization of TVET colleges (ibid.).

Thus, TVET policy documents mostly invoke narratives of economic upliftment, individualization of structural problems, globalization, and the pedagogy of self (Papier et al. 2012; Powell and McGrath 2015; Wedekind 2008). In the South African context, human capital narratives, in promoting employment,

inclusion, or even student achievement, have not focused on the challenges facing young people or the broader society.

Research evidence points to implementation conundrums emerging within the dominant framework with respect to widening policy agendas. For example, a study in Canada found that policy directions and youth trajectories are not always congruent (Molgat et al. 2011). In South Africa similarly, quantitative and qualitative accounts have found that students “zig-zag” through the system, using TVET as “stepping stones” through repeat enrolments in various courses of the same type and at the same level (FET Institute 2013a; Wildschut et al. 2012); students were enrolling in courses at lower levels to their previous exit levels (Cosser 2011b), and were either dropping out or stopping out (DHET 2016). Gale and Parker (2014) argue that the dominant conceptions of students are potentially “largely system-driven and self-serving” (p. 747). Adams (2011) for instance, reported a widely held lecturer belief that South African TVET college managers were recruiting students to fulfil funding norms rather than for educational reasons. In this scenario, inappropriate placement of learners into programs not of their own choosing had resulted, disadvantaging the learners but meeting institutional targets. Human capital perspectives appear to have contributed to a disconnect between individual and institutional imperatives.

## Human Development and Capability Perspectives

An alternative, emerging literature on human development takes issue with productivist conceptions of students (Lopez-Fogues 2016; Ngcwangu 2015; Powell 2012; Strathdee 2013; Winch 2000), and critiques ideological underpinnings that individualize exclusion and mask structural failures (Fergusson 2013; Simmons and Thompson 2013) rather than emphasizing more holistic development of students in the spaces that vocational colleges provide. In light of more holistic student development concerns, increasing access through widened participation alone, it is argued, cannot be the end goal. Student success would entail that the learning institution is responsive to students’ needs, and that students are able to meaningfully participate within the spaces that have been created.

A human development perspective is especially relevant in cases where TVET students are characterized as having low socioeconomic status, have poor previous academic achievement, and/or are early school leavers. These student profiles are often accompanied by narratives of hurt, alienation (Jonker 2006), and/or exclusion and unequal social outcomes (Lewis 2007; Polesel 2010; Smyth et al. 2013).

But contrary to some critical theory perspectives, human development perspectives do not depict TVET students as victims. Literature is emerging which show illustrations of agency, resilience, or fortitude (FET Institute 2013a, 2014b; Needham and Papier 2012; Powell and McGrath 2015). Recent developments in South African scholarship have posited the capabilities approach as a counterbalance to human capital conceptions of TVET students. A capabilities approach sees the capacity to work as only one aspect of human development, and hence of education and training (Lopez-Fogues 2016; Powell 2012).

However, there has been little attempt to build capability or to conceptualize the construct in the TVET sector. The task of developing better human beings has yet to be defined, and there has been limited discussion around the difficult question of what constitutes a curriculum that takes TVET students beyond academic and economic outcomes to becoming “more fully human” (Freire 1970). It is not yet clear what would constitute a healing, affirming and humanizing pedagogy for students who often have entered TVET from histories of hurt, alienation, and exclusion – a topic currently under discussion in South African universities.

How students develop agency, resilience, or fortitude under trying circumstances is poorly researched within TVET. It is unclear whether demonstrated fortitude is innate, or whether it can be taught and learned, but there is a reservoir of research in positive psychology that can be productively accessed (Seligman and Csikszentmihalyi 2000; Snyder and Lopez 2002). Notions of resilience and fortitude recognize that some people are better able to adapt to adverse circumstances, but this acknowledgement could be used to individualize responses and mask structural conditions (Ecclestone and Lewis 2013; Joseph 2013). While definition and operationalization of the concepts of fortitude and resilience are still unclear (Luthar et al. 2000), the fact remains that society often produces adverse circumstances and students will need to be able to cope irrespective of outside agendas. How people, particularly youth at transition points, engage with their own subjectivity has implications for social reproduction (Cooper 2017). Moreover, it is possible that alienated individuals bring with them cultural resources which are often untapped – for instance, Powell (2012) provides some evidence of TVET students’ contribution to their communities – narratives that are often silent in TVET discourses.

In higher education, there have been some studies around the concepts of fortitude and resilience at universities in South Africa (Barends 2004; Rahim 2007) which have found that fortitude is positively correlated with mediating demographic factors that impact on academic outcomes. However, it was also found that there were significant differences in the distribution of fortitude constructs among different demographic groups (Barends 2004; Rahim 2007). Research on resilience and outcomes within the TVET sector is far more limited though, and the impact of resilience on academic achievement or on employment outcomes has not been investigated.

Thus there is an emerging literature pointing to the salience of capabilities, fortitude, and resilience but more limited discourse around *how* TVET systems can assist to develop student capabilities and the support services that are necessary to aid these capabilities development.

Life Course theory (Elder 1998; Elder et al. 2003) provides a potential theoretical orientation for TVET to develop the capacity to assist in human development. Life Course theory conceives of human beings as “becoming” (Gale and Parker 2014), holding that students can encounter “turning points” in their lives (either positive or negative), and that understanding (and intervening) in students’ life courses may impact on the ways in which they transition from these turning points. Turning points are not fixed phases of human development but occur within their life courses. Conceiving of being better human beings can serve as “turning points” for students

in their process of “becoming” (Gale and Parker 2014), not only in enhancing their academic and economic prospects but also in its own right.

More complex and nuanced understandings of student participation are becoming available. Gale and Parker (2014) identify three approaches to student transitions: induction, development, and becoming, and argue that transition as “becoming” presents the most sophisticated, but most under-utilized, approach. Understandings of student transitions are important, since different understandings could result in different approaches to practice. Currently, dominant development narratives impose normative and/or universal identities on students that fail to understand the diversity of life courses and identities. In the alternative conception,

Becoming explodes the ideas about what we are and what we can be beyond the categories that seem to contain us . . . [It] offers a radical conception of what a life does. (Sortorin cited in Gale and Parker 2014, p. 745)

There is still much to be done in South African TVET colleges with regard to instituting support services that mitigate the personal trajectories of vocational learners, hence the following section sets out the lengthy pathway that policy has been on towards more comprehensive student support provision.

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## Systematizing Student Support Services

Within the South African policy and institutional landscape, provision has been made for student support services (SSS) that are more holistically intentioned, are based on principles of inclusion, and offer a range of services that extend from college recruitment and access, through on-course support to exit from the college.

Some 20 years ago, South Africa’s Education White Paper 4 of 1998 had the intention to “*ensure that all learners, including previously excluded or disadvantaged groups are given every opportunity to succeed*” (DoE 2008, p. 4), and to this end, the Department of Education had recommended a wide range of services, including Student Support Services (SSS). This commitment to SSS was extended by the Department of Education’s successor, the Department of Higher Education and Training (DHET) through its White Paper on Post School Education and Training (DHET 2013). Earlier, Education White Paper 4 (1998) had noted that the provision of student support services in TVET colleges was uneven and ad hoc. Not all colleges had support services, while some colleges had centralized support and did not offer support services at each of their campuses. The range of support services varied from college to college, and there was a lack of a proper infrastructure for staffing and referral systems. Education White Paper 4 had therefore proposed a dedicated funding grant for student support services so as to enable services to be extended to all colleges that would encompass “academic development, guidance, counselling, health, welfare and other learner support services” (DoE 2008). The intention of the White Paper stated that:

Learner counselling and support services will be established to help new entrants to FET to make meaningful choices about their direction of study and to ensure that all learners, including previously excluded and disadvantaged groups, are given every opportunity to succeed. Career guidance and support services will provide information on learning programmes, education and training providers, qualifications and job opportunities. FET providers will be required to ensure that learners have access to up-to-date labour market information, indicating skill shortages, career opportunities and trends in the job market.

This intention was supported by the FET Colleges Act (2006) which provided for academic support services and student support services as different categories of support staff and required college councils to consult with students on a college student support policy. A Student Support Services Framework document emerged in 2008 (DoE 2008) which conceptualized holistic student support services integrated into the colleges' functioning but led by a Student Support Services unit. Student support services were to be supported by Student Support Officers (SSOs) and a system of referrals.

The domain of student support services is potentially wide, including student financial support, psychosocial support, and academic support *inter alia*. Government policy has also categorized student support services according to the various stages at which students might require support at college, for instance, student support services ought to cover services at "pre-entry" (including career guidance and orientation); "on-course" (for instance academic support, tutorials, job readiness skills); and "exit level" support such as preparing students to find employment or continue their studies, as well as developing skills for finding employment such as compiling CVs and assisting with obtaining work placement (DoE 2008, p. 5).

Research around the poor performance of students in TVET colleges (for instance Papier 2009) pointed to the nature of student support services that should be considered with a view to improving performance. In a multi-stakeholder study of TVET students' performance across six colleges (*ibid.*), it was reported that students struggled with the cognitive demands of particular subjects (e.g., Mathematics) which they possibly had insufficient prior grounding in, hence the need for academic support; there were significant socioeconomic challenges that students experienced, for example, financial difficulties, poor nutrition, poor living conditions including gangsterism and substance abuse, thus indicating a need for economic and psychosocial support, as well as safe spaces and transport for after-hours study.

The DHET has been cognizant of the historical disparities among colleges that have resulted in the prevailing uneven conditions, and which require varying levels of intervention and support relevant to the current realities of colleges (DHET 2013). Specifically rural institutions have weaker infrastructure, fewer teaching facilities and staff, and are less able to present a range of program options to students than urban institutions. Furthermore, national socioeconomic surveys have found that most students at TVET colleges are from poor family backgrounds (DHET 2013) and that there are more opportunities for urban than for rural students.

The challenge, however, is to systematize these student support policies within institutional practices. Various student support services have been provided at TVET



colleges, but the range of services is not standardized or generally available across colleges (DHET 2017). Support services offered include academic support (particularly in the language of instruction, Mathematics and ICT); student financial aid; and locating workplaces for practical experience or employment on completion of studies. Even though colleges have, in spite of funding constraints, managed to offer such support services, these are reported to be inadequate for the support needs of colleges, a reason being that support services have in many cases depended on individual colleges using resources generated by themselves rather than services being included in state funded budgets. Sustainability of service provision at particular colleges has therefore been uncertain.

Many students experience a lack of proficiency in the language of instruction in TVET colleges which is inevitably English or Afrikaans as a result of the South African apartheid legacy which privileged these two languages at the expense of indigenous African languages. This lack of proficiency in the language of instruction has had the effect of hampering the progress of students for whom neither English nor Afrikaans is a first language, and necessitating learning strategies that improve academic reading and writing (Jeffery 2015, p. 27).

Furthermore, colleges have reported students being generally uninformed about the courses on offer, and being guided rather by the availability of student bursaries in their choice of program. Since 2013 though, significant progress has been made with development of a national, multimedia advisory service, and it is envisioned that this facility will ensure that young people, including those who are poor and disadvantaged as well as those in rural areas, can make informed choices about their studies and their careers. In a study highlighting student perspectives on the provision of support services or lack thereof, a possible correlation between incorrect career choices and student attrition was presented. More than a third of the students who were interviewed reported that they were not studying their first choice because the courses they wanted to study were already full, and as they did not want to wait for the following year to register, they chose another available program (Jeffery 2015, p. 25).

The student support services framework document (DoE 2008, p. 7) recommends that “academic support be prioritised for students from educationally disadvantaged backgrounds for the enhancement of academic success.” Although pass and through-put rates have improved since 2012, they are still relatively poor, indicating that academic support for the foreseeable future is sorely needed.

Since the introduction of state student funding for TVET college students in 2007 with the advent of new national vocational programs, students have been relatively well supported to undertake college studies through the National Student Financial Aid Scheme (NSFAS). The National Student Financial Aid Scheme (NSFAS) has assisted poor students with tuition fees, accommodation and transport costs (DHET 2013) to some extent. The national bursary allocation for TVET colleges increased from R300 million in 2010 to R1.988 billion in 2013 (p. 13) and has led to the substantial expansion of college student numbers. More recent figures (2014 and 2015) provided by the National Student Financial Aid Scheme (NSFAS) indicate an increase in the number of students funded and the value of the funds. In 2014 NSFAS



supported 228 642 TVET students in the amount of R1991 487 809 (close to R2 billion). In 2015, 235 988 students were funded in the amount of R2 095 129942 (over R2 billion). Funding for college students is in the form of bursaries and there is no repayment required. TVET colleges have to monitor bursary recipients' attendance as subsequent grants are dependent on attendance being maintained. Travel and accommodation allowances are subject to availability of funds on a pro-rata basis (DHET 2016, p. 11), and it is these allowances that have been the reason for student unrest from time to time, when there has been insufficient funding of travel or accommodation costs.

However, the impact of managing a large scale bursary scheme has been felt by colleges in their administration of it, with college staff having to undertake student means-testing, advice on applications, disburse grants, monitor and report on expenditure, and the like. Colleges are required to keep careful records of payments made to students. Nonetheless, in spite of these rigorous policy checks and balances, there are anecdotal reports of students in a "revolving door" syndrome, who manage to secure successive bursaries while not completing prior programs. Travel and accommodation allowances have been the reason for student protests from time to time on the belief that these were insufficiently funded. The net result is that, according to the DHET, student support services have tended to focus on the administration of bursaries (DHET 2017).

Factors generally accepted as contributing to poor performance of college students have been cited as poor living conditions, poor nutrition, a lack of self-management skills and self-discipline. In a study (Fryer 2014) found that "college adolescents are inclined to be emotionally immature; experience peer pressure; and have difficulty in assuming responsibility for their own studies" (p. 64). The official policy framework holds that students in need of psycho-social support should be referred to relevant institutions and to persons trained and capacitated deal with such challenges (DoE 2008 p. 7). In colleges where such referrals were either not possible or not done, student support staff reported that they felt emotionally overburdened, lacked counselling experience, were unsure about the manner in which they should deal with student issues; and would prefer to be supervised by someone experienced in a counselling or psychology field (Fryer 2014, p. 90).

In colleges where support services were available, it was found that students did not always utilize these services as they often lacked the confidence to ask for help or to use a language which was not their home language to do so (Jeffery 2015).

Colleges in some instances have had to rely on the voluntary services of individuals or donor funded organizations to offer psychosocial support through funded programs that work with students to build self-esteem and emotional maturity. One such program which has been operating in TVET colleges in South African for a number of years to date is based on an international youth rehabilitation program with the motto "show courage." The donor funded organization offering the program on a voluntary basis to youth at TVET colleges, has a structured schedule of workshops that include role play, simulation, self-reflection, discussion, and group tasks. Annually the program asks students to participate in feedback research in order to gauge the impact of the program and to make improvements where

necessary. Consistent evaluation reports have revealed students' pathways to self-discovery, better choices, lifestyle changes, and better interactions with peers (FET Institute 2012, 2013b, 2014a, 2015, 2016). However, programs such as these are not mainstreamed and rely on "soft funding" in spite of demonstrated successes and remain "add on" or supplementary to the academic programs offered.

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## Conclusion

The widening participation agenda, particularly in development contexts, necessitates that students are supported towards successful outcomes. South African policy indications are that government is committed to doing so, but implementation at grassroots level is still emergent. Student support service provisioning across TVET colleges suggests that current attempts by individual colleges to provide various support services are not capable of yielding substantive positive results that impact on the system as a whole. With large numbers of students from low socioeconomic and/or poor academic backgrounds that are characterized by alienation and exclusion, student support services require systemic mainstreaming and dedicated funding.

Student support programs that build skills for life and work have shown distinct personal growth benefits for TVET student and should be integrated into the TVET academic mainstream in order to maximize their potential. In a mixed methods study, that explored the impact of student support services on student achievement it was found that coordinated student support was a contributory factor to students' academic achievement and that the majority of the participants believed that support services had contributed to their academic success (Maimane 2016). Additionally, students indicated that their support services had provided them with guidance about college life, taught them how to access information, and had afforded them opportunities to meet students from different socioeconomic backgrounds (ibid). These and similar offerings ought to be further interrogated and their longer-term impacts on the lives of young students investigated, in the interest of finding strategies that work in supporting youth to be resilient in the face of adverse circumstances.

In spite of the preoccupation of TVET systems with labor market and human capital outcomes, the available evidence suggests that holistic approaches to student development may yield more rewards for individual students to achieve academically and in the workplace, and may harness their potential to create a more caring society ultimately.

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**Part IX**

**VET Teacher/Trainer Education**

***Volker Wedekind***



# Vocational Teachers' Knowledge, Experiences, and Pedagogy

# 87

Sai Loo

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## Abstract

This chapter aims to address the two issues of teacher knowledge and pedagogy of VET in the English FE sector. Drawing from a larger research project, it uses the empirical findings from the questionnaire survey and semi-structured interviews of seven FE participants, who teach on VET provisions.

In addressing the issue of teacher knowledge, a delineation of teaching knowledge, relevant disciplinary knowledge (Becher. *Studies in Higher Education* 19:151–161, 1994), and theories of learning (Bernstein. *Pedagogy, symbolic control and identity: theory, research, critique*. Taylor and Francis Limited, London, 1996) is included. Typologies of teacher knowledge (e.g., Clandinin. *Curriculum Inquiry* 15(4):361–385, 1985; Shulman. *Harvard Educational Review* 57(1):1–22, 1987; Loo, *International Journal of Lifelong Education* 31 (6):705–723, 2012) are employed to offer a wider perspective of teacher knowledge. From an occupational perspective, conceptions of theoretical knowledge, knowledge of procedures, skill sets, dispositions, and past work know-how are drawn from researchers such as Bernstein (*Pedagogy, symbolic control and identity: theory, research, critique*. Taylor and Francis Limited, London, 1996),

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Eraut (Workplace learning in context, Routledge, London, pp. 201–221, 2004), and Winch (Knowledge, expertise and the professions, Routledge, London, pp. 47–60, 2014). The teacher know-how is used to conceptualize a VET pedagogy framework. Using a Bernsteinian conceptualization of knowledge types, the processes of recontextualization are used. These processes offer insights into how teacher knowledge may be modified through selection, relocation, and refocus for application in a VET pedagogic setting.

Using examples of the empirical data, the types, sources, and application of VET teachers' know-how are delineated. In this delineation, the theoretical framework draws on concepts such as knowledgeable practice (Evans. Vocationism in further and higher education: policy, programs and pedagogy, Routledge, Abingdon, pp. 117–130, 2016), practice architectures (Kemmis, Green. International Journal of Training Research 11(2):101–121, 2013), and systems 1 and 2 (Kahneman. Thinking, fast and slow, Penguin Books, London, 2012). The concepts offer additional insights into how VET deliverers use their know-how toward the final choice of the relevant teaching strategies in their specific pedagogic settings. This chapter finally offers contributions and implications resulting from this study.

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**Keywords**

Experiences · Knowledge · Occupational · Pedagogy · Teachers · Technical and vocational education and training

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## Introduction

This chapter contributes to the “VET Teacher/Trainer Education” section and the two themes of teacher knowledge and experiences and vocational pedagogy. It starts with Brian Simon's premise that there has been a lack of a rigorous pedagogical approach in England. He suggested that this was due to the views of a then homogeneous sociocultural elite such as the independent fee-paying schools (“public schools”) and the well-established higher education institutions of Oxford and Cambridge. They viewed the character development of males as more important than a professional approach to teaching and learning (Simon 1981). This amateurish and pragmatic approach continued in the further education (FE) or post-compulsory education sector in England. Coffield (1998) critiqued the amateurish manner concerning the lack of conceptual definitions such as pedagogy and vocational education and training. The unprofessional approach coupled with undefined concepts remained in spite of the continual emphasis on the importance of teaching and learning in the UK (e.g., Department for Education (DfE) 2010, 2016) and internationally (Tatto 2013).

Against the above backdrops, this chapter aims to address the issues of teachers' knowledge and their experiences and the pedagogy of vocational education and training or technical vocational education and training (TVET). TVET is an internationally recognized term to denote work-related provisions (United Nations



Educational, Scientific and Cultural Organization 2012). This term is preferable as it dissociates the English context of work-related studies where issues of the academic-vocational divide and sociocultural aspects have impeded robust research in the sector (Loo 2018). The post-compulsory sector in England offers a wide range of teaching settings. It includes FE colleges, adult and community learning providers, armed and uniformed services, commercial organizations and independent training providers, industry, specialist colleges, prisons and offender learning institutions, public-sector organizations, and voluntary and community sector organizations (Education and Training Foundation 2014). The students include 16 plus, adult, and lifelong learners who may have varied learning abilities. This sector is known for offering additional learning opportunities for those leaving compulsory education. The provisions are diverse with over three-quarters of the provisions in work-related areas. The popular programs (regarding the estimated number of teachers) are in the visual and performing arts and media, health, social care and public services, foundation programs, business administration, management and professional, and hospitality, sports, leisure, and travel (Frontier Economics Limited 2014, Table 15). By implication, these lecturers of vocational-related courses will have the requisite TVET or occupational experiences in addition to their pedagogic experiences. The access to occupational programs and additional learning opportunities are some of the characteristics of the FE sector in England.

This chapter examines the TVET teachers' knowledge (including their occupational experiences) and its relevance on the pedagogy concerning teaching strategies. Even though the focus is on TVET delivery in England, the findings may have implications for the equivalent work-related programs in other countries. In elucidating this focus, the chapter has five sections following this introduction. The second section investigates the conceptual framework of TVET teachers' knowledge and pedagogic activities and the following section on details of the supporting research project. The fourth section delineates the findings and discussion using empirical data. The final section ends with contributions and implications resulting from this investigation.

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## **Conceptual Framework of Vocational Teachers' Pedagogy**

This chapter begins with a dual professional approach (Handal 1999; Robson et al. 2004; Peel 2005) to understanding teachers' pedagogic activities where they refer to their teaching and professional/vocational know-how including knowledge and experiences. These two practices – teaching and vocational – offer a starting basis to theorizing a framework. This ontological approach of starting from knowledge acquisition and application is derived from researchers such as Bernstein (1996), Eraut (2004), and Winch (2014). For this chapter, knowledge is defined eclectically to capture the varied forms of know-how in delineating a vocational teacher's pedagogic knowledge. The delineation of the acquisition and application of know-how also offers the theorization of a conceptual framework, and this separation of knowledge, for this chapter, merely offers a logical discussion structure. In reality,

the separation of the two aspects of knowledge may not be simple and is often complex. In arriving at a conceptual framework, only the circumscribed accounts of the relevant theories are employed and not exhaustive accounts to satisfy the aims of the chapter.

From the teaching practice dimension, Becher (1994), Bernstein (1996), and Smeby (1996) suggested that knowledge of the relevant disciplines, such as psychology and sociology for the education field, is required as a starting basis. Included in the relevant disciplines may be theories of learning where teachers are needed to acquire and understand how learning may occur and that the eventual pedagogic strategies/approaches may result (Becher 1994; Bernstein 1996; Smeby 1996). Bernstein classifies knowledge into two forms: vertical and horizontal discourses. The former type represents theoretical knowledge that is “explicit, coherent, systematically principled and hierarchical organization of knowledge” and “a series of specialized languages, each with its own specialized modes of interrogation and specialized criteria as in the humanities and social sciences” (Bernstein 1996, p. 172). These two vertical knowledge structures – hierarchical and horizontal – offer ways of classifying subject areas where hierarchical knowledge may include areas such as biology, chemistry, and physics. These areas are similar to Becher’s (1994) classification of hard-pure disciplines. These areas have significance in vocational learning such as equine studies (biology) and gas fitting (chemistry and physics). From the “horizontal knowledge structure” variety of vertical knowledge, social science areas such as sociology (e.g., learning theories) may be used in education. Bernstein offers a link between vocational training and compulsory education where he viewed horizontal knowledge structures as strong and weak grammars. His link with vocational learning such as in the area of crafts (especially pottery) is indicated below:

‘Crafts’ are often acquired through apprenticeships where mastery is more a tacit achievement than a consequence of an explicit pedagogy. This suggests from the point of view of this paper that ‘crafts’ could be regarded as *tacit* [Bernstein’s use of italics] horizontal knowledge structures. (Bernstein 1996, p. 181)

This passage is relevant to this investigation as Bernstein acknowledges that the learning of crafts can be a form of vertical discourse despite the fact that his primary concern is in compulsory education. This link with vocational learning offers conceptual space to explore theoretical knowledge and pedagogy.

Turning to teaching knowledge, Shulman (1987) offered a typology. It consists of general pedagogical knowledge (comprising principles and teaching strategies for classroom management and organization), pedagogical content knowledge (which is a combination of content and pedagogy), knowledge of learners, knowledge of the educational contexts (such as team members and teaching institutions), and knowledge of educational values. Some researchers have developed from this typology by focusing on the tacit aspects as opposed to Shulman’s more explicit nature of teaching knowledge. Loughran, Mitchell, and Mitchell’s (2003, p. 870) tacit investigation was a listing of the “rich array of information, ideas and

understandings that inform teachers' practice." Verloop et al. (2001) used the above two studies to focus on teachers' practical knowledge and beliefs, and they offered six categories related to subject matter, students, learning, and intuitive aspects of teacher's know-how, subject specificity, and teachers' know-how. Verloop et al.'s cognitive foci provide another perspective to Shulman's explicit teaching know-how, and Verloop et al.'s tacit approach (Clandinin 1985) uses the concept of "personal practical knowledge" to denote a teacher's experiential history, both professional and personal. This form of know-how is further developed by Loo (2012) where teachers' occupational practices are explicitly included in teaching know-how. Finally, Banks, Leach, and Moon's (1999, p. 95) teachers' professional knowledge model incorporates the "complex amalgam of past knowledge, experiences of learning, a personal view of what constitutes 'good' teaching and belief" that draws on the earlier literature sources. In short, teaching know-how may have the following characteristics: explicit, tacit, cognitive, practical, pedagogy-occupation-life-related experiences that are relevant to teachers.

Similarly, knowledge concerning occupational practices requires a base of disciplinary or theoretical know-how that may be explicit. The base may include knowledge of procedures, skills (e.g., interpersonal and intrapersonal ones which are tacit), techniques, transversal abilities, project management abilities, personal capabilities, and occupational awareness (Eraut 2004; Winch 2014). This occupational knowledge base constitutes a wider spectrum than a pedagogical one. It includes a worker's past know-how (including theoretical and procedural knowledge and experiences), understanding of work and specific job contexts, skills (such as technical and nontechnical ones), workers' dispositions, and perceptions of the work environment, which they operate.

The occupational know-how has elements of explicit and tacit forms. The individual aspect of tacit know-how may be scientific (as suggested by Polanyi [1966]). Collins (2010) offers three types of tacit know-how: relational tacit knowledge that individuals view as either secret or that which is not known to others; somatic tacit knowledge, which people can perform such as riding a bicycle; and collective tacit knowledge, where people use knowledge (e.g., linguistic rules) as part of society. Nonaka and Takeuchi (1995) offer the final variation of tacit knowledge. It is tacit knowledge that resides in people and is used in commercial activities. Collins' collective tacit knowledge is posited in the Western tradition and Nonaka and Takeuchi's in the Japanese one. Also, Collins' CTK resides in society whereas Nonaka and Takeuchi's in business organizations (Loo 2017). These tacit knowledge types offer useful insights into understanding the tacit aspects of teachers' know-how and how they may be applied.

The applications of teaching and vocational/occupational knowledge may be understood through the processes of recontextualization (Bernstein 1996; van Oers 1998; Barnett 2006; Evans et al. 2010; Loo 2012, 2014a). Knowledge may be modified through selection, relocation, and refocus in another setting (Bernstein 1996). From a teaching perspective, a learning theory such as cognitive constructivism (from psychology discipline) as advocated by Bruner (1996) is used in an educational setting. This setting includes contexts that relate to the academic level of

the program (e.g., in health and social care), the types of learners, and the specific aspect of the curriculum in which this know-how is applied. From an occupational/vocational angle, physics as a discipline may be used in the area of gas fitting. From a recontextualization process, the nature of the disciplinary knowledge is changed and similarly from the users such as teachers and learners concerning the specific vocational area (Loo 2012, 2014a). This modification of knowledge and users' perspectives is contrary to Bernstein where even after recontextualization, the vertical knowledge remains the same.

The recontextualization process is situated in dynamic environments, and it involves people in sociocultural dimensions. The process is also context related and can be innovative (van Oers 1998). It occurs in teaching and work-related activities at the TVET academic level (Loo 2016). There are different types of this process. Barnett (2006) suggests two types: reclassificatory recontextualization, which is viewed as a toolbox of applicable knowledge, and pedagogic recontextualization for teaching. These identifications of recontextualization processes offer insights into how theoretical or disciplinary knowledge may be used for teaching vocational programs where disciplinary knowledge is made relevant to the specific vocational area. Evans et al. (2010) use four types of recontextualization to provide a greater understanding of teaching and learning. They are content recontextualization (relating to the specifications of a program), pedagogic recontextualization (relating to teaching), learner recontextualization (relating to the strategies that a learner employs to acquire and understand the relevant know-how), and workplace recontextualization (relating to the procedures and protocols of the workplace). Loo (2012, 2014a) provides explicit insights into how the recontextualization processes may be used in vocational teaching from the teachers' perspectives.

In addition to the possible types of recontextualization processes, there are relevant concepts that add to the understanding of practitioners in vocational work settings to carry out their roles. The next three frameworks focus on learners, and they acknowledge a sociocultural dimension. Kemmis and Green (2013) use "practice architecture" to indicate the sayings, doings, and relatings of these users in the respective work organizations. Evans (2016) identifies "knowledgeable practice" as a means to understanding how formal and informal learning can occur in workplace settings and beyond. Learning occurs when mentoring, coaching, and peer learning happen where these activities impact both learners/workers, either individually or collaboratively, and the specific work institutions. Kahneman (2012) uses his systems 1 and 2 to explain how decisions are made in areas of work. System 1 is reliant on a worker's intuition that is based on experience and is irrational. It offers a quick decision. System 2 relies on rational and cognitive interactions, which is a slower form of decision-making process.

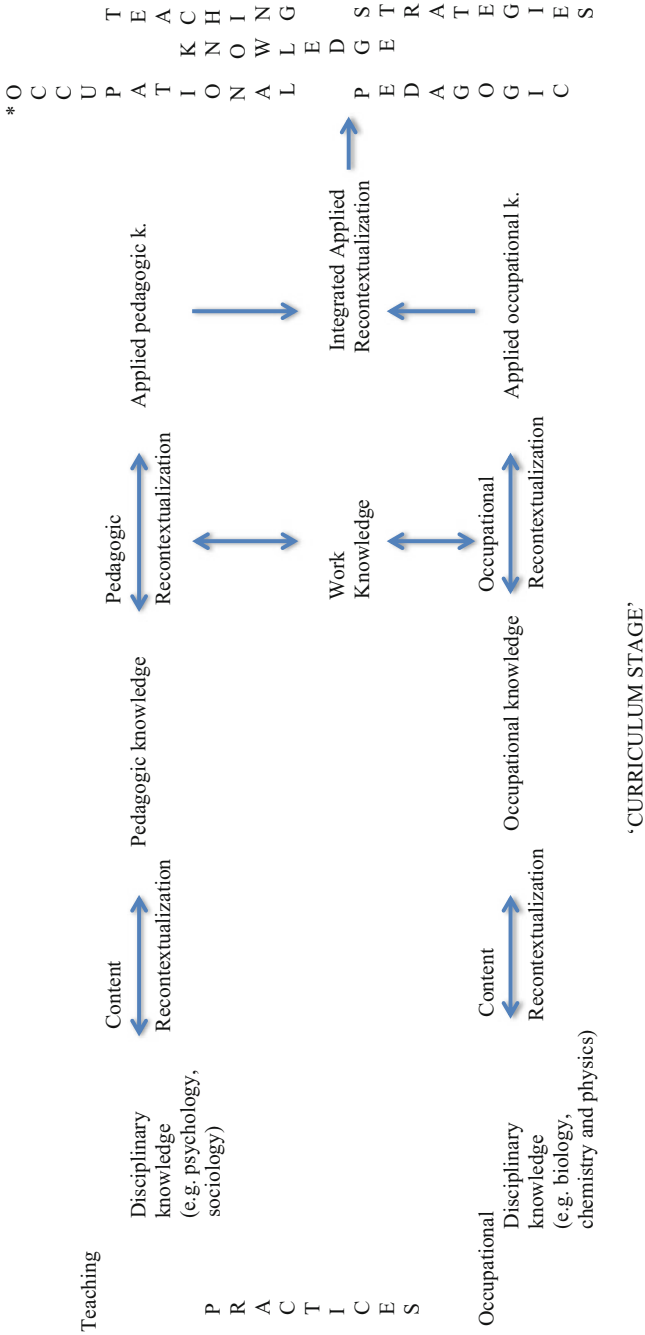
The above eclectic and relational approach of defining teaching and occupational knowledge offers insights into the types and sources of know-how that are needed for teaching and vocational working. These forms of know-how are applied in pedagogic and work settings through the various recontextualization processes and three identified practices. The next part maps out a conceptual framework to illustrate how these types of know-how may be used in facilitating a teacher with vocational experience to carry out the pedagogic activities on a TVET program.

The theoretical framework (Fig. 1) draws from the above literature reviews and is structured initially with the dual professionalism dimensions of teaching and TVET/occupational practices (starting from the left-hand side). Starting with the teaching practice, disciplinary knowledge is referred to for teaching purposes. Examples of learning theories such as behaviorism and social constructivism are derived from the subjects such as psychology, sociology, and business management (Loo 2014b). This knowledge needs to be applied to the content or specifications of the specific TVET program to ascertain how this can be made relevant to use for teaching. The process of relocating and refocusing of knowledge is termed content recontextualization. The modified type of know-how is known as pedagogic knowledge, which can be used for teaching. This stage also includes another aspect of curriculum development where other types of disciplinary knowledge such as from the subjects of physics and biology may also be made relevant to the specific TVET area. An example of gas flow theory in physics will be required for learning and teaching in the gas fitting specifications. How this is made relevant to the learners will be the task of the curriculum developers and deliverers via content recontextualization.

The pedagogic knowledge is then applied for teaching purposes, and the process related to this is pedagogic recontextualization. This is where the pedagogic knowledge is selected and refocused for teaching. Examples include a series of lessons or a 1-day long session, depending on the structure of the provision and the identification of the particular aspects of the specifications that need to be delivered at the appropriate academic level. The typologies of teaching knowledge mentioned earlier would be relevant to this process. Also related to this recontextualization process is the “work knowledge.” This know-how refers to the nature of the teaching institutions that the teacher works in and knowledge of its aims (e.g., visions of the institution), systems (e.g., IT and mentoring), and protocols (e.g., regulations governing extracurricular activities). It can have both individual and collective dimensions. The know-how may be tacit or explicit, and it can consist of skill sets (e.g., interpersonal), knowledge resources (from colleagues and the Internet), and understanding (of situations, contexts, and stakeholders) and involves decision-making and professional judgment. Notions of “knowledgeable practice” and “practice architectures” regarding the organization’s practices such as the mentoring system and the articulations with peer teachers and stakeholders are useful in understanding this complex activity.

Both types of work and pedagogic know-how are included in this complex application in the teaching process and are called pedagogic recontextualization. The modified form of know-how is applied pedagogic knowledge. Included in this complex amalgam of know-how is the teacher’s belief or vision along with other pedagogic dimensions such as subject area, learner types, academic level, etc. to influence the eventual choice of an appropriate teaching strategy in a specific teaching session in the final recontextualization process – integrated applied recontextualization (IAR). Before this process is discussed, we now turn to the other dimension: TVET/occupational practice.

This dimension refers to the working and learning processes of a TVET worker. It is relevant for those teaching in the work-related provisions as they need to rely on



\* Occupational Pedagogic Knowledge (OPK) may also be termed Occupational Teachers' Capacities (OTC)

Fig. 1 A theoretical framework of the TVET/occupational pedagogy of teachers

their occupational know-how to inform their learners. It adheres to a similar structure as in the teaching dimension. Through the content recontextualization process, the disciplinary knowledge such as physics can be relocated and refocused to suit the needs of the specific TVET area such as gas fitting. Aspects of this occupational knowledge such as gas flow knowledge can be used by the learners/workers for gas fitting. This know-how is changed from its initial disciplinary/theoretical know-how since it is contextualized to the specific TVET area requirements. This occupational knowledge is then used to frame a curriculum as part of the acquisition phase. Aspects of the curriculum are then selected, relocated, and refocused for work purposes through a process of occupational recontextualization. This process involves another type of knowledge source – work knowledge. This work knowledge relates to the work institution such as its systems, protocols, and other aspects relating to the work settings. Work knowledge, like in the other dimension, offers individual and collective forms and can be tacit or explicit; includes skills (e.g., interpersonal), knowledge resources (e.g., colleagues), and understanding (of contexts and stakeholders); and involves decision-making and judgment.

One may argue that the occupational and work know-how may be specific to the user or worker, as a teacher, as each has specific practices and experiences even though the training may be similar. Concepts such as “knowledgeable practice,” “practice architectures,” and “systems 1 and 2” provide rich understandings of this complex work activity. This activity, together with the pedagogic activity after the pedagogic recontextualization process, offers insight into the final process: IAR. Thus, IAR is a result of two knowledge types – applied pedagogic knowledge and applied occupational knowledge – to produce occupational pedagogic knowledge (OPK) or occupational teachers’ capacities (OTC). From this final know-how, a teacher may ascertain the relevant teaching strategies/approaches. These approaches are dependent on contextual factors such as the TVET area, academic level of the provision, learners, accreditation of professional bodies, types of TVET artifacts, and teachers’ beliefs (to name a few). Some of these teaching strategies include demonstration, simulated environments, field trips, and problem-based scenarios. Publications by Huddleston and Unwin (2013) and Lucas et al. (2012) offer a wide selection of these pedagogic approaches. Lucas et al.’s report (2012, p. 115) acknowledges that “vocational pedagogy and practical knowledge is an under-theorized area of education” and that the report offers a “proof of concept” and not a comprehensive theory of vocational pedagogy. It appears that the report focuses on teachers and learners and that the role of knowledge (Sect. 8.2.1) merely plays a part without a comprehensive discussion or a conceptual framework of vocational pedagogy. It, however, offers a broad survey of the teaching strategies in the FE sector rather than specifically of vocational education.

This framework (Fig. 1) exhibits dynamism and fluidity in differing directions along its structure. A teacher may revisit any of the stages of the framework (and not necessarily at the start of the two practice dimensions) resulting from either teaching or occupational triggers/incidents. This ongoing reflective process offers different perspectives, which the deliverer can utilize in future teaching activities such as a different choice of teaching strategy or a different ordering of teaching sequence from a specific part of a curriculum specification over a period.



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## Project Details

The findings of the chapter are based on a larger project (Loo 2018). The main research questions include the following: What is occupational pedagogy? And how is its related knowledge acquired and applied by those teaching on the programs? “Occupational pedagogy” refers to the type of teaching and learning across the academic levels of vocational/TVET, higher vocational/first-degree, and professional education. Occupational pedagogy is used to denote work-related teaching and learning activities across the academic levels as well as varied occupational/professional disciplines. For this chapter, the focus is on the TVET provisions, and the disciplines that are featured in the project are airline studies, art (painting and printmaking), equine studies, fashion and textiles, gas services, and health and social care. A purposive sample of seven teachers (P1–7) in the TVET level is included from a total of 21 participants from the larger project. The research methods employed included a questionnaire survey and semi-structured one-to-one interviews. Salient details such as gender; age; pedagogic, occupational, and relevant life experiences; and academic and professional qualifications were captured from the quantitative survey, following a pilot study in which the survey questions were fine-tuned. This process was carried out on the topic questions for the interviews. The interviews captured data related to the participants’ perspectives of the types and sources of know-how that were applied in their teaching of work-related programs. Documentary evidence such as program specifications was also gathered to triangulate data from the other two research sources. The types of data were analyzed using generated codes, identified phrases, patterns, and themes and the identified scenarios were further triangulated to form a typology. This typology was then linked to the theoretical frameworks (Robson 2002). The analyzed empirical data from the project was then used in the next section to discuss the types, sources, and applications of the teachers’ know-how.

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## Discussion

This section has two parts consisting of the acquisition and application of knowledge for vocational teaching and learning. This structure is used to parallel the conceptual framework (Fig. 1), which has been derived from the relevant literature reviews.

From the perspective of the acquisition of teaching knowledge, P1 is a full-time FE college lecturer of travel and tourism with 7 years’ teaching experience and has worked in the airline industry as part of a cabin crew for 8 years. She uses her disciplinary knowledge (Becher 1994; Bernstein 1996; Smeby 1996) from her first degree in geography, teacher training qualification (PGCE), and occupational experiences in the airline industry to teach on the Edexcel BTEC Level 3 Certificate in Aviation Operations (NO25388-L3-AOps [page 1 of 66]). This provision consists of mandatory and optional units, and they include the UK aviation industry, health and safety in the aviation industry, aviation geography and terminology, customer service in the aviation industry, human resources in the aviation industry, handling air passengers, and onboard passenger operations. She relied on her first-degree



theoretical knowledge to assist her in teaching the BTEC units such as aviation geography and terminology (Unit code: T/504/2281). The aims of this unit include developing “knowledge of the location of major destinations and airports of the world.” The unit also enables “learners to expand their knowledge in relation to countries, capitals, hubs, gateways and air travel destinations and to recognise air travel routes through different hemispheres, International Air Transport Association (IATA) areas and sub-areas via different global indicators” (p. 1). The theoretical/disciplinary knowledge from P1’s first degree is used to make it relevant to the aviation industry provision via the content recontextualization process.

Similarly, P2, who teaches gas servicing at an FE college with 15 years’ teaching experience, has worked in the gas service industry as an engineer (6 years’ experience) and as a trainer and assessor (13 years). He uses his occupational know-how (knowledge and vocational experiences) (Clandinin 1985; Banks et al. 1999; Loo 2012, 2014a) as he has “the relevant theoretical and practical skills to pass onto our students. I can also use anecdotes to put into context the theory.” He views his sources of knowledge from NICEIC textbooks, industry update bulletins, and trade magazines in addition to his initial acquisition of industry-related knowledge.

For P1 and P2, from a curriculum development perspective, the disciplinary knowledge of aviation and gas service sectors, respectively, needs to be selected and refocused in appropriate bit size for each lesson. Lesson planning over the duration of the 1-year program is required. Also required is the establishment of the appropriate academic level for the learners (Shulman 1987; Verloop et al. 2001; Loughran et al. 2003). Winch (2015) suggested an arbitrary rule of equivalences, which is a level below the “academic equivalent” provision concerning the vocational one. P2 suggested the depth of knowledge that his students needed was not the same as the advanced level equivalent (Level 3) in the related subjects but necessary for their occupational practices. The unspecified knowledge level places the onus on the deliverer to ascertain the appropriate academic level of disciplinary knowledge for the learners, the amount for a given lesson, and ultimately the teaching strategy to disseminate it (Bernstein 1996).

Also, participants such as P2 espoused the related pedagogic theory for their subject area where he mentioned his charges were more likely to be kinesthetic learners. He also indicated that he would use a social constructivist learning theory to engage with his learners to aim for “at the end of the first year of the BTEC programme, the learners would have developed synthesis, analytical and critical skills and discussion abilities.” For P3, a health-care and social care lecturer at an FE college with 8 years’ full-time teaching experience, utilized behavioral management strategies, and P1 used Bloom’s taxonomy (Anderson et al. 2001) to enhance her travel and tourism students’ learning. These education theories may be drawn from disciplines of psychology, sociology, and business management (Loo 2014b). To date, knowledge from disciplines such as geography (by P1), physics and chemistry (by P2), and psychology (P3) is used to engage with their learners in their respective vocational areas. Similarly, they drew from disciplines of psychology, sociology, and business management to enable them to use their learning theories to make relevant their vocational areas via the content recontextualization process.

The next part of this section focuses on the applications of know-how of these teachers. Having selected and refocused the related aspects of the disciplines, the teachers would then need to apply the know-how to their specific teaching contexts. Some of these contexts relate to the appropriate academic level (Level 3) and the manner in which the specifications are delivered (such as front loading of theory before vocational practice as suggested by Clarke and Winch [2004] and learning while in work settings [Hager 1999]). Also, the contexts include the pacing of the content over the duration of the program (Bernstein 1996) and the specificities of the teaching institution (Shulman 1987; Banks et al. 1999). Finally, contexts may refer to the types of learners and the individuals' and group's requirements (Shulman 1987; Verloop et al. 2001). The relevant process – pedagogic recontextualization – utilizes the previous recontextualized know-how of pedagogic knowledge (from teaching) to modify the specifications in readiness for teaching.

This revised knowledge is known as applied pedagogic knowledge. Equivalent to this teaching dimension is the occupational/vocational strand. It is where the disciplinary know-how is made relevant for the particular vocational area via content recontextualization to become occupational knowledge, and this is then used in the vocational practices such as P1 in the aviation industry, P2 in gas fitting services, and P3 in health and social care.

Related to the pedagogic and occupation recontextualization processes is another type of knowledge – work knowledge. For teaching, this refers to knowledge of the educational institution. It can be the modus operandi of the particular FE college of P4, a female lecturer of fashion and textiles in an FE college where innovative pedagogic practices were encouraged. They included field trips to the Alexander McQueen exhibition at the Victoria and Albert Museum, London, and holding of thematic fashion shows on *Queen Elizabeth 1* and *Petrushka*. P2 uses IT software such as Socrative of crossword games and questions to encourage his students' learning of the related physics and chemistry theoretical knowledge as gas fitters. In addition to an institution's pedagogic vision, other work knowledge includes the availability of a mentoring system for teaching staff, IT systems, and institutional protocols. Examples include field trip guidelines that can frame and structure pedagogic activities (Kahneman 2012; Kemmis and Green 2013; Evans 2016), which may affect the pedagogic recontextualization process. Similarly, from a vocational dimension, the work knowledge includes the structures and protocols that are in place for occupational practices. They, in turn, affect the occupational practices along with the practitioners' occupational knowledge. These recontextualization activities produce modified forms of know-how. From the teaching dimension, it becomes applied pedagogic knowledge and, from the vocational strand, applied occupational knowledge.

The combinations of the modified know-how from the two dimensions – teaching and vocational/occupational – finally undergo another recontextualization process known as integrated applied recontextualization (IAR) where the related know-how is fashioned to ascertain the choice(s) of teaching strategies/approaches for application in the classroom/teaching setting. This final modified know-how is occupational pedagogic knowledge (OPK) or occupational teachers' capacities (OTC). The participants use metaphors and descriptive narratives to identify their teaching

approaches (Lucas et al. 2012). P2 uses terms like “teaching in conference style,” “building up layer by layer to help my learners,” “workshop-based teaching,” and “the use of analogies of tractor and bicycle types” to illustrate the impact of gas flows of varying sizes of gas tubing. P3 has a strong notion of “differentiation” to engage with her health-care and social care students and identifies with “Maslow’s hierarchy of needs” in ensuring a safe environment in her health-care and social care work with vulnerable families. Participants (such as P1 and P4) mentioned the symbiotic relationships between their teaching and occupational practices. P1 and P4 encapsulated the IAR process where “both teaching and occupational know-how are reflected in the specifications.”

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## Summary

This study focused on how vocational deliverers used their teaching know-how to teach on work-related provisions in the TVET sector. In delineating this investigation and using circumscribed accounts of the relevant literature sources on knowledge and recontextualization processes, this chapter offers some contributions. Firstly, teaching know-how is defined broadly to include experiences, vocational practices, abilities, capacities, skill sets, and judgment. Secondly, a conceptual framework of TVET/occupational pedagogy of teachers is offered using five types of recontextualization processes, and thirdly, a definition of occupational pedagogic knowledge or occupational teachers’ capacities is offered. Lastly, a deeper understanding of how TVET teachers acquire, make relevant, and apply their know-how from the curriculum development stage to the choice and use of pedagogic strategies in particular teaching contexts is explained. These contributions have implications for users such as teachers, managers and teacher educators of TVET provisions, and policymakers. For educators, a clear understanding of the sources and types of teaching know-how legitimizes and supports them in their complex pedagogic activities with clear implications for their continuous professional development. Managers and teacher educators need to include the eclectic definition of teaching know-how into their managerial and teacher training planning and implementation processes to support the teachers and, ultimately, to enhance the learners’ learning. Policymakers need to offer financial and pedagogic structures to facilitate the teachers’ pedagogic roles in the teaching institutions, provisions, and the relevant work settings with the aim to provide credible TVET provisions.

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# The Importance of VET Teacher Professionalism: An Australian Case Study

# 88

Erica Smith

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## Abstract

The effectiveness of vocational education and training (VET) systems depends upon their teachers. The teachers are regarded as “dual professionals,” requiring expertise in both their background industry areas and in VET pedagogy itself. This chapter uses Australia as a case study of what happens when the accepted regime of qualifications for VET teachers alters. In Australia full-time VET teachers were, until recently, required to undertake degree level qualifications in VET pedagogy, taught at universities, either before or, more usually, after entering the occupation. The required level has now reduced to the regulatory minimum of a Certificate IV level qualification, taught by training providers not

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universities, and often provided to their own teachers. The qualification contains only 300 nominal hours of training. It has been recognized as a particularly poorly taught qualification, requiring the introduction of a high degree of regulation and most recently a special compliance framework for training providers wishing to deliver it.

In this chapter, the historical path of the decline in VET teacher professionalism in Australia is charted, including research evidence from a national project managed by the author, about the effects of higher-level qualifications on VET teacher practices and quality and teachers' propensity to engage in professional development. A conceptual model of the attributes of professional VET teachers with regard to qualifications and professional development is presented. The chapter concludes with some recommendations for change and implications for other countries.

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**Keywords**

Vocational education teacher · Australian system · Teacher professionalism

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**Introduction**

In the introduction, the VET system in Australia is briefly described, together with a discussion of the qualification regime for VET teachers. This chapter confines itself to the formal VET system, i.e., the teaching and assessment of formal qualifications, whether delivered in training institutions or within workplaces. It does not include company trainers working in companies which are not involved with the award of formal qualifications, nor with those working on VET programs within secondary schools even if formal VET qualifications are awarded. The reason for the exclusion of the latter so-called "VET in school" teachers is that they are required to adhere to the qualifications regime for school teachers, which always demands a pedagogy degree or above.

In 2016, the most recent year for which precise figures are available, there were around 1.3 million government-funded learners in the VET system (National Centre for Vocational Education Research 2017), with a large number of additional non-funded participants paying full fees. (The system for counting non-funded students is not reliable.) The public VET provider in Australia is known as TAFE (Technical and Further Education). TAFE colleges are managed by the eight States and Territories. Until the end of the last century, most formal qualification-based VET was delivered by TAFE, with private providers only having access to specific government funding programs. Indeed, prior to the 1980s, all private provider courses were fee-paying. Regulation of the VET system at this time was minimal. The system has now moved to a position where private providers of training, through progressive access to all types of government funding and to VET student loans (known initially as VET FEE-HELP), have much greater market share, although this is beginning to reverse due to the deregistration of some large private providers because of

poor business practices (Yu and Oliver 2015). There are over 4500 private providers (PwC's Skills for Australia 2017) and 40 TAFE institutes, each with multiple campuses. In some States, one TAFE institute covers the whole state. The recent de-registration of some for-profit providers, and also cuts to funding rates by states and territories, has led to the current relatively low figure of students which is below the 2003 figure (NCVER 2017) although Australia's population increased considerably, from 20 million to 24 million.

In 2008, it was estimated that there were 57,800 full-time TAFE teachers in Australia, but it is thought up to 300,000 or even 400,00 people were involved in VET teaching or workplace training as part or all of their jobs (Guthrie 2010c). The exact number of VET teachers is unknown as there are many part-time and casual teachers who are not recorded centrally by most training providers. In Australia, it is the norm for VET teachers to enter the occupation after a career in industry, often a lengthy career. For this reason, the majority of VET teachers are middle-aged or older (Smith et al. 2009)

From around 1975, full-time TAFE teachers starting work were required by their employing state or territory to gain, while working, a university diploma in VET teaching (which became a degree around 1990) or a graduate diploma if they already had a degree in another discipline area (Guthrie 2010a). In each State, at least one university provided such qualifications (Harris 2015). In 1998, a Certificate level qualification (now called the Certificate IV in Training and Assessment) was approved, containing only 300 nominal hours of training. The qualification was introduced to provide a mandated "floor" for qualifications for VET teachers; this however rapidly became a "ceiling" (Smith and Keating 2003; Wheelahan and Moodie 2011). Over the first decade of the twenty-first century, progressively in each State-based TAFE system, the requirement for pedagogical qualification for full-time TAFE teachers was reduced to this regulatory minimum. According to the Australian Qualifications Framework (<https://www.aqf.edu.au/aqf-levels>), level 4 qualifications "will have theoretical and practical knowledge and skills for specialised and/or skilled work and/or further learning." To set this in context, a trade apprenticeship is at level 3; the VET sector delivers mainly to level 6, and a degree is at level 7. The minimum qualification for the lower level of nurses (known as "enrolled nurses"), for example, is a diploma, at level 5. In recent years, Australian government-sponsored reports have shown, on many occasions (e.g., Skills Australia 2011), deficiencies which could to some extent be attributed to a low level of qualification among VET teachers. For example, an ongoing concern has been the quality of assessment of learners.

After a background section, this chapter maps changes in qualifications and professional development provision for the VET workforce and suggests contextual reasons why this was allowed to occur. Findings from a national research project concluding in 2017 and led by the author are provided to show the difference that higher-level qualifications make both to teaching and to engagement in professional development. The chapter concludes with a model of VET teacher professionalism and some recommendations for change and implications for other countries.



## Background and Literature

In this section, more detail is provided about the complexity and importance of VET teachers' work in Australia. The qualification regime for teachers is explained further, the nature of professional development is described, and the concept of professionalism is introduced.

### The Nature of Teaching and Assessment in VET

Since the late 1980s, the VET system has moved entirely to a competency-based system. In Australia this means that the competencies to be attained (which contain skills as well as knowledge) are clearly defined on a national basis, but the training delivery method is not so prescriptively laid out. Since around 2000 (beginning in 1997), the competencies have been laid out in national Training Packages (Smith and Keating 2003). A few courses fall outside these, but the vast majority are within this system. Prior to 1997, competency-based training (CBT) was delivered in some industry areas using “national modules” or industry-developed standards (Smith 2010).

A Training Package contains qualification and units of competency, each with an accompanying assessment guideline. The Package provides rules about how the units of competency are combined into qualifications, at different levels. Qualifications have cores and electives. In some qualifications the core forms most of the qualification, while in others, there is a small core and a large range of electives from which a specified number are then chosen by the RTO to deliver. The Certificate IV in Training and Assessment itself is included in the Training and Education Training Package (hence, it is shown as the “Cert IV TAE” rather than Cert IV TAA). Training Packages contain no guidance about delivery, as this has not been permitted by the Training Package Development Handbook (Department of Education & Training 2015) except that proxies for delivery may be found in the assessment guidelines. These may include, for example, the need for assessment to be carried as part of a work placement. Thus, teachers have the task of creating a “curriculum” from the units of competency and assessing the learners, although in practice many training providers have developed prescriptive methods for delivery and also for assessment, for quality assurance purposes, and because they find teachers are not capable of development of curriculum (Smith 2016).

There have been well-documented cases of unethical – indeed sometimes criminal – activity by some private providers, using government funds inappropriately or recruiting students unwittingly to VET sector student loans (e.g., Yu and Oliver 2015). These instances, and reports by the regulatory body, have included widespread evidence of inadequate course length (Australian Skills Quality Authority 2017) and other delivery issues. TAFE institutes and reputable private providers report being forced to “cut corners” in order to compete (Guthrie et al. 2014). As the VET system in Australia, being competency-based, focused on outcomes rather than inputs, with assessment being of overriding concern, it has been difficult for the regulatory system to move against inadequate training provision.

## Expertise Required of VET Teachers Compared with Their Qualification Levels

There have been expressed concerns by most stakeholders in the Australian VET system that quality in the system is declining, evidenced partly through poor business practice as explained above but also because teachers appear to be lacking in the necessary skills and knowledge to work with the national VET curriculum regime and to assess students (National Skills Standards Council 2013). It has been recognized since the early days of competency-based training that teachers needed high-level skills and knowledge to work in a competency-based system (e.g., Smith 2010). In recent years, other matters have necessitated higher-level activities by VET teachers, such as the requirement to liaise closely with industry and the increasing diversity of student groups. In this context, a Certificate IV seems an inadequate level of qualification, as has been shown in several ways. Robertson (2008), for example, mapped the qualification against accepted knowledge bases of teachers, and a comparison was made between the documented requirements of the job against Australian Qualification Framework levels (Australian Council of Deans of Education 2011) in a submission to a Productivity Commission inquiry into the VET workforce (Productivity Commission 2011). The latter report showed clearly the complexity of the tasks involved in VET teaching but did not recommend an increase in qualification levels, primarily because there was a fear that people might not be attracted to the occupation if they had to gain higher-level qualifications. Finally, while teachers cannot be expected to compensate for poor business practices by management in private training providers and indeed TAFE colleges, ethical issues posed by such practices have become a major concern to teachers (e.g., Nakar 2017; Smith 2016). The Certificate IV qualification does not contain any component about such matters, to equip teachers to forestall or address events such as being required to enroll students who are clearly not capable of completing a particular qualification (Nakar 2017).

As well as the inadequate *level* of the qualification, problems with the *delivery* of Certificate IV in Training and Assessment have been well-recognized; such problems in this qualification exceed the sector norm. To some extent, the problems are shared with some other VET sector qualifications where relatively new regulation is involved. The Certificate III qualifications in the security and aged care industries, for example, exhibit similar patterns of poor delivery practices to the Cert IV TAE but are, likewise, popular qualifications for students, as they are necessary to undertake work in the respective industries (Halliday-Wynes and Misko 2013). While these industries are regulated to some extent, there is no industry body providing licensing or regulation of practitioners or qualifications as there is in other industries such as engineering, electrotechnology, or financial services; hence the pressure for learners to gain qualifications has led to demand for courses that provide the qualification quickly and at low cost but are unlikely to develop significant learning. The Certificate IV qualification has always had notoriety as being delivered in an unduly short manner, often partly or even wholly by Recognition of Prior Learning, or in weekend courses (Smith and Keating 2003).

In response, a degree of regulation and a special compliance framework specifically for this qualification have been implemented via changes to the “provider standards”

(Commonwealth of Australia 2014) used for audits by the regulatory agency for the VET sector (the Australian Skills Quality Authority). Revised regulatory standards for training providers were introduced in 2016 for training providers, requiring inter alia evidence of VET teachers' professional development in VET pedagogy as well as in teachers' industry areas (the latter have always been part of training provider standards), in an attempt to boost teachers' capabilities. Also in this update, higher-level qualifications in what was termed "adult education" were deemed to be equivalent to the until-then mandatory Certificate IV level qualification; and higher-level VET pedagogy qualifications (i.e., diploma or above) were from 2016 required to teach the Certificate IV qualification. In 2016 the large number of training providers allowed to deliver the qualification was reduced through an expedient of making changes to the qualifications that allowed it to be declared "not equivalent," requiring every training provider to re-register for the updated qualification and for the Diploma of VET as well (PwC's Skills for Australia 2017).

Since the advent of the Certificate IV as the mandated qualification, it has been left to individual TAFE institutes or private training providers to encourage teachers to undertake higher-level pedagogical qualifications. The VET sector's Diploma of VET' qualification is popular in some states where there is a TAFE teacher pay rise associated with completion (Guthrie 2010a) and TAFE colleges tend to deliver the diploma to their own teachers during working hours, reducing perceived burden on teachers. There are also a much reduced number of teachers undertaking degree or graduate diploma qualifications in VET teaching while they are working. Numbers are low partly because there is an expectation based on previous practice in the public system that such study would be funded by the employing TAFE institute and time off for study provided; and training providers are not always in a position to provide this level of support, in a reduced funding environment in the public system. The VET teacher trade union has, for this reason, not aided or been involved in any moves for higher qualification requirements, although in public pronouncements the union has provided generalized support for the principle (Australian Education Union 2010).

The universities offering VET teacher training have reduced in number and capacity, and all programs are now offered only by distance (online and/or printed learning materials), sometimes with occasional face-to-face workshops. Nevertheless VET teachers report a high level of satisfaction with their experiences studying such courses (Smith et al. 2015). These universities have formed an official group within the Australian Council of Deans of Education (faculty heads of the Education discipline in universities) known as ACDEVEG, the Australian Council of Deans of Education Vocational Education Group (<https://www.acde.edu.au/networks-and-partnerships/acde-vocational-group/>). This group lobbies for higher qualifications for VET teachers as well as working with VET sector stakeholders to improve the Certificate IV qualification and generally lift the standard of VET teaching.

It should not be forgotten that, in Australia, teachers in the VET system are also required to have industry qualifications, as well as experience in the industry for which they are preparing or upskilling students. Generally, teachers' qualifications in the industry area need only be at the same level as the qualification being taught by that teacher, but some training packages have additional requirements. By contrast,

in the higher-education regulatory framework in Australia, there is a general “one level higher” rule (Commonwealth of Australia 2015). However it should be noted that in some discipline areas, VET teachers routinely have degree level industry qualifications; these are often apparent in, but are not confined to, “professional” areas such as nursing, marketing, and social welfare. All VET teachers (except those in specialist roles such as literacy support) are required to maintain their industry currency and engagement (Smith et al. 2009), and most identify with their previous industry areas as well as with their role as teachers.

## Professional Development for VET Teachers

Professional development (PD) for VET teachers is important and is needed in both “educational and industry-specific expertise” (UK Commission for Employment and Skills 2010). However, with recent funding cuts to the VET sector, fewer resources are available for PD, with teachers increasingly needing to take responsibility for their own PD. It has been established that engagement in PD by VET teachers is affected by many factors, with the nature of “initial teacher qualification” being one among many (Smith 2000; Guthrie 2010b). Professional development is also pointed to as part of a potential solution to the quality of VET teachers especially given the decline in qualification levels (e.g., Wheelahan and Moodie 2011; Smith et al. 2009; Harris et al. 2001).

But teacher engagement in professional development is often patchy and influenced by many factors (Smith 2000). One complication is that many VET teachers and trainers work part time or undertake the role as part of other jobs (Guthrie 2010b), although as Guthrie and Every (2014) argue, there is a substantial core who sees their main role as teaching/training. Substantial barriers to undertaking PD have been identified, including time, access, lack of funding, lack of information, and cost (Harris et al. 2001). In the VET sector, there is a perennial issue of “who pays” for PD and the need for more information “about the relative contributions being made by VET staff and their employers to relevant training” (Guthrie 2010b:19). It has been noted that the approaches of public and private VET providers to PD differ (Harris et al. 2001). Harris et al. (2001) noted that TAFE institutes were more likely to have specialist staff development structures and the internal capacity to deliver a wide range of PD activities, including formal qualifications, than private providers.

## Professionalism

While this chapter focuses on VET teacher qualifications and to a lesser extent professional development, as these issues are being discussed in terms of their contribution to the professionalism of the VET teaching workforce, it is necessary to provide a brief overview of the concept of professionalism. It is recognized that professionalism is a large topic which is contested in the literature, and all of the debates cannot be covered. Many occupations describe themselves as professions. Long-established occupations such as school teaching, medicine, the law, the church,

and the military have traditionally been seen as professions (Tobias 2003). Tobias claims that new professions or *quasi-professions*, such as accounting, architecture, nursing, engineering, pharmacy, and surveying, display only some of the traditional characteristics of a profession, but by no means all (Tobias 2003). Saks (2012) sees a profession as a body of people engaged in significant and cognitively complex service for society that requires specific education and adherence to ethical regulation (Saks 2012). The Australian Council of Professions defines a profession as:

A disciplined group of individuals who adhere to high ethical standards and uphold themselves to, and are accepted by, the public as possessing special knowledge and skills in a widely recognised, organised body of learning derived from education and training at a high level, and who are prepared to exercise this knowledge and these skills in the interest of others. <http://www.professions.com.au/about-us/what-is-a-professional>

It is clear that the possession of a high level of “education and training” is seen as an integral part of professionalism in these definitions. This is usually understood to be, and operationalized via, requirements for initial qualifications and for ongoing professional development. A profession is seen as policing such a body of knowledge, regulating learning practices, admission, and subsequent practice (Professions Australia 2006). It is recognized that professions and the concept of professions evolve over time and involve matters of power and influence (Crues and Crues 2004; workfare Abbott 1988), but the concepts of expert knowledge and of attention to the public benefit seem to remain constant.

VET teachers in Australia do not tend to regard themselves as professionals; in fact “practitioner” is the term preferred by the sector (e.g., Innovation and Business Skills Australia 2013), with even the word “teacher” being unpopular in some quarters, with some people preferring to use “trainer.” The latter term is used by the national regulatory body, ASQA, for example. Yet there has been discussion in recent years by researchers (e.g., Wheelahan and Moodie 2011; Guthrie and Clayton 2012) and in government reports (e.g., Department of Education & Training 2016) about the possibility of establishing a professional body and/or a registration body. These align with debates over the years in the UK where plans were actually carried to fruition, with a professional membership body, the “Society for Education and Training,” now managed by the Education and Training Foundation (<http://www.et-foundation.co.uk/about-us/>). However currently there is no appropriate body in Australia to manage such functions and a reluctance to establish an additional body.

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## **Developments in VET Teacher Qualifications and Professional Development in the Decade to 2018**

The previous section has established the complexity of VET teachers’ work, the changing and sometimes chaotic environment in which they operate. and, paradoxically, the low level of qualifications existing in the workforce and the barriers that exist for participation in professional development.

A chapter on the Australian VET teaching workforce published in a previous Handbook (Smith 2009) recorded the variety of teaching and training roles, classifying teachers by their site of practice, their role focus, and the formality of training which they delivered. Some challenges to practice were analyzed; and it was noted that the Certificate IV qualification was flawed and that professionalism of the VET workforce was essential in order to ensure continued development of skills and knowledge. This list of challenges seem relatively minor with those faced today.

The 2009 chapter (Smith 2009) provided an account of qualifications and professional development for VET teachers at that time, under a series of headings. Table 1 below uses these headings to provide a comparison of the account presented in that chapter with the situation a decade previously, as set out in Smith and Keating (1997), and a decade later, in 2018.

This table documents a number of events which have occurred. The main features can be summarized as:

- A reduction in the qualification levels required of full-time VET teachers.
- The introduction of a minimum qualification for all VET teachers which has been a consistent failure through various iterations.
- The withdrawal of national and State governments from responsibility for professional development.
- A change to professional development within training providers from being provider-led and even, in some instances, teacher-led to a focus in compliance with an audit regime requiring evidence of PD.
- A consistent failure to conceptualize how workplace trainers delivering non-qualification-based training should be accommodated within the qualification regime for VET teachers.

For example, there have been constant but minor changes to the Certificate IV qualification. These changes have been undertaken to meet perceived inadequacies in the VET system or in the economy. For example, a unit on “Developing assessment tools” was included as core in the qualification in 2016 to meet accusations of poor-quality assessment, and a unit of competency on addressing language, literacy, and numeracy in VET students was the result of peak industry bodies arguing that the general workforce’s skills in these areas were too low (PwC’s Skills for Australia 2017).

But there have been some positive developments, which are indicated by the word *However* in a small number of places in the table. These include, for example, a probable major review of the Training and Education (TAE) Training Package led by the Education Industry Reference Committee which now manages this Training Package, subject to approval from the national government committee which approves development work on Training Packages.

**Table 1** Changes to VET teacher qualifications and the provision of professional development over the two decades 1997–2018 in Australia

	1997 and 2008	2018
“Initial teacher training” via universities – almost always undertaken after commencement as a VET teacher and while working in the role	In 1997, this training was undertaken by all new TAFE teachers	Fewer universities offering VET teacher training, with fewer students. Some universities now combine their degrees with preparation for teaching “VET in schools.” All students are now studying part time and at a distance, and all programs offer credit for the Certificate IV and occasionally Diploma of VET. Two states offer pay incentives on completion of university such as qualifications in VET teaching
	In 2008, “initial teacher training” via universities was beginning to be less common as it was no longer a requirement in any state. Programs generally embedded or offered pathways from the Certificate IV	<i>However</i> , a “higher-level qualification in adult education (either the Diploma of VET or university degree) is now recognized as an alternative to the Certificate IV TAE
Certificate IV qualification in Training and Assessment	In 1997, there was no national qualification. There were “Category 1 and 2” workplace trainer standards. TAFE systems offered introductory courses for part-time teachers	This qualification has had many small changes since 2009, some of which required, variously, either all teachers or only new teachers to gain additional units of competency. It is still the main VET pedagogy qualification. However, there is the “higher-level” proviso. A higher-level qualification is now needed to teach the Certificate IV qualification. There is a Diploma of VET within the TAE Training Package. Because of poor quality, the 2016 update was made “nonequivalent” which meant that all providers had to re-register to deliver either the certificate or diploma qualification. Approval of re-registrations was deliberately slow to try to improve quality

*(continued)*

**Table 1** (continued)

	1997 and 2008	2018
	By 2008, there had been two iterations of a Certificate IV qualification which was the only VET pedagogy qualification recognized by the regulatory system in VET. It was not well respected	<i>However</i> , the qualification will be reviewed comprehensively during 2018–2019
National-level and state-level professional development	In 1997, a National Staff Development Committee, which had provided national leadership for some years, had just been disbanded. Among other programs, it had run a “CBT in Action” program and programs on disadvantaged groups	The national government ceased to have direct role in staff development in 2011; the “Reframing the future” web site with details of previous programs was decommissioned. State governments do not provide professional development, except that the Victorian government alone provides substantial funding to a semiprivate entity known as the VET Development Centre. (However as some States have state-wide TAFE systems, it may be argued that their PD systems are State-funded and supported). The national regulatory body (ASQA), which replaced State regulatory bodies in 2011, does not have the remit of offering professional development and will not offer advice
	In 2008 the national government still encouraged professional development, but not directly, via a program known first as “Framing the future” and then as “Reframing the future.” It provided funding which was provided to ideas put forward by training providers or groups of providers. State governments provided programs in-house sometimes offered via the regulatory authorities which were State-based	<i>However</i> , changes to the Provider Standards (against which audits take place) since 2016 require training providers to show that their staff regularly update their knowledge and skills in both their discipline areas <i>and</i> in VET pedagogy. <i>But</i> large private PD providers have grown rapidly as a result in order that providers can show compliance with this standard A national body of state managers of VET workforce development, which also incorporated a representative

(continued)



**Table 1** (continued)

	1997 and 2008	2018
		of university providers of VET teacher education, ceased to meet in 2015 as state bodies were gradually closed down
Provider-level staff development	In 1997, professional development was carried out in different ways by different training providers, although there were commonalities in topics such as a focus on working with CBT and recognition of prior learning	With the frequent changes to the Certificate IV, a large part of in-house effort has gone into updating teachers so that they are compliant with the requirements. A requirement for 2018 is for all teachers to gain units of competency on developing assessment tasks and on incorporating language, literacy, and numeracy into their teaching. This is reported to be taking all available PD effort in some TAFE institutes. In-house units in larger providers deliver the Cert IV and sometimes Diploma to their own staff, often separately from the departments that deliver these qualifications to other students. Otherwise PD units spend most of their time ensuring that teachers meet the requirements in the 2016 Provider Standards to undertake regular PD in both industry and pedagogy
	In 2008, providers were required to document how they developed their staff. Some providers, public and private, had staff development units. Industry currency was seen as being the most important type of teacher development	<i>However</i> , some larger TAFE institutes or statewide TAFE systems (e.g., TAFE Queensland) have developed capability frameworks for their teaching workforces
Industry trainers	In 1997, workplace trainers were very much part of the national training picture. The “Category 1 and 2” standards were ostensibly for workplace trainers	Dissatisfaction remains with the relevance of the Certificate IV for industry trainers. The Enterprise RTO Association (companies who are registered as training providers – registered training organizations – for their own

(continued)

**Table 1** (continued)

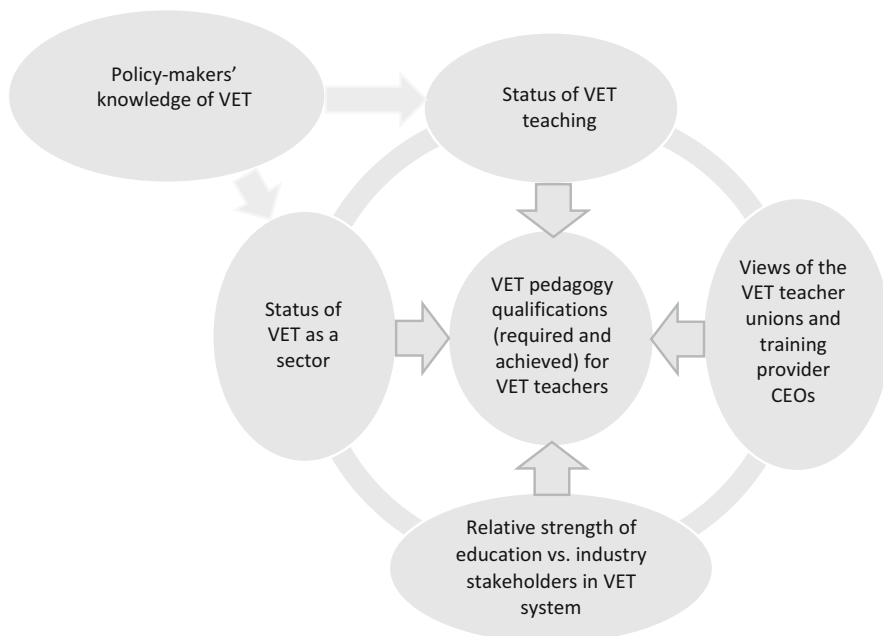
	1997 and 2008	2018
		workers) is vociferous in its opposition to the Certificate IV even for trainers who deliver and assess VET qualifications as opposed to other training for workers. There is no other qualification suitable for industry trainers outside the VET system
	In 2008, it was recognized that the Certificate IV qualification had never applied well to trainers in industry. But where (occasionally) a company awarded VET qualifications, trainers were required to hold the qualification	<i>However</i> , the planned 2018–2019 review of the TAE Training Package proposes to address this matter

Sources: Smith and Keating (1997: 194–203) and Smith (2009)

## Reasons for the Low Levels of Qualification and of Professional Development in VET

In this section an attempt is made to explain how this deteriorating situation has occurred. At first glance, it seems surprising that a country should deliberately reduce the qualifications required for its VET teachers and that the national government should remove itself from responsibility for professional development. Over the same period of time, and particularly in the last decade, there has been considerable focus on school-teacher qualifications (which have been at degree level and above for decades), with considerable intervention by governments at both national and state level in the content of university school teaching-training programs and in the entry levels for these programs (e.g., Department of Education 2015). Also, in early childhood teaching and care, while the basic qualification for childcare workers is only at Certificate III level, there is now a requirement for a proportion of workers to be diploma-qualified and degree-qualified (Margetts 2014). University teachers are not required to hold a university teaching qualification, but most universities in Australia mount a graduate certificate program which they either require or encourage their own academics to undertake (Hardy and Smith 2006)

A tentative model is presented in Fig. 1, which may explain the low levels of qualification required of, and also undertaken by, the VET teaching workforce. In this Figure, which may also be applicable in other countries, the qualification regime is seen to be affected by the low status of VET in Australia and hence the low status

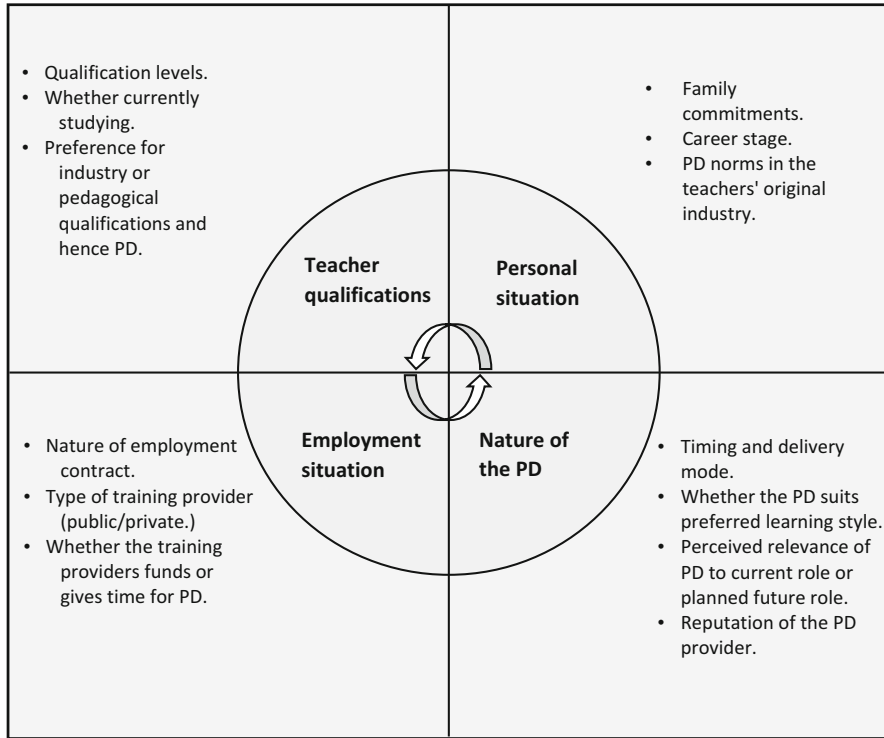


**Fig. 1** Contextual factors affecting the VET pedagogy qualifications required of VET teachers, and undertaken by the teachers

of VET teaching. One effect of this is that it is reportedly difficult to attract good applicants for VET teaching positions (Productivity Commission 2011). But another is that it makes it difficult to argue that VET teachers should be well qualified. The low status of VET and of VET teaching is compounded by the fact that those who make decisions in this area are unlikely to have had any direct experience of the VET system, as government officials are university-educated. It is therefore easy for them to underestimate both the importance of VET and the expertise required to teach in VET, as they know little about it. In the Australian system, the voices of industry dominate over those of educationalists (Smith 2010). Little attention is therefore paid to pedagogical issues; an assumption is that a good industry practitioner will be able to “transmit” knowledge and skills to learners without any teaching expertise.

None of these factors, of course, prevent individual teachers from gaining higher-level qualifications, nor do they prevent training providers from demanding that their teachers undertake higher-level qualifications. With encouragement from their employer and a supportive stance from their trade union, teachers can choose to study further. Hence the box on the right-hand side of Fig. 1 assumes extra importance when examining the *actual* take-up of higher-level qualifications.

Engagement with professional development is affected by the same issues as contextual factors, and there are also other, more direct influences on engagement. Figure 2, adapted from a model by Smith (2000), indicates a range of factors – some personal and some related to the teaching context – and is updated to the current



**Fig. 2** Contextual factors affecting engagement in professional development by VET teachers. (Adapted from Smith (2000))

VET professional development context in Australia. In this Figure, the level and nature of teachers’ prior qualifications is one factor that affects engagement in professional development.

### **Research Evidence on Whether Teacher Qualifications Affect the Quality of VET Teaching and VET Teachers’ Engagement with Professional Development**

Evidence is now presented from a national research project undertaken between 2015 and 2017, led by the author. The project was funded by the Australian Research Council (LP1401000440) and a number of partnering organizations from the VET sector. It was entitled “Would more highly-qualified teachers and trainers help to address quality problems in the Australian vocational education and training system?” and set out to answer the following questions.

1. What differences do VET teachers’ levels of qualification (both pedagogical and discipline-based) make to their teaching concepts, approaches, and practice?

2. How do levels of qualification affect VET teachers' engagement in further professional development activities?
3. In what ways do more highly qualified VET teachers contribute to improved quality in VET?

The project involved participating training providers and individual VET teachers from every State and Territory in Australia. The method involved initial interviews and focus groups of stakeholders, teachers, and students, two major teacher surveys, and two sets of case studies in public and private training providers, as well as a three-stage validation process with two sets of respondents. The phases and the numbers of participants are shown in Table 2.

As higher-level qualifications in VET pedagogy are still available, and as there is a legacy population of previously well-qualified teachers, a comparison between teachers of different qualification levels was possible. The key findings of the project were based on the qualitative and quantitative data and were as follows:

1. Higher-level qualifications in VET pedagogy improve teaching approaches, confidence, and ability to address diversity in contexts, learners, and AQF level of teaching.
2. VET teachers often have high-level qualifications in their industry area or other disciplines, and these too improve teaching approaches, confidence, and ability to address diversity in contexts, learners, and qualification level of teaching.
3. Higher-level qualifications in VET pedagogy make a significant difference to VET teachers' confidence in teaching a diversity of learners.
4. The key qualification level that makes a difference is a degree.

**Table 2** Research method for national project on VET teacher qualifications and quality 2015–2017

Phase	Activity	Number of research participants
1.	Stakeholder interviews	11
2.	11 focus groups of teacher/trainers and students	Teachers: 29 Students: 40
3.	National Teacher/Trainer Survey administered through 8 TAFE and 48 non-TAFE RTOs	574
4.	Case studies about the effects of teacher qualifications on teaching quality, at four TAFE and four non-TAFE RTOs. Interviews with managers, teachers, and students	128
5.	Professional Development Survey of teachers administered through three external professional development providers	368
6.	Professional development case studies at three TAFE and three non-TAFE RTOs. Interviews with managers and teachers	50
7.	Delphi process – three stage on-line survey	55
Total		1255

*RTO* registered training organization (public or private training provider)

5. Participation in both formal and informal PD, in both industry/discipline and VET teaching/training, increases with higher qualifications, irrespective of the type of qualification.
6. VET teaching/training PD needs to be tailored for teachers with higher levels of VET pedagogy qualifications.

In the final three-stage Delphi process (Phase 7), the findings were validated by the respondents who were (in Stream 1) policy-makers or other influencers in the VET sector or (Stream 2) chief executive officers or senior managers of TAFE colleges or major non-TAFE providers representing all categories of private providers.

The findings about the effects of higher-level qualifications on teaching approaches, addressing student diversity, and overall contribution to the employing training provider were very clear in qualitative and quantitative phases alike. While any type of higher-level qualification was helpful, VET pedagogy qualifications had specific utility in matters such as dealing with diverse teaching contexts and student groups. The Diploma of VET qualification made a difference; but the significant difference was at degree level.

Husband (Husband 2015), in the UK, found that teachers with shorter pedagogical qualifications report more need for professional development. Yet the Australian project showed that engagement in professional development was more common among more highly qualified teachers. They reported some dissatisfaction with the type of PD available from specialist commercial VET PD providers. It was disappointing to see all respondents report that the PD they undertook at external providers was most likely to be based around compliance with the VET sector audit regime rather than on pedagogical development. Teachers reported that in-house PD was also focused on compliance with the audit regime; and staff development personnel within training providers reported that the addition of PD requirements to the provider standards merely added another layer of compliance focus to the PD they could provide.

The Delphi phase respondents reported, with a very few exceptions, that the findings of the project rang true and advocated the mandating of the Diploma of VET as a minimum pedagogical qualification for all full-time VET teachers. Although all major stakeholder groups were involved either in the conduct of this research project or on the project reference group, it remains to be seen whether there is the will to translate the findings into a new qualification regime or into more strategic and rigorous professional development provision.

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## Implications for the Nature of VET Professionalism

A model of professionalism in VET teachers in Australia is now proposed (Table 3). It is based on consideration of the changes in the qualification regime and professional development provision since the turn of the twenty-first century and on the findings of the research project reported in the previous section.

**Table 3** Characteristics of different levels of professionalism in full-time VET teachers, based on research evidence

	Qualifications in VET teaching	Qualifications in discipline area	Professional development
Highly professional	The highest available VET teacher-training qualification (Degree or Graduate Diploma)	The highest available qualification of relevance to the discipline area	Engages in frequent professional development (PD), whether funded or not, and often in own time. Identifies and seeks out PD. Provides PD to others
Moderately professional	Diploma of VET	One level higher qualification than that taught to students	Engages in PD as often as possible when brought to attention; makes occasional own-expense and own-time contributions
Not professional	Certificate IV in Training and Assessment	The qualification level that is taught to students	Only attends PD where it is funded and in working time; may even avoid PD unless necessary

(i) The Australian context is used for this table, with regard to qualification level

(ii) Research evidence is taken from the research project discussed above, which is available at <http://federation.edu.au/research-vet-quality>

The research evidence is crucial in the development of this model. In the research, groups of teachers were interviewed who displayed markedly different approaches to qualifications and to professional development. This enabled clear distinctions to be made among different groups of teachers which in some instances were related to differing discipline areas and in some instances were not. The role of managers in colleges, and also of department heads in larger providers, was also very important, but in the end, the key differentiator appeared to be the attitude of the individual teacher. For instance, some undertook a Diploma of VET only because it entailed a rise (and were “surprised that [they] actually learned something,” in the words of one carpentry teacher). Some attended professional development only because of the new regulatory requirements in VET or because of the regulatory requirements of their industry area; some reported learning from professional development, and others were negative in their evaluation of events. Some sought out professional development; others only attended when they were urged to do so. Yet as Husband (2014) points out, more professional development is actually needed for teachers with less rigorous pedagogical qualifications.

## Conclusion and Implications

The discussion in this chapter leads to a conclusion that the VET teaching workforce in Australia has become increasingly de-professionalized. In terms of the literature on professionalism, the occupation lacks a “high level” of education and training; there is no acknowledged body of knowledge (Professions Australia 2006) for the

occupation; and, except for content in some university-level VET teaching qualifications, there is no discussion of ethical practice or the interests of others in the occupational qualifications. Professional development is mandated, but not by a professional body; it is now primarily a compliance requirement. In this context, while individual professionalism is possible, it is unlikely; Table 3 might be expected to show a heavy weighting toward the bottom right-hand corner.

It seems likely that the documented deterioration of quality in the VET system is at least partly due to the decline in the proportion of degree-qualified staff. In interviews undertaken in the case studies in TAFE institutes in the 2015–2017 research project, some managers reported that, on average, teachers were becoming less and less capable of developing assessment tasks for their students or of developing teaching programs. The managers needed to hire consultants to perform these tasks. Some also said that teachers could not understand basic principles of quality teaching; they saw quality as merely a compliance issue. Some private providers felt the need to provide all teaching and assessment materials to their teachers, even prescribing particular PowerPoint presentations which could not be changed. Managers were also finding it increasingly difficult to find candidates for promotion positions. In TAFE institutes, some managers said that many teachers were unable to contribute to working parties or to debates about appropriate teaching and assessment practices. While the project did not investigate how teachers approached the ethical dilemmas of, for example, inappropriate enrollment of students into qualifications, it is not unreasonable to imagine that without a high level of education, teachers would not be equipped to recognize or address such matters either.

The logical recommendation that can be drawn from the arguments in this chapter is that in Australia the teaching qualification, at least for full-time VET teachers, should be raised from a Certificate IV level to a VET Diploma level or preferably returned to the pre-1998 level of a university degree or graduate diploma. However, when this possibility is mooted, arguments about the cost to training providers (since it is assumed that teachers would refuse to pay for their own studies) or a perceived barrier to entry to the occupation (Productivity Commission 2011) are raised, regardless of the fact that these barriers did not seem insuperable before 1998. However, the cost of *not* qualifying the VET workforce, both to training providers and to the system as a whole, has been shown in this chapter to be great. In early childhood education, it was argued that the need for higher qualifications for teachers would make childcare unaffordable (Margetts 2014), yet the government proceeded to mandate them. Similarly, qualifications for school teachers have become longer and more rigorous; there would be no thought of reducing them below degree level. It would perhaps not be unreasonable to think that national and state governments think that VET does not matter very much compared with other sectors of education.

The matrix of professionalism in the VET workforce developed in this chapter may help VET teachers to locate their attitude toward their expertise as teachers, compared with others. It may also assist training providers in encouraging reluctant members of their workforce to take more responsibility for professional development. However, in the absence of a professional body, leadership is required at national and State levels.



Concern with the quality and qualifications of VET teachers is by no means confined to Australia; for example, recent initiatives have taken place in countries and regions as diverse as the UK (UK Commission for Employment and Skills 2010), Finland (Volmari Helakorpi and Frimodt 2009), and Southeast Asia (Paryono 2015). In England, for example, there are VET teacher training programs offered at different levels by the VET sector and by universities (Simmons and Walker 2013), as in Australia. For other countries there are clear lessons to be learned. If VET teachers are already qualified to a high level, there should be no countenancing any attempt to reduce the levels of qualification, no matter how powerful the lobbies that argue for such a reduction. If VET teachers are not already well qualified, the findings from the research project provided here make a powerful argument for considering increases to qualification levels. Since vocational education and training underpins nations' economies and provides the only available means of education for many people, particularly those from disadvantaged backgrounds, it needs to be delivered by highly expert teachers.

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# Professional Development of Vocational Teachers in Zimbabwe: The Past, Present, and Future

# 89

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## Abstract

The chapter traces the historical evolution of professional development of vocational teachers from colonial to postindependence Zimbabwe. Professional development of VET teachers has a long history in Zimbabwe and is officially recognized as an important component for improving the quality of teaching and learning. While there was a strong indigenous form of vocational education,

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since the colonial period, vocational education has been viewed as of lesser status. During the period of settler-colonial rule, vocational education was racially stratified and viewed as inferior, and this has continued into the postindependence years. While the periods of expansion, adjustment, and crisis all had a different impact on the way professional development was viewed, it continued to be a lesser priority when compared to general education. Currently professional development of VET teachers remains fragmented and in a state of neglect. It is argued that until VET generally is valued, that professional development of VET teachers will continue on the same historical trajectory.

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**Keywords**

Professional development · Vocational education and training teachers · Zimbabwe

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## Introduction

In developing countries there is a renewed emphasis on the potential of Technical and Vocational Education and Training (TVET) to play a catalytic role in addressing social and economic challenges and to actively create the conditions for development. Logically this requires skilled and competent educators, who are able to adapt to changes in the society, in the labor market, and in the processes of production. To what extent are the professional development needs of vocational teachers catered for? This chapter seeks to address this question by looking at the case of Zimbabwe, a country that has gone through a series of extreme social and economic changes. We trace the history of the professional development of Vocational Education and Training (VET) teachers from the pre-colonial to post-independence periods in order to understand what role teacher professional development played at each of these stages. We suggest that regardless of the state of economic development or economic crisis, vocational education and the preparation of vocational teachers have been relatively poorly supported despite policy that sought to promote it. By tracing the historical developments, we attempt to answer why that is the case.

Zimbabwe reflects many of the broader trends that have been identified throughout Africa. VET in Africa is provided in the context of weak national economies characterized by high population growth and fewer job opportunities (Union Africa 2007). It has a highly developed pre-colonial economy, a period of colonization and colonial settlement leading to a settler state, and a postcolonial period that initially saw positive growth and development followed by structural adjustment and economic and political crisis. Thus, while not all African countries have followed these trajectories, aspects of Zimbabwean history are reflected in most of them. The TVET system in Zimbabwe reflects patterns not dissimilar to those noted in studies of other countries (see European Commission 2015).

We start by defining key terms in the context of Zimbabwe. The first section discusses VET professional development policies in Zimbabwe. The later sections

of the chapter discuss the colonial and postcolonial as well as the current state of professional development of VET teachers in Zimbabwe.

## Vocational Education and Training

In the Zimbabwean context, VET is a comprehensive term used to describe technical education and vocational education, inclusive of training done in the workplace as well as in training institutions. The institutions range from primary and secondary schools to colleges and universities as well as industrial training centers. In primary and secondary schools, vocational courses are called practical subjects or vocational subjects. In Zimbabwe, terms such as Technical Vocational Education (TVE) and Technical and Vocational Education and Training (TVET) are sometimes used in place of VET. Generally, VET consists of technical education and training, which, in addition to its vocational aim, cannot neglect the general objectives of education (Ministry of Higher and Tertiary Education 2005). The dominant model in Zimbabwe VET is the competence-based education and training approach. Official policy on VET applies Bloom's taxonomy of learning, focusing on the three domains, namely, the cognitive (knowledge), the affective (moral aspects and values), and the psychomotor (skill area). In terms of weighting, the psychomotor domain accounts for 60%, cognitive 30%, and affective domain 10% (Ministry of Higher and Tertiary Education 2005).

## Professional Development

Professional development can be broadly defined as a capacity-building mechanism that seeks to develop an individual's skills, knowledge, expertise, and other characteristics (Corcoran 1995). Professional development helps VET teachers to keep pace with the constant changes in the world of work such as the introduction of new skills, migration and redundancy (UNEVOC 1997). It can take place in various ways. It is not limited to formal structured learning but can also occur in everyday activities at the work place (Broad 2016). Professional development for VET in Zimbabwe is not limited to formal courses such as diplomas, undergraduate, and postgraduate degrees but also includes nonformal programs. Professional development is used for the development of both pedagogical knowledge as well as occupation related knowledge. Bound (2011, 107) points out that planning and implementation of professional development need to be highly contextualized.

## VET Teacher Profiles in Zimbabwe

VET teachers are those teachers primarily responsible for teaching vocational skills. VET teachers have a dual professionalism; that is the expectation of quality in their technical subject area as well as vocational pedagogy (Andersson and Köpsén 2015).

This means VET teachers should be “Janus-faced” in terms of focusing on both the educational domain and the world of work, simultaneously.

VET teachers work in various educational settings (Billett 2011; Grollman and Rauner 2007). This is also the case in Zimbabwe where VET teachers are found in primary schools, secondary schools, colleges, universities, and workplaces. The titles given to VET teachers differ depending on the level of the VET system in which the teachers operate as well as the institutions they belong to. In both primary and secondary schools, VET is provided in the form of practical subjects by teachers who are trained in the particular vocational subject. Practical subject teachers teach both theory and practice. Practitioners who offer their services in industries are referred to as “trainers” or “instructors.” Those who serve at the postsecondary school level in vocational training centers, polytechnical colleges, as well as universities are called “lecturers.” In colleges and universities, there is a distinction between lecturers and instructors. Lecturers are mainly responsible for theoretical skill instruction. They were traditionally assisted by “instructors” or “laboratory assistants” responsible for demonstrations in laboratories and workshops. In colleges the distinction between lecturers and “laboratory assistants” or “instructors” has been eroded of late due to the shortage of funds to employ assistants. This has resulted in understaffing of many VET colleges.

Trained VET teachers work in a variety of settings depending on their expertise. The deployment of VET teachers into these various institutions is mainly based on qualifications they possess. UNESCO estimates that there are just over one thousand VET teachers in Zimbabwe; this number is insignificant compared to general education teachers who are estimated to be over one hundred thousand (UNESCO 2013). However, the distribution of VET teachers in Zimbabwe in terms of their qualifications is unknown.

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## **Importance of Professional Development of VET Teachers**

Internationally, professional development of VET teachers has become a central focus of economic and social policy in recent years (UNESCO 2011). This is because of the realization that quality VET teachers are a precondition for improving the capacity of the sector to supply skilled workers (Grollman and Rauner 2007; Axmann et al. 2015). Another development that necessitates professional development is the ever-changing roles of VET teachers due to changes in labor market structure as well as curricular and technology. By extension the quality of VET teacher training programs forms the basis for producing highly skilled teachers, which in turn acts as a base for organizing effective professional development programs (Yonemura 2011).

VET globally has been long regarded as an important attempt to make education more relevant to the world of work. The effectiveness of VET is to a greater degree influenced by the availability of qualified VET teachers who have skills that are continuously updated and responsive to the changes in the local and global landscape, hence the need for professional development. VET teachers therefore play

a significant role in the vocationalization of education in primary and secondary schools to help in the transition of students from school to work. It is, however, surprising that VET teacher training programs in most countries have not received attention which is consistent with the renewed interest in its contribution to economic development (Lloyd and Payne 2012). Grollman and Rauner (2007, 1) refer to the astounding paradox between the significance of vocational teachers and the status accorded to them. This is revealed by the few organized programs available for professional development as compared to those for teachers in academic disciplines.

The majority of policy makers in both developed and developing countries agree that VET contributes to economic prosperity of nations (UNESCO-UNEVOC 2016). However, this has not been complemented with efforts to improve VET teacher training and professional development. This is despite the recognition of the central role played by teachers in maintaining quality of learning at all levels from primary up to tertiary levels inclusive of VET. There is increasing concern over the limited opportunities for the professional development of VET teachers at the global level (Parsons et al. 2009; Lloyd and Payne 2012, 2).

Studies done on VET teacher training in the European Union and Africa reveal that there is a shortage of vocational teachers (European Centre for the Development of Vocational Training 2004; Grollman and Rauner 2007; European Commission 2015). Meanwhile, the few available teachers do not possess the required qualifications to teach in vocational settings. The quality of VET offered on the African continent is generally low, overemphasizing theory and certification rather than skills acquisition and proficiency (Union Africa 2007). Hence there is a need for constant updating of their skills through professional development (European Centre for the Development of Vocational Training 2004). For VET programs to be effective, the professional development of VET teachers needs to take center stage in response to changes in the world of work and self-employment (European Commission 2015). In order to understand teacher development in Zimbabwe, we need to understand how it has been viewed historically. It is to this that we now turn.

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## Professional Development of VET Teachers in Colonial Zimbabwe

Vocational education in Zimbabwe has a long history stretching to pre-colonial times. Before colonization, Africans had an established system of industrial education that flourished in the *Rozvi* and *Munhumutapa* empires (Ministry of Higher and Tertiary Education 2005). This training was in fields that included forge work, sculpture, painting, iron mongering, and architecture (Ministry of Higher and Tertiary Education 2005, 1). It is, therefore, possible that technical education in Zimbabwe has links with the craft education of pre-colonial times. Its provision was in the form of apprenticeship in the classical sense. The apprentices of the time were mainly young men and women trained by their skilled senior kinsmen and kinswomen. The latter were the “trainers,” experienced in various trades (Busia 1968). Evidence of these skills still exist in modern-day Zimbabwe, for example, the Great Zimbabwe Monuments, the rock paintings in Matopos, and artifacts across the



length and breadth of the country that testify to the presence of such artisans. The traditional apprenticeship system benefited the economy in that it provided tools for use in agriculture, mining, and building.

Britain colonized Zimbabwe as part of the general partition of Africa following the 1884–1885 Berlin Conference (Dube 2017). Colonization meant the introduction of colonial education that was informed by British education policies. The nature of colonial education was summarized by Zvobgo (1981, 13) who notes that, historically, two salient features characterized the educational system. It was racially segregated, and education for the African majority was largely for exploitation. Siyakwazi (2014, 33) notes that colonial education policies in Zimbabwe were inadequate and deficient in fulfilling the aspirations of African learners, for it promoted inequality, repression, and discrimination.

The earliest attempts at establishing a VET policy in colonial Zimbabwe was the Master and Servant Act of 1891 followed by the Education Ordinance of 1899 (Zengeya 2007). While the Master and Servant Act stipulated conditions for apprenticeship training, the Education Ordinance specified the need for industrial training and laid the foundation for teaching low-level skills along racial lines. The Education Ordinance of 1891 set up two separate systems for the education of whites and blacks just 9 years after the occupation of Rhodesia. Education for Africans was offered exclusively by missionary churches with minimum government support through grants. The curriculum for Africans was purely vocational with half the time allocated to industrial training (Siyakwazi 2014; Zvobgo 1981). The purpose of this curriculum was to make Africans manual workers in the fields of building, carpentry, bricklaying, and agriculture and thus prevent them from competing for “white jobs” (McGrath 1993; Zvobgo 2007). The Native Education Commissioner made it clear that education for African students was meant to enable him to take his place in life, a life which is and will continue to be predominantly rural (Zvobgo 1981). This was supposed to be the focus of missionary schools. These schools were underfunded and could not enroll large numbers of students. That distinction negatively affected Africans’ perception of the education they were offered.

It is worth noting that European schools, on the other hand, were subsidized through government grants that covered salaries of teachers and equipment. Such assistance was nonexistent in African schools (Zvobgo 1981). Disproportionate funding of education along racial lines meant fewer professional development opportunities for African VET teachers. The colonial government took overall responsibility in the running of European schools which had a mainly academic outlook though it embraced a vocational element aimed at producing managers and supervisors. The education system for whites had clear dual pathways for academic as well as vocational education (Madondo and Phiri 2014). European children were given incentives to encourage them to attend school. They also had access to secondary education. This was also strengthened by the promulgation of the Compulsory Education Act of 1930 which made education free and compulsory for European children. The colonial government only assumed full responsibility for African primary education in 1945. Consequently, missionaries dominated the provision of teacher education for Africans (Zvobgo 1996).

The vocationalization agenda, however, dominated debates on curriculum in colonial and postcolonial Zimbabwe. This is evidenced by the commissions of inquiry set up to investigate ways of vocationalizing the school curriculum in the country (Mandiudza et al. 2013). The pre-independence commissions included the Phelps Stokes Commission, the Frank Tate Commission of 1929, the Fox Commission of 1935, the Kerr Commission of 1952, and the Judges Commission of 1962 (Mandiudza et al. 2013; Zengeya 2007). The above commissions contributed immensely to the growth of VET, especially the Phelps Stokes and the Judges Commissions. The Phelps Stokes Commission led to the setting up of Jeanes schools in Africa in 1924. Jeanes schools were “industrial” schools set up in Kenya, Nyasaland, and Northern and Southern Rhodesia (King 1971; Davis 2013; McGrath 2011). In Southern Rhodesia the first two Jeanes schools were opened at Domboshawa near Harare and Hope Fountain near Bulawayo providing training in agriculture (both crop production and animal husbandry), building, and wood work. The trainings had both theoretical and practical components needed by agricultural and home demonstrators (Davis 2013). This was the first attempt at establishing training centers for vocational teachers in colonial Africa.

Just like general education, VET curriculum in colonial Zimbabwe was racialized. The Judges Commission in 1962 made recommendations that led to the introduction of different technical and vocational education curriculum for blacks and whites. This signaled the formalization of a practical/vocational curriculum for blacks, known as the F2 system, which ran parallel to the prestigious F1 “academic” and higher technical system for whites, Asians, and coloreds. The F2 schools for Africans were introduced in 1970 (Mupinga, Burnett and Redmann 2005; Gudyanga 2014); however, not much progress was made in this sector because of serious under funding (Zvobgo 1994, 21).

In colonial Zimbabwe, teacher education in VET and the professional development of VET teachers did not receive adequate attention. The colonial government focused more on general education. This was a reflection of the long history of preference given to academic education (Siyakwazi 2014). Teachers, both for general and vocational education in African schools, were inadequately trained. In terms of qualifications, they were mostly underqualified.

In 1965, the colonial government of Rhodesia under Ian Douglas Smith pronounced the Universal Declaration of Independence (UDI). The proclamation of UDI meant that the settler-colonial government had severed ties with the British government (Hawkins 1967). In response to UDI, the British government imposed sanctions on the settler-colonial government. The sanctions by the British government were later complemented by those imposed by the United Nations. All the realms of life, including education, were affected by the imposition of sanctions (Machingura 2006). Though the imposition of sanctions over UDI did not have the desired results in terms of crippling the economy, teacher training and professional development were affected because expatriate teachers were no longer coming to support teacher education programs (Machingura 2006). Funding for African education was reduced to about 2% of gross domestic product (GDP) (Robinson 2016).

From 1964 to 1979, the Zimbabwean war of liberation, known as the *Second Chimurenga*, was waged between Africans and the Rhodesian forces (Mlambo 2014). The war presented challenges to the professional development of VET teachers in the mid- and late 1970s because some students who were being trained as apprentices were simultaneously fighting in the war under the National Service Programme.

In 1968 the Apprenticeship Training Act was passed, which enabled the setting up of the Apprenticeship Training and Skills Development Authority (ATSDA). Among its responsibilities, the ATSDA was to assess future skilled manpower and training needs and to encourage the training of technicians (Zengeya 2007, 165). The ATSDA introduced trade testing thereby contributing to increased quality of personnel. This served to enhance the professional development of VET teachers as well.

The passing of the Vocational Education and Training Act in 1978 was a huge milestone in the promotion of vocational training, including bringing order to the training of personnel. This led to the establishment of the Manpower Development Training Authority (MANDATA) which took over role of the Apprenticeship Training and Skills Development Authority established after UDI. Among MANDATA's responsibilities was to supervise the training of apprentices both in industries and training colleges. The Vocational Education and Training Act also provided for the establishment and maintenance of technical colleges, the imposition of a levy to fund manpower development, as well as the regulation of private providers of VET (Zengeya 2007). VET teacher training and professional development activities were enhanced by the establishment of MANDATA.

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## Professional Development in Postindependence Zimbabwe

Zimbabwe formally attained independence from Britain in 1980. Postindependence Zimbabwe cannot be treated as a uniform period. Rather, it can be analyzed based on the sociopolitical and economic experiences of the country, subdivided into the decade of growth 1980 to 1990, economic liberalization 1991 to 1998, and the crisis period of 1999 to 2013. Thereafter, the current state of professional development of VET teachers is presented.

### Professional Development of VET Teachers in the Decade of Growth, 1980–1990

The newly independent government of Zimbabwe inherited a highly developed and diversified, yet racially stratified, economy (Mlambo 2014; Saungweme 2013; Kanyenze et al. 2011). Zimbabwe had a stronger industrial base than most countries in the SADC region. Agriculture was the mainstay of the economy, though the manufacturing sector also fared well because of the self-reliance approach necessitated by the period of sanctions. Race-based inequalities still existed in social services including education, health, and housing. Top on the agenda of the new

government was to reduce inequalities through massive expansion of the social services sector, especially to the marginalized African population.

During the first decade of independence, Zimbabwe massively expanded education provision as a clear departure from the colonial past (McGrath 1993; Zvobgo 1986). This expansion was not limited to primary and secondary education but extended to vocational and tertiary education. There was also significant expansion of teacher training institutions and universities.

At independence, there was a serious effort to reform teacher education, including VET teacher education, to meet the demands of the new social and economic order (Dzvimbo 1989, 17). The inherited teacher education program was not able to produce the numbers of qualified teachers needed by the expansion. In view of this, a novel approach, the Zimbabwe Integrated National Teacher Education Course (ZINTEC), was started in 1981 that sought to fast track teacher training and get teachers into class (Dzvimbo 1989). Focusing on primary teachers, it started as a 4-year course in which student teachers spent the first 16 weeks of the first term of their first year in college, 10 terms on teaching practice internship, and the final 16 weeks of the final term of their fourth year in college. It has subsequently been reduced to a 3-year course (Maguraushe 2015).

The National Manpower Survey of 1981 revealed that Zimbabwe had a critical shortage of skilled vocational personnel including lecturers for technical colleges. The survey also showed that Zimbabwe's VET workforce was composed of 8% professionals, 12% skilled, 20% semiskilled, and 60% unskilled (Government of Zimbabwe 1981). This was a result of the emigration of skilled whites mainly to the United Kingdom, Australia, and South Africa (Kanyenze et al. 2011). The few lecturers who remained were underqualified; hence there was an urgent need to address the skills vacuum created. The new government had a drive toward expansion of provision of VET as well as an expansion in vocational teacher education programs (Dorsey 1989).

In light of the realization of the importance of skills development, the government introduced the Zimbabwe Foundation for Education with Production (ZIMFEP), drawing on the ideas developed by Van Rensburg in Botswana McLaughlin et al. (2002). This was after a realization of the shortcomings of the colonial education it inherited (Chinyamunzore 1995; Dorsey 1989; Gustafsson 1985; Kasambira 1987). The ZIMFEP programme also sought to deal with the challenges of structure, content, and methods used in the delivery of practical subjects under the F2 system that was used during the colonial times. Education with Production, with its emphasis on the need for people to be skilled in several vocational trades, led the government to establish technical colleges to train vocational teachers especially in trades not offered at the only university – the University of Zimbabwe (Ministry of Higher and Tertiary Education 2005).

From 1982 onward, Gweru Technical College was mandated to train VET “teachers” for schools as well as lecturers for other technical colleges in Zimbabwe. The majority of those trained included vocational teachers for secondary schools in the following disciplines: Electrical Engineering, Metal Work, Technical Graphics, Building, Computer Science, Accounting, and Secretarial Studies. After initial

training at Gweru Technical College, they would move into vocational occupations, while others furthered their studies in the newly formed degree awarding universities such as Harare Institute of Technology (HIT), Chinhoyi University of Technology (CUT), and the National University of Technology (NUST) (UNESCO 2013).

The Manpower Planning Development Act of 1984 which was later revised in 1996 and 2002 is the overarching policy document which empowered the Ministry of Higher and Tertiary Education to superintend over “all human capital development” issues in Zimbabwe. The philosophy behind the Manpower Planning Development Act was that, for any country to develop, it must have sufficient numbers of skilled people to meet the needs of its industries. The Act, among other things, was responsible for the provision of a comprehensive and constantly developing service for teacher education, for technical or vocational institutions, and for technical or vocational education (Government of Zimbabwe 2002). By extension this included professional development of VET teachers.

For instance, Section 4 of the Act specifically focuses on the promotion of VET, including the establishment of providers of VET as well as the coordination and standardization of all professional qualifications. The Act also has provisions for the promotion of teacher training by capacitating the training institutions with relevant facilities. The Manpower Planning and Development Act also led to the establishment of the National Manpower Advisory Council (NAMACO) and the Zimbabwe Manpower Development Fund (ZIMDEF). NAMACO was responsible for ensuring the supply of well-trained personnel in all occupations.

NAMACO contributed significantly to the professional development of VET teachers. The composition of NAMACO included government trainers and industry level trainers who worked together in identifying areas in need of training and professional development. NAMACO’s needs assessment was coordinated by industry players who were in touch with the recent developments in technology and suggested revised proficiency standards, working together with trainers from the Ministry of Higher Education. A growing and robust industry provided a good environment for an effective NAMACO. Multinational companies operating in Zimbabwe played a significant role in the professional development of VET teachers by providing their training centers and expatriate trainers to facilitate workshops. The ZIMDEF was used in training and professional development of VET teachers as well as in supporting the training of apprentices in various trades. The funds from ZIMDEF were also used in infrastructure development projects at many VET colleges and universities in the country.

In 1990, the government of Zimbabwe introduced the Rationalization of Technical and Vocational Education and Training policy document in order to structure VET into levels for easier progression in professional development (Kanyenze et al. 2011). The lowest level was the prevocational level (PVC), followed by the National Foundation Certificate (NC), the National Diploma (ND), and highest level the Higher National Diploma (HND) which was equivalent to an undergraduate degree (Kanyenze 2011). VET teachers were expected to have a minimum qualification of the National Certificate for those teaching at national foundation and prevocational levels. Those with the National Diploma could teach at National Certificate level,

whereas those with Higher National Diploma could teach at Diploma level. VET teachers with the NC and above had mostly technical skills and no pedagogical skills. In order to fill the pedagogical gap, technical colleges introduced the Further Education Training Certificate (FETC) and the Further Education Training Diploma (FETD). The FETC and FETD are examples of in-service programs that VET teachers in Zimbabwe would undertake. These two qualifications became mandatory for VET lecturers to possess as part of their professional development.

The first decade of Zimbabwe's independence was generally quite progressive in terms of expansion of the provision of education including VET. Significant progress was realized in teacher training and initiatives as well as the professional development of VET teachers. During this decade, participation in professional development activities by VET teachers at all levels was high. It also included staff exchange programs with European countries such as Germany and the United Kingdom, countries with well-developed VET systems. Nevertheless, VET teacher education training institutions remained few in comparison to those for general teachers during this decade. Most VET teachers were trained together with primary and secondary school teachers, and their status remained lower than those of teachers in academic fields.

### **Professional Development of VET Teachers During the Economic Liberalization Era, 1991 to 1996**

Zimbabwe adopted the policy of economic liberalization from 1990 onward at the instigation of the World Bank and the International Monetary Fund (Chinyamunzore 1995). These institutions encouraged governments of developing countries to adjust their economies by eliminating trade barriers and reducing the amount of public expenditure in order to reduce their debt (Kanyenze et al. 2011). In the Zimbabwean case, the program was named the Economic Structural Adjustment Programme (ESAP). The program encouraged the privatization of most government enterprises and reduced government participation in social services. ESAP, however, had a number of negative consequences. Most notable were massive job losses through retrenchments. The impact of ESAP was particularly felt on the education fraternity. Its effect on industrial growth and the education sector specifically had ripple effects on professional development of VET teachers. Firstly ESAP led to deindustrialization as local firms failed to compete with international conglomerates after the removal of import tariffs (Kanyenze et al. 2011). Instead of achieving industrial growth, ESAP led to the opposite. Some of the companies which closed down had made long-standing investments in professional development of VET teachers.

ESAP resulted in serious underfunding of the education sector, which in turn contributed to a shortage of VET teachers. The available teachers were often underqualified as revealed in the Presidential Commission on Education and Training (popularly known as the Nziramasanga Commission Report of 1999) (Kanyenze et al. 2011; Nziramasanga 1999), but the lack of funding meant that this issue could not be addressed.

ESAP also coincided with the ravaging impact of HIV and AIDS in Zimbabwe. HIV and AIDS led to the deaths of a significant number of qualified VET practitioners. Brain drain and HIV and AIDS impacted negatively the professional development of teachers during the ESAP period (Shizha and Kariwo 2011). The influence of ESAP on the reduction of budget allocation for social services including education cannot be ignored. It had obvious implications of compromising delivery of vocational education including teacher education and professional development. Many companies, apart from downscaling their operations, could no longer sustain professional development activities.

### **Professional Development of VET Teachers and the Crisis Period in Zimbabwe, 1997 to 2008**

The years 1997 to 2008 are considered as the crisis years in Zimbabwe. The crisis in Zimbabwe was political, social, and economic, in some respects associated with ESAP, though that had officially ended in 1996. Other emergent causes of the crisis included the payment of gratuities to War Veterans by an already overstretched fiscus and the Fast Track Land Reform Programme (FTLRP). The FTLRP programme resulted in the displacement of former white commercial farmers from their farms without compensation, which were then redistributed to the black majority (Meredith 2002).

The FTLRP seriously affected relations between Zimbabwe and Britain, its former colonial master. Farm seizures through the FTLRP led to the condemnation and isolation of Zimbabwe from the international community. Britain cut diplomatic relations with Zimbabwe, as did other countries in Europe, Australia, and America, and economic sanctions were imposed on Zimbabwe. The sanctions meant that most companies of European and American origin had to relocate from Zimbabwe to the neighboring countries such as Zambia, South Africa, and Mozambique. This led to investor flight and company closures ultimately leading to the shrinking of the Zimbabwean economy (Duri 2016). Massive job losses ensued. The companies that continued operating reduced their spending on industrial training. The FTLRP also affected agricultural production as well as manufacturing sector output because there were close links between the two sectors (Moyo 2000).

The economic crisis in Zimbabwe negatively affected the provision of social services in the country including education and health (Nyazema 2010). In spite of the crisis, the government remained the biggest provider of teacher education in Zimbabwe, both for general education and vocational education. UNESCO TVET Report for 2005 noted the government providers of VET constitute 55%, followed by the private sector which accounts for 28%, while parastatals contribute the remaining 17%. However, state provision of VET teachers' professional development during the crisis period was seriously compromised. Challenges faced by government providers of VET teacher education and professional development included funding, low student enrollment, and dilapidated infrastructure. Data from Zimbabwe revealed that the massive drop in enrolment was a result of



declining holding capacity of these institutions in terms of infrastructure, equipment, and qualified trainers (Nziramasa 1999). VET teacher education providers were no longer supported financially by the treasury for operating expenses. The government, however, continued to pay for salaries of staff.

In spite of the above, the government of Zimbabwe from 2004 introduced a VET lecturer professional development program at the B-Tech, M-Tech, and eventually D-Tech levels. Though this was a good direction for professional development, the B-Tech program offered in technical colleges faced some challenges. The major challenge was that of low salaries compared to lecturers teaching similar degree programs in universities. This negatively affected staff motivation to enroll for professional development.

At the peak of the crisis, hyperinflation reached 231 million percent by May 2008 (Gono 2008). The social services sector including education was severely affected and came to a standstill in 2008 (Gono 2008; Gukurume 2015; Mazani 2015). The situation was worse for professional development of VET teachers because most institutions were operating without requisite resources. Most institutions did not have budgets for professional development. VET institutions were again affected by brain-drain leaving very few VET teachers in post, with the majority having moved to other countries in Africa and abroad. The number of lecturers in polytechnical colleges declined significantly. The brain-drain mostly attracted the most qualified and experienced teachers. This left skeletal staff comprising of inexperienced and underqualified personnel manning the depleted programs.

## **The Current State of Professional Development Programs for VET Teachers in Zimbabwe**

The current situation in Zimbabwe shows that professional development of VET teachers is in a state of neglect. This is not entirely unique to Zimbabwe, but reflects the general trend on the African continent (Yonemura 2011). Though VET providers in the country acknowledge the importance of professional development in increasing the professionalism of teachers, evidence on the ground suggests that they do not have deliberately planned professional development programs in their institutions.

Professional development should normally follow a training needs assessment exercise. In the case of VET teachers in Zimbabwe, these assessments have never been done properly, apart from the annual performance appraisal, which is, in most cases, associated with bonus payments rather than in identifying performance gaps which can be filled by professional development. This important aspect is missing from VET providers. Hence, professional development needs of VET teachers are either unknown or speculative.

Due to the absence of systematically organized professional development programs in institutions, VET teachers who engage in professional development often do so through their own initiative. Even in cases where VET teachers need financial support for professional development, they are not assisted by their institutions in monetary terms. Oftentimes such teachers are not given Manpower Development



Leave (MDL) to pursue professional development programs such as undergraduate or postgraduate degrees. Ultimately, engaging in professional development for the few who do so is at a huge cost to them personally. The employer often cuts salaries by half. In extreme cases, upgrading teachers go on leave without pay. As such, VET teachers have to choose between their salaries and professional development. In the majority of cases, however, the latter loses. Lack of financial incentives hinders VET teachers' participation in professional development. Moreover, there is no salary increase for lecturers who have undergone professional development and attained higher degrees. They still earn equally with those with minimum qualifications for the job (Mazani 2015). The absence of incentives hinders the participation in professional development by some VET lecturers.

The apparent neglect is often attributed to the economic crisis over the past two decades in the country. This affects investment in VET, be it materially or in human resources development. Most principals in VET institutions are more worried about the daily survival of their institutions at the expense of their teachers and lecturers. Oftentimes, there are no budgets set aside for professional development in institutions offering VET.

The Zimbabwean government remains the biggest employer of VET teachers in Zimbabwe through the Public Service Commission (PSC). The PSC sets minimum qualifications for VET teachers. Currently, the minimum qualification for lecturers in polytechnical colleges is a diploma in the relevant specialist area. No reference is made for the need of any other qualifications (Mazani 2015, 4). This creates the mistaken belief that professional development is optional. This might explain the reluctance of some lecturers to engage in professional development. Human resources departments in VET institutions lack a professional development focus in their work and prioritize compliance with regulations.

The government, through the two ministries of education, is focused on curriculum reforms emphasizing Science Technology Engineering and Mathematics (STEM) and vocational subjects. The challenge, however, is that there are no deliberate efforts to professionally develop the teachers and prepare them to meet the demands of this initiative. Teacher training institutions are hardly prepared to respond to the STEM initiative. At the end of 2016, the Ministry of Primary and Secondary Education introduced a new education curriculum known as the Curriculum Framework for Primary and Secondary Education CFPSE 2016–2022, which is vocational in nature. In the new curriculum, vocational education is now introduced much earlier in grade three, which has additional implications for teacher preparedness through initial teacher training as well as professional development.

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## Conclusion and Future Directions

This chapter has offered a historical overview of professional development of VET teachers in Zimbabwe in the context of wider social and economic forces. The pre-colonial traditions of apprenticeship were largely replaced by a more formal, race-based, and socially stigmatized model during the settler-colonial period. The

optimistic early years of postindependence witnessed an expansion of the education system, but the professional development of vocational teachers was largely an afterthought. The crisis years up to the current period have seen massive pressures on the system due to structural adjustment and economic crisis, resulting in the both the economy and the educational system facing serious pressures. The chapter has shown that professional development of VET teachers has suffered different levels of neglect throughout these different time periods. It remains fragmented and lacks coordination in most institutions in Zimbabwe despite the fact that it is central to the success of educational and economic reform agendas. VET teachers are currently operating below their capacity due to the absence of deliberately organized and systematic professional development programs.

The precarious nature of the Zimbabwean economy makes finding solutions to the issue of professional development of VET teachers difficult. While rhetorical commitments to VET are common, underlying social prejudices that are rooted in the colonial tradition mean that the rhetoric is seldom matched by resource commitments. It is unlikely that professional development will be prioritized until economic demands require teachers with higher level skills. Without major changes in the status of VET, the development of VET and the professional development of VET teachers in Zimbabwe will continue to follow the patterns of Zimbabwean economic and social development rather than actively shaping them.

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# Teachers' Resilience in Vocational Education and Training (VET)

# 90

Viviana Sappa, Elena Boldrini, and Antje Barabasch

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## Abstract

Teachers' well-being is a crucial prerequisite of high-quality education and training. More specifically, research on teachers' resilience – the ability to stay engaged and satisfied with the profession despite the highly demanding nature of teaching – is very informative to identify difficulties and resources that mostly impact teachers' well-being. Based on empirical evidence, this contribution provides an overview of the main risks and protective factors related to teachers' resilience by specifically focusing on the vocational education and training (VET) teacher population.

In this respect, the findings of a Swiss national study on VET teachers' resilience are illustrated and then integrated with the most recent literature on teachers' resilience and well-being. The empirical evidence reported here is

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consistent with a socio-ecological interpretation of teachers' resilience as the result of a dynamic interplay between individual and contextual factors. On the one hand, difficulties related to teaching and classroom management and difficulties in work-life balance and critical job conditions were found to have the most direct impact on teachers' well-being. On the other hand, sense of vocation, teaching and classroom management abilities, and school-related resources played a crucial role in supporting teachers to be resilient in times of adversity. Peculiarities of VET are described both in relation to risk and protective factors. Differences across the professional career phases are additionally discussed. Moreover, implications for VET education policy and practice are reported. Finally, recommendations for future research on teachers' resilience are outlined.

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**Keywords**

Teachers' resilience · Vocational education and training · Risk and protective factors · Quali-quantitative research · Socio-ecological perspective

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## Introduction

There is a strong consensus among scholars that teaching is a potentially stressful job (see Beltman et al. 2011). Studies by Schaarschmidt (2009) and Schaarschmidt and Kieschke (2007) compared teachers with many other groups of employees (e.g., policemen, firefighters, caregivers) and found teachers to be much more prone to excessive work and a reduced buoyancy, much less satisfied with their lives, as well as less able to resist stressors and to relax and distance themselves from job-related problems.

International surveys report that 20–40% of teachers are at risk of burn-out, which implies emotional exhaustion, depersonalization, and perceived reduced personal accomplishment (Maslach and Jackson 1981). In addition, the attrition rate in the first 5 years of teaching reaches 35–50% in various countries (Darling-Hammond 2003; Howard and Johnson 2004; Kardos and Johnson 2007; OECD 2011).

A different way for teachers to cope with chronic stressors consists of reducing their effort and occupational engagement. In such a case, teachers do not consider to quit the profession, but the quality of their teaching is strongly compromised by their disengagement with the job. The term “worn-out” was coined to describe that condition by Stephenson (1990) who showed that three times as many teachers were worn out than burned out.

On the contrary, schools not only need to reduce teachers' attrition, but high-quality schools also need teachers who are able to stay satisfied, motivated, engaged, and confident in their teaching despite everyday challenges they encounter. In other words, they need teachers to be resilient.

Teachers' resilience has been positively associated with students' achievement and teaching quality (Gu and Li 2013; Day and Gu 2014). Moreover, motivated and healthy teachers help to develop in students a positive and enthusiastic relationship to learning, which is crucial for a lifelong learning perspective (Brophy and Good

1986; Feldman 2007; Kunter et al. 2008; Keller et al. 2014). This is particularly important nowadays, as boundaries between work and education are increasingly overlapping and employees are asked to be able and motivated to continuously learn.

From this perspective, determining how to keep teachers satisfied, engaged, committed, and self-confident despite the difficulties they encounter throughout their career is a key issue for education and society in general. Literature on teachers' resilience deals specifically with this question.

This chapter aims at illustrating the more recent theoretical and empirical evidence on teachers' resilience with a particular focus on vocational school teachers.

In this respect, the findings of a mixed methods Swiss study on vocational school teachers' resilience and well-being are reported (for more details, see Sappa, and Boldrini 2018; Sappa et al. 2018). The study was launched in the Italian-speaking part of Switzerland and then extended to the other linguistic regions (German- and French-speaking regions) with the main intent to identify challenges and resources that most impact vocational school teachers' well-being as well as to empirically understand what supports teachers to be resilient.

Moreover, findings from the Swiss study will be compared and integrated with the wider literature in the field.

The first section provides contextual information about VET teachers in Switzerland. Based on empirical data and theoretical insight, the second section presents an overview of the main difficulties impacting teachers' well-being. Then, a definition of teachers' resilience is given together with an argumentation about its main components. The third section illustrates individual and contextual resources that contribute to making teachers resilient. Subsequently, the chapter discusses how difficulties, resources, and resilience differ across the phases of professional life. In conclusion, implications for practice in VET and teacher education as well as recommendations for further lines of research are outlined.

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## Background

Switzerland is acknowledged for its long-standing and widely encompassing VET system (Wettstein et al. 2017). Around two thirds of its students coming out of compulsory education at age of 15 (lower secondary level) enroll in vocational upper secondary level programs. Many of them continue with higher VET at the tertiary level (SERI 2017). Most of the curricula are provided in a dual mode, that is, by combining learning at school and at the workplace where students are employed as apprentices. The VET curricula, including both vocational and general education subjects, are developed in close collaboration between educational institutions (at the federal and cantonal level) and professional associations. An integrated teaching between school and workplace is highly required particularly to vocational subject teachers, who, as a consequence, are very pressed to combine pedagogical skills with competences in the specific professional domain and to keep up to date with professional developments. In order to facilitate this integration, teacher candidates need to have the highest possible qualification in a particular professional

domain in addition to a minimum of 6 months of occupational experience, with several years being the norm (Hof and Leiser 2014). Therefore many vocational subject teachers in Switzerland are career changers. Also, around 42% of all teachers employed in VET schools work in a quota of less than 50% as a teacher. Most of them combine teaching with another job. The multiple job holder condition is a specificity of Swiss VET teachers in comparison to other types of secondary school teachers (see Sappa et al. 2015).

Furthermore, consistently with the international educational mainstream, recent reforms were launched in the Swiss Education system – including VET – where teachers are asked to provide a more standardized, multidisciplinary, and competence-oriented education. In addition, a closer collaboration between vocational schools and training companies is requested. Although Swiss VET curricula are basically centralized, a certain room for maneuver is left to cantons and individual schools to implement and adapt such reform to their needs. School leaders play a key role in such an adaptation.

Differently to other types of teachers, VET teachers in Switzerland are trained while already in service. Usually, teachers are asked to attend a compulsory training course after 1–5 years of teaching. Teachers' training provides teachers for general pedagogical and subject-specific didactical skills.

Finally, although very popular, VET paths are not always attractive for higher-achieving students. Particularly in the Italian-speaking cantons – and partially in the French-speaking ones – academic pathways enjoy a higher social status. This condition is probably due to the influence of the academic-oriented educational culture in Italy and France. As a consequence some students and their family perceive VET pathways as a “second choice” (Boldrini and Bausch 2009) to be accepted when it is not possible to attend the more selective and desirable lyceum school path. Therefore some students are less motivated to learn a chosen profession, and teachers are challenged to support them in developing a professional identity.

In the next section of this chapter, we illustrate main reasons why teaching can be considered as a potentially stressful job, particularly in VET.

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## What Makes Teaching a Potentially Stressful Job

Scientific evidence suggests that multiple challenges contribute to putting teachers at risk of negative stress (Brunetti 2006; Day and Gu 2009; Gu 2014; Mansfield et al. 2014). However, few studies have investigated vocational school teachers. Among those, Kärner et al. (2016) found that German VET teachers suffer from less work-life balance, less resilience, and higher perceived stress than employees in other professions. Also, Meristo and Eisenschmidt (2014) showed vocational school teachers in Estonia as having lower self-efficacy beliefs in classroom management and student engagement and having low scores relating to aspects of the school climate in comparison with teachers in comprehensive schools. To contribute to a better understanding about main difficulties and resources related to VET teachers, a local study in the canton of Ticino was conducted as a pilot. In this framework,



37 vocational school teachers were selected by means of maximum variation sampling procedures and then interviewed. Participants were first asked to indicate – while narrating professional experiences related to critical situations – those challenges that most affect their well-being. The findings showed 24 categories of difficulties that are perceived by teachers as particularly threatening (Boldrini, Sappa and Aprea 2018). They were clustered into six factors (i.e., difficulties related to teaching and classroom management, difficult relationship with the school leader and colleagues, work-life balance difficulties, critical job conditions, a low level of social recognition, and identity challenges) whose impact on teachers' well-being was then quantitatively investigated by means of a questionnaire-based survey involving 2,163 Swiss vocational school teachers (Sappa and Boldrini 2018; Sappa and Boldrini, submitted) from six selected cantons, including German-, French-, and Italian-speaking areas.

By means of various statistical analyses (factor analysis, regression analysis, structural equation modeling technique), four factors were identified as directly contributing to threatening vocational school teachers' professional well-being: *difficulties related to teaching and classroom management*, *difficult relationship with the school leader and colleagues*, *work-life balance difficulties* and *critical job conditions*, including contractual issues, workload, organizational difficulties (e.g., those related to teaching timetables), and pressure from curricula reforms.

*Difficulties related to teaching and classroom management* were shown to have the highest negative impact on teachers' professional well-being. In particular, the relationship with students both as individuals and as a group was described by teachers as very demanding and sometimes emotionally exhausting. The increasing classroom size and the internal diversity in terms of cultures, ethnicities, levels of achievement, and learning styles contribute to making classroom management more complicated. In addition, relationships with students, especially during adolescence, can be very challenging and complex. Moreover, as reported in the background section of this chapter, in some Swiss regions, vocational paths are more likely to be chosen by those students who have lower levels of achievement and motivation to learn. To this respect, teachers interviewed in the Swiss study reported feelings of anger, frustration, a sense of inadequacy, and demotivation caused by the low professional motivation and weak vocational identity of some of their students. Teachers feel they are not prepared to face the students' professional identity issues, and they are required to make considerable efforts to activate a remotivation process among the students. On the other hand, peculiar didactic challenges were found in relation to vocational teachers. One of the more demanding reported challenge dealt with the need to adapt disciplinary or technical knowledge to the practical experiences that students have on the job.

*Difficult relationship with the school leader and colleagues* was shown in the Swiss study as significantly affecting teachers' well-being. In particular, negative feelings were associated with an unsupportive school climate, the perception of being alone in facing challenging classrooms, as well as a lack of a shared pedagogical culture in the teachers' team. This latter issue seemed to be particularly prominent and tricky when teachers are asked to decide how to manage students'

failures and misbehaviors. Building a shared pedagogical culture can be particularly difficult in vocational schools due to the heterogeneous learning cultures that usually coexist in those settings: on the one hand, the disciplinary view rooted in the educational tradition and, on the other hand, the practical understanding of learning that is typical within the world of work.

Moreover, school leadership was described as very relevant for teachers' well-being. Specifically, teachers reported feelings of frustration, anger, and high dissatisfaction when the school principal was perceived as unsupportive, unable to value his/her employees, and incoherent in school management. The risky impact of a lack of collegiality and dissatisfaction with school leadership on teachers' well-being is widely confirmed by the scientific literature (Day 2014; Howard and Johnson 2004; Le Cornu 2009).

Similar to the findings by Kärner et al. (2016) in their German study, we found *work-life balance difficulties* to significantly impact vocational teachers' well-being, particularly among women. The in-service training model adopted for VET teachers in Switzerland partially contributes to make work-life balance more demanding.

Furthermore, *critical job conditions* significantly affect teachers' well-being. First, scientific evidence has been found showing the negative impact of job insecurity and a low salary on professional well-being and satisfaction (e.g., Liu and Onwuegbuzie 2012). In Switzerland, teachers' salary and job stability are largely unproblematic. However, those teachers who reported low levels of satisfaction with their job contract also indicated a lower level of professional well-being. Second, an excessive workload and a stressful exposure to reforms are additional sources of job dissatisfaction and frustration. Swiss teachers reported feeling stressed and pressured by a standardization process that threatened their freedom of teaching, causing a sense of demotivation, frustration, and disengagement. More specifically, VET reforms in Switzerland have led vocational schools to develop more standardized teaching plans. As a consequence, teachers have been asked to negotiate and in some cases to design common didactic materials and training objectives. However, this process was not always easy to implement, as it competes with a traditional and common interpretation of teaching as the personal product of the expertise of single teachers. In other words, many teachers were frustrated by the feeling of losing their "freedom of teaching" in favor of a more standardized – and then impersonalized – culture of teaching. Similarly, Gu and Day (2013) argued that results-driven, performativity, and new public management cultures of school environments are contributing to increasing the workload for teachers by threatening their sense of autonomy, control, and freedom and, in turn, their sense of agency and commitment.

The four threatening factors described thus far are also reciprocally correlated. For example, a difficult relationship with school leaders and colleagues contributes significantly to reducing teachers' ability to successfully face challenging classrooms and students. In addition, critical job conditions make everyday relationships with students and colleagues more challenging. Moreover, work-life balance difficulties increase when curricular and extracurricular activities at school become too demanding.

Finally, two additional factors were found to indirectly contribute to threatening teachers' well-being. On the one hand, although the social reputation of VET is basically positive in most of the Swiss cantons, some teachers – particularly from Italian- and French-speaking areas – reported that social status of school education, and VET in particular, is perceived as declining. Also they feel not to be sufficiently valued as a teacher by the current society. Quantitative analysis on the large sample demonstrated that those feelings contribute to increase teachers' difficulties at the level of both classroom management and relationships in school as well as with respect to work-life balance. On the other hand, an *identity challenge* emerged from teachers who reported the perception of being engaged in multiple overlapping roles, such as educator, social worker, instructor, and counselor. For teachers, the boundaries of their professional identity seem increasingly difficult to define, which can cause stress and fatigue. Such a feeling was found to contribute to increase teachers' difficulties in facing challenging classrooms and to make it more difficult for them to achieve a healthy work-life balance.

In sum, a multitude of factors contribute to make teaching a potentially stressful job; these are reciprocally interrelated, and all may contribute to a progressive deterioration of teachers' well-being. Very few participants in the Swiss study reported a single disruptive event as the main cause of a serious distress. In addition, the quantitative data did not show any prominent effect of single disruptive events on teachers' well-being. On the contrary, both qualitative and quantitative data converged in describing teachers' loss of engagement, satisfaction, and sense of competence as the cumulative effect of overlapping daily stressors.

The following sections will outline the details of what this kind of resilience means and which individual and contextual resources contribute to making teachers resilient.

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## Teachers' Resilience: Definition and Main Constituents

Although teachers' resilience has been approached from multiple perspectives and disciplines, a common understanding can be traced with respect to the definition of resilient teachers. Resilient teachers can maintain enthusiasm and engagement in the profession despite professional adversities they encounter. In addition, resilient teachers can manage ongoing and multiple challenges over time while continuing to grow and thrive professionally (Mansfield et al. 2016b). However, there is still debate on the main constituents and processes of teachers' resilience. Related to the clinical understanding of resilience, teachers' resilience was initially defined as primarily an individual trait, quality, or capacity that makes teachers able to adapt and thrive in times of adversity (Brunetti 2006). More recently, a multidimensional and context-sensitive view of resilience has progressively emerged, including in the field of teachers' resilience (Mansfield et al. 2016a; LeCornu 2009). In particular, scholars tend to agree in describing resilience as a dynamic *process* or *outcome* that is “the result of the interaction over time between a person and the environment and [that] is evidenced by how individuals respond to challenging or adverse situations”

(Mansfield et al. 2012, p. 358). From this perspective, although resilience can be mainly observed as an individual ability, such an ability should be considered the result of a complex and dynamic interaction between contextual and individual risk and protective factors.

In addition, resilience is closely related to adversities, as it might be demonstrated only while facing an adverse situation (Doney 2013; Fletcher and Sarkar 2013), be it a single disruptive event or, as more likely in the case of teachers, the result of multiple ongoing daily challenges (Gu and Day 2013).

Furthermore, dynamic and reciprocal tensions among the difficulties and resources generate differential states and outcomes in terms of professional well-being and positive, negative, or dysfunctional adaptation, where resilience refers to positive and functional adaptation. Various interpretations of positive adaptation have been reported in the literature. For example, Mansfield et al. (2016a) found ten main resilient outcomes: well-being, commitment, job satisfaction, agency enthusiasm, work engagement, a sense of belonging, responsibility, passion, enjoyment, and engagement. A sense of effectiveness was also mentioned by Day and Gu (2014) as a key component of teachers' resilience. Finally, a sense of balancing between professional and personal identities was emphasized by Antonovsky (1997) as the core aspect of teachers' resilience. Day and colleagues (Day et al. 2005) also argued for the importance of considering the reciprocal coherence between professional and personal life as a key aspect of teachers' resilience. In the Swiss study mentioned in this chapter, positive adaptation was interpreted in terms of professional well-being as a combination of job satisfaction, a sense of positive engagement with the profession, and a sense of perceived effectiveness.

Finally, teachers' resilience is an ongoing process rather than a stable condition. The processual nature of teachers' resilience is particularly evident in relation to the different professional and life phases. Individual developmental needs and priorities usually change across the professional life phases as well as teachers' identity, values, beliefs, and expertise that progressively evolve. Overall, these transformations contribute to modify teachers and the ways in which they experience and face professional difficulties.

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## Resources that Most Support Teachers' Resilience

Then, the question is, what differentiates teachers who stay resilient and their colleagues who feel highly stressed or even in a burn-out condition?

The Swiss study contributed to answering this question by empirically comparing teachers at risk and resilient teachers. Specifically, by means of a two-stage cluster analysis, the Swiss researchers first identified different profiles of teachers on the basis of their *perceived exposure to difficulties* (i.e., how often they perceived themselves to be exposed to threatening situations) and their *professional well-being* (here investigated in terms of job satisfaction, work engagement, a sense of effectiveness as a teachers, and a sense of confidence in facing professional challenges).

Five profiles of teachers were identified (Sappa and Boldrini 2018; Sappa et al. 2018):

- The *enthusiastic teachers* (36% of the sample), i.e., those who reported a high level of professional well-being and a low level of perceived difficulties.
- The *fairly at ease teachers* (19% of the sample), i.e., those who reported medium-high levels of professional well-being, without perceiving themselves to be particularly exposed to critical difficulties.
- The *weak teachers* (19% of the sample), i.e., those who showed a medium-low levels of professional well-being combined with high level of perceived difficulties.
- The *teachers at risk* (8% of the sample), i.e., those who indicated a very low level of professional well-being and a high level of exposure to professional difficulties.
- The *resilient teachers* (18% of the sample), i.e., those who showed a high value of positive well-being despite a high level of perceived exposure to professional difficulties.

By analyzing the interview data collected in the pilot phase of the Swiss study, 24 resources were identified and then grouped into six factors: (a) *sense of vocation*, (b) *resiliency attitude*, (c) *teaching and classroom management abilities*, (d) *school-related supports*, (e) *training activities*, and (f) *extra school supports*. Perceived resources and their impact on teachers' professional well-being were subsequently investigated by means of the questionnaire-based survey conducted in the second phase of the research project. Multiple analyses were performed to better understand what factors most contribute to making teachers resilient. In particular, the impact of each resource on teachers' well-being was tested. In addition, it was investigated how resources differ across the different teachers' profiles.

Unsurprisingly, all factors were found to contribute somehow to impacting teachers' well-being and to explain differences across the teachers' profiles. The theoretical interpretation of teachers' resilience and well-being as the product of the interplay between multiple individual and contextual resources was then confirmed.

At the individual level, *sense of vocation* and *teaching and classroom management abilities* were found to play a key role in supporting teachers' well-being and their resilience. First, *sense of vocation*, including passion for teaching, passion for working with young students, and the feeling of being able to make the difference in their lives, has a considerable impact on teachers' professional well-being. In addition, such a motivational attitude is typical of the resilient group of teachers, particularly in comparison to the colleagues at risk.

Another significant finding concerns *teaching and classroom management abilities* that directly affect teachers' professional well-being. In this respect, the ability to be didactically flexible and use a multitude of methods and pedagogical techniques to successfully face heterogeneous classrooms plays a key role for teachers. Such flexibility was described as particularly supportive for VET teachers who need to adapt their technical and disciplinary knowledge to real students' experience in

heterogeneous workplace settings (e.g., small vs. large enterprises, traditional vs. very innovative companies, different professional sectors). Teaching-related personal resources had a positive effect on teachers' professional well-being and contributed significantly to explaining the differences between resilient teachers and teachers at risk.

The literature on teachers' resilience provided additional confirmation of the role of intrinsic motivation for the profession and of effective teaching skills development in building teachers' resilience (Mansfield et al. 2016a). In addition, various studies have emphasized how resilience is enhanced by personal traits, such as optimism, reflectivity, and persistence. In the Swiss study, those factors were clustered in a single category, *resiliency attitudes*, found to significantly affect teachers' professional well-being. However, no differences were shown with respect to resiliency attitudes between resilient teachers and teachers who are at risk. Resiliency attitudes were instead related to enthusiastic teachers. As a consequence, our data suggest that resiliency attitudes contribute primarily to reinforcing professional well-being in the absence of critical adversities. When threatening situations occur, teaching-related personal skills and motivational resources play a more relevant role in maintaining professional well-being.

At the contextual level, *school-related resources* were very important, both in terms of professional well-being and in terms of a source for teachers' resilience.

A positive school principal's leadership was reported as being essential to supporting teachers while facing adversities. The key role of supportive, constructive, and inspiring school leaders has been demonstrated and argued by various scholars (Day 2014; Steward 2014).

Teachers' narratives collected in the Swiss study were informative about the various constituents of a positive leadership style. First, constructive feedback and encouragement from school principals were mentioned as very supportive for teachers. Especially when they are coping with difficult situations in the classroom or with other colleagues, teachers find it very helpful if school leaders can provide constructive feedback. Moreover, daily challenges are perceived by teachers as less stressful if they feel encouraged by school leaders. In addition, school leaders have a key role in moderating curricula and educational reforms' impact on teachers. Specifically, the findings suggested one factor that can make the difference between a positive and a negative implementation of such changes: the ability of the school board to negotiate the processes of standardization with the teachers and to give them an active role in defining how to manage the reform implementation and its implications. On the contrary, when those changes were perceived by teachers as strictly imposed in a top-down perspective, it had a negative and frustrating impact on their professional well-being. The importance of supporting agency among teachers, particularly in the stream of curricula reforms, has been well demonstrated in a Finnish study by Vähäsantanen (2015). The study emphasized the extent to which educational reforms can impact teachers' identity and how important it is to guide teachers to approach structural transformations in an agentic way. Any reform implies, in fact, a revision of the professional identity and activities, and it needs to be negotiated at both the individual and community levels. This process also

needs to be mediated at the school level. As reported by Vähäsantanen (2015), “leadership of educational organizations should do more to promote teachers’ professional agency, in preference to merely disempowering teachers or regulating their work” (p. 10; see also Ravitch 2013; Billett 2014).

Collegiality and a sense of belonging to the school community have an important effect on Swiss teachers’ well-being, as they prevent them from feeling alone in front of adverse situations. In this respect, training initiatives were particularly appreciated by teachers when they turned into opportunities for sharing and exchanging experiences with other colleagues.

*External supports* (from parents, friends, etc.) also contribute to reinforcing teachers’ well-being. Being supported and encouraged in the social and family environment outside the school is relevant to achieve a positive and coherent balance between professional and personal life. However, the Swiss study showed that, similar to what was reported with respect to resiliency attitudes, external supports (e.g., being supported and encouraged by family and friends) play a greater role when teachers are perceived not to be very exposed to difficulties. On the contrary, when adverse situations occur, external supports reduce their positive impact, and other variables play a major role, including motivational, teaching-related, and school-related resources.

Finally, additional analysis revealed the protective role of being involved in multiple jobs for teachers. Particularly, the interviewees described the supportive role of combining teaching with another profession at three levels.

First, at the emotional level, combining teaching with another job seemed to support teachers in “stepping back” from situations encountered at school, modulating the perceived seriousness of such situations and keeping problems in perspective. In addition, being engaged in different professional activities was described as a source of strength and a way to remain continuously stimulated by different inputs. The following quote is an example of such a feeling:

The fact of exerting my professional identity not just in the teaching domain, but also as a professional . . . that fact gives me the strength . . . and it gives me a different stimulus . . . (VET teacher, male)

Second, at the cognitive level, combining teaching with another job seems to support teachers in using different perspectives to analyze problems by improving their flexibility and their capacity to use alternative strategies to cope with problems. In addition, as reported in the following quote, interviewees declared that being engaged in different jobs empowers their organizational skills, making them even more capable of combining and balancing different activities:

In my experience, colleagues burned out mainly because they were not able to manage work and extra-work activities. . . And the surprising thought is that people who are more stressed are mainly those who were not involved in other jobs beyond teaching . . . Differently, people like me, who combine teaching with other jobs . . . see the problem [of managing a multitude of activities] in a different perspective. . . it is probably a sort of “forma mentis” . . . you need to get used to organising your time . . . (VET teacher, female)



Third, at the instructional level, various advantages were associated with the opportunity to combine teaching with another job, especially if that job was in the same field. Interviewees declared that extracurricular experiences in their field gave them stronger credibility in front of students. They were able to offer students more opportunities to connect the subject matter with the real world of work, thus reducing the risk of the students' losing sight of applicability in the world "outside the school walls." The following quote well describe those aspects:

[when combining teaching with other jobs] you are much more credible in front of your students . . . because you do not talk about things you had just studied at school, but you teach stuff you do every day . . . and that gets students even more interested and motivated (VET teacher, male)

Quantitative data confirmed a positive contribution of combining teaching with another job on teachers' professional well-being. In particular, multiple job-holding helps moderate the negative effects of school-related challenges as well as the difficulties in balancing work and other activities (Sappa et al. 2015).

In sum, teachers' well-being is the product of a combination of multiple individual and contextual factors that are reciprocally related. However, some factors are particularly important in times of adversity, when teachers are asked to be resilient. In this respect, the Swiss study suggests a prominent role for a sense of vocation, teaching and classroom management abilities, and support from school leaders and colleagues. In addition, the opportunity of being involved in multiple jobs acts positively by reducing the negative effects of threatening factors.

In the next section, teaching difficulties and resources are examined in relation to the different professional life phases.

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## Teachers' Resilience and Well-Being Across the Professional Life Phases

Michael Huberman (1993) in his seminal work on teachers' professional life reported, "Teachers have different aims and different dilemmas at various moments in their professional cycles" (p. 193). More recently, Gu and Day (Day 2008; Day and Gu 2014) have highlighted that different teachers' professional life phases are characterized by different challenges as well as by different resources. As we have illustrated in the background section of this chapter, many vocational teachers are career changers. Data reported in the following paragraphs refers to professional life stages as a teacher. Certainly we have to consider possible effects of being involved in multiple careers. However, moving to a new job implies necessarily new paths of professional development in terms of both identity and expertise.

The first 7 years of teachers' professional life can be considered an *early career stage*. Although some differences can be found between the first and the second halves of this period (see Day 2008), the main challenging task in those years consists of testing and reinforcing teaching skills. Early teachers are often very



motivated and engaged and are very likely to be driven by a highly idealized view of the teaching profession. However, various studies report at this stage the highest rate of teachers' drop out (see Mansfield et al. 2014). The main risk in this phase is to lose self-confidence and one's sense of efficacy while experimenting in authentic challenging classrooms. Individual support through tutoring and mentoring programs is very important in this phase, as well as the opportunity for early teachers to constructively reflect on their practice and identity as a teacher (see also Mansfield et al. 2014). Similar findings were reported in the Swiss study on VET teachers. In the early career phase, Swiss vocational teachers reported a lower level of a sense of competence. Moreover, early teachers reported lower values of teaching-related personal resources. These resources are perceived to progressively increase through further professional life phases. The Swiss findings additionally showed that the highest values of identity-related challenges are reported in the early career phase. Early teachers seem to be particularly engaged in identity work to position themselves as teacher as well as to define the boundaries of their actions. Thus, teachers' resilience in this phase depends on how individual and contextual resources are particularly able to support teachers in building a sense of competence and a strong, realistic, and coherent sense of identity.

The phase between 8 and 15 years of teaching experience can be defined as the *middle phase*. Day described this phase as characterized by a growth in tensions and transitions. Skills and expertise become more consolidated, and responsibilities grow. Relationships with colleagues become progressively more important as well as recognition from school leaders. The quality of the school climate has an increasing effect on teachers' professional well-being. Findings from the Swiss study also showed that teachers in the middle phase of their career report the highest values of perceived difficulties. Teaching-related challenges are still high, and difficulties with colleagues and school leaders increase. At this stage, the focus on individual skills and competences is declining, and a sense of belonging to the school community as well as a feeling of collegiality can play a crucial role in supporting teachers' resilience.

In the *middle-late phases*, i.e., between 16 and 24 years and between 25 and 30 years, motivation is further questioned, and support and recognition from school leaders and colleagues become even more important. As reported by Day (2008), "the risk at this stage was a feeling of career stagnation linked to a lack of support in school and negative perceptions of student behaviour" (p. 248). Work-life balance becomes more demanding as teachers are likely to go through the middle adulthood life phase (approximately between 40 and 50 years old) when very often individuals – especially women – are involved in multiple caring tasks (including children and parents). Consistent with this consideration, the Swiss study reported the highest levels of difficulties in work-life balance among teachers in the middle-late phase. Moreover, generativity is described by Erikson as a core issue in middle adulthood (Erikson 1968). Generativity is closely related to the teaching profession, as both refer to the relationship with young people. While analyzing the interview data, the Swiss researchers realized that teachers in the middle of their career, who very often were between 45 and 50 years old, are those who more frequently reported a feeling

of frustration in front of demotivated students. Their authentic and profound need to make a difference in youth's lives as well as to be a role model for their students was mainly unmet due to students' lack of interest in their teachers' expertise and knowledge. Although this interpretation needs further confirmation, it seems that reaching a positive balance between personal and professional identities is a particularly prominent and delicate process in this phase.

Finally, the last phase of teachers' professional lives – over 30 years of teaching experience – has been found to be generally characterized by a high level of motivation and commitment and a strong sense of “active” engagement in the profession (Day 2008). However, a portion of teachers in this phase report demotivation, particularly because of a lack of support from school leadership and a low level of recognition of their expertise. In this respect, the opportunity to be valued for the high level of expertise within the school community is particularly important to maintain high motivation and engagement. Moreover, exposure to reforms and changes in cultural pedagogical standards is particularly frustrating for the “veteran generation.” The Swiss study also showed high levels of motivation and job satisfaction at this stage. However, perceived difficulties emerged, particularly with respect to the social recognition. Interview data also informed us about intergenerational conflicts that can emerge because of different pedagogical views or ways to approach teaching reported by younger and older teachers. Teachers' resilience at the last professional stages seems to also depend on the teachers' opportunities and capabilities to be actively involved in an intergenerational dialogue with colleagues. The main risk for veteran teachers is to develop a feeling of alienation and distance with respect to the school as it has changed over time. On the contrary, a sense of continuity in spite of changes is needed for individuals to maintain their engagement with the profession, as well as a coherent identity as teachers. Furthermore, the feeling that their expertise and knowledge will not be lost after their retirement is essential to make sense of their last years at school.

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## Conclusion and Implications

This chapter aimed at providing an update and evidence-based overview of the difficulties and resources that most affect VET teachers' professional well-being and their ability to remain satisfied and engaged with the profession despite adversities they encounter during their career, i.e., to be resilient. The findings from a Swiss study on VET teachers' resilience and well-being were reported to explain some peculiarities of this population in addition to aspects that are emphasized by the general scientific literature on teachers' resilience.

A multitude of contextual and individual factors were described as contributing to differentiating between resilient and at-risk professional paths. Variations across professional stages were also illustrated. The result is an intricate and multifaceted description of teachers' resilience. As such, complexity, systemic, and multilevel interventions are required to support teachers' resilience.

At the *macro policy level*, teachers need to be valued and socially recognized to anchor their professional identity on a shared feeling of pride and awareness that teachers and schools can actually make a difference in students' lives. In this respect, salaries and contractual conditions represent the first evidence of social recognition and contribute significantly to supporting or hindering teachers' commitment and engagement over time. Additionally, the interpretation of vocational schools as "second-chance schools" needs to be overcome to empower teachers – as well as students – who attend those schools. In Switzerland that interpretation is limited to the Italian- and partially to the French-speaking cantons, while in the majority of the Swiss regions, VET schools enjoy a high social reputation. However, a low social recognition of VET is an important challenge for many European countries to be faced with. Furthermore, educational reforms also have to be questioned, as they have contributed to threatening teachers' well-being and enthusiasm in many countries, including Switzerland. Teachers' voices need to be more strongly considered in times of reforms to drive an authentic and participatory process of change instead of treating teachers as passive executors. An active positioning of teachers in front of a reform process is essential to prevent teachers from experiencing feelings of frustration, disengagement, and disempowerment.

The findings also showed the possibility of being involved in multiple jobs as a protective factor. In this respect, policy makers in the vocational education field should consider the potentialities of creating institutional conditions that encourage teachers to have exchanges with professional fields other than teaching, by promoting opportunities for additional job experiences (even for a short period) or by reinforcing interprofessional teams between teachers and experts in other professional fields. Some initiatives have been carried out in Switzerland.

At the *level of the school environment*, literature has widely demonstrated the key role of school leaders. Referring to the studies reported in this chapter, school leaders are crucial to build a positive climate and to spread a collaborating culture as well as to reinforce individual teachers' identity and commitment. In addition, the school board plays a key role when educational reforms are implemented at the single-school level. School leaders also contribute to determining the impact of such reforms on teachers' feelings and well-being. As a consequence, school leaders need to be adequately trained to manage not only financial and administrative tasks but also human resources and work teams. Mentoring and tutoring approaches are also recommended to provide personalized support. Teachers' resilience is, in fact, a delicate process involving personal sense-making and identity development. Contextual supportive conditions therefore need to be reinforced by the opportunity to be individually sustained. Moreover, different dilemmas, challenges, and resources are represented in different professional life phases. Thus, individual supervision or counseling should be provided throughout one's teaching career and considering variations across the professional life-span.

Finally, at the level of *teachers' education*, two implications can be outlined. First, adequate didactical and classroom management skills need to be provided, particularly in terms of flexibility. Many studies have demonstrated the strict relationship between professional well-being and self-efficacy. A sense of competence

or efficacy is also described as an essential part of the resilience concept. In this respect, VET teachers need to be supported in adapting conceptual and practical knowledge to take advantage of the full potential of integrated learning, that is, to learn by combining theory and practice in a meaningful way.

Second, students' low motivation toward their occupation was found to be a source of frustration and anger for vocational school teachers. However, professional identity development is a part of the vocational learning process, and teachers need to guide students in this process. VET teacher education should support teachers in accomplishing this task, and new pedagogical and didactic frameworks are needed to include the students' identity development as an integrated part of the vocational learning process.

To conclude, several considerations can be pointed out with respect to VET research. Although there is a growing interest in investigating resilience among specific types of teachers, e.g., primary school teachers, special education teachers, and inner-city school teachers, few studies have focused on vocational school teachers. The Swiss study reported in this chapter aimed to fill this gap. However, other studies are needed to reach a more comprehensive and generalizable view of this population. In addition, the dynamic and multifaceted nature of teachers' well-being and resilience is difficult to capture empirically. Longitudinal research should be encouraged to explore resilient trajectories instead of depicting the resilient status of teachers in a "one moment in time picture." Finally, a further investment in multi-method approaches is needed to make research more consistent with the multi-dimensional nature of teachers' resilience.

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# Vocational Teacher Preparation: The United States 91

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## Abstract

The first federal legislative and financial involvement in the development of formal vocational education programs in the United States, the Smith-Hughes Act of 1917, required teacher preparation in vocational education. Historically, there have been two pathways to vocational teacher certification/licensure. The first is focused on a traditional teacher preparation model, using colleges and universities with degree programs consisting of general education, technical content, and teacher pedagogy, including student teaching. An alternative pathway has relied on work experience in the discipline in which certification/licensure is sought, supplemented by a teacher education program at a university. These differing pathways have existed for over 100 years. Vocational education in the United States has suffered from negative perceptions of quality and effectiveness, and vocational teachers have also been subject to concerns regarding their teaching abilities. The alternative preparation route has had widely diverse requirements and pedagogical preparation from state to state, due to the decentralized US educational system. As a result, vocational teacher preparation

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is not standardized across the United States. In addition, vocational schools using the alternative route to employ teachers have faced challenges in recruiting and retaining teachers from private industry. Another current challenge facing vocational teacher preparation in the United States is the reduction in financial support for vocational education programs, despite the need for skilled labor throughout the country. This has led to a corresponding reduced number of colleges and universities providing vocational teacher preparation programs. At a time when high-quality vocational teachers are needed, these and other concerns and challenges face the field.

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**Keywords**

Teacher education · Career and technical education · Vocational education · Vocational teachers

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## Introduction

Secondary vocational education courses and programs of study have been formally recognized by the US government for over 100 years. The first federal legislation to address vocational education, the Smith-Hughes Act, was signed into law in 1917. Since that time vocational education has struggled to find a foothold in the US educational system, battling perceptions of it as “second-class” education and as a dumping ground for less capable students. One of the primary contributors to these struggles has been public perceptions of the preparation of vocational education teachers, the resulting quality of teachers, and thus the abilities of these individuals to prepare students for the workplace or further education and training (Adams 2010; Dykman 1993; Lynch 1991, 1997; Rojewski 2002; Ruhland and Bremer 2002, 2003, Silverberg et al. 2004; Zirkle and Martin 2012). In addition, in recent years, as the United States has faced a teacher shortage in many academic disciplines, vocational education has faced its own shortages of qualified teachers, continually hampering the field’s efforts to improve both the quality of vocational education courses and programs and public perceptions of their quality. This chapter will provide a brief historical context and will examine the methods and requirements of present-day vocational teacher preparation, with a comprehensive discussion of the challenges and opportunities facing the field of vocational education as it relates to teachers in the field.

In some US states, an official credential to teach is known as a teaching license, while in other states, the required credential is referred to as a teaching certificate. The wording difference is due to the preference of individual states and is a result of the decentralized nature of the US educational system, which requires responsibility for educational policy and implementation to be held by each state. For the purposes of clarity, the teaching credential will be referred to as a teaching license in this chapter.

At the present time, vocational education is known as “career and technical education.” The name was changed in 1998 as part of a national effort to address



the negative perceptions surrounding vocational education. For the purposes of this chapter, the term vocational education will be used throughout.

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## Historical Perspectives

In the United States, the concept of teacher preparation and licensure has been in existence for almost 200 years. In 1825 in Maryland and Massachusetts, local counties set up rules and guidelines for the licensure of teachers for area schools (Kinney 1964). However, the initial preparatory requirements for teachers were generally modest, as prospective teachers only needed to persuade a local county school board of their moral character and, in some cases, pass a test of their general academic knowledge (Ravitch 2003). In the late 1830s, noted educational reformer Horace Mann of Massachusetts proposed a system of free, universal, and nonsectarian schooling (Public Broadcasting Service 2001). These schools, called Common Schools, would provide educational opportunities for all children, regardless of religion or social class. As a result, Mann and others realized that quality schools would require quality teachers, and the Normal School was developed to train teachers for the Common Schools. Normal Schools provided training in instructional methods and subject matter. Normal Schools began to emerge in the mid-1840s; during this time some states developed and required a summer institute as a way for prospective teachers to develop skills and knowledge in both pedagogy and subject matter (Mattingly 1975). These institutes were offered as a quick way to cope with the growing number of Common Schools being opened and the resulting need for teachers.

As the country grew and developed, school systems and educational policies grew in complexity, also including requirements for the preparation and licensing of teachers. By 1927, 33 states had specialized requirements, such as 4 years of college and professional education coursework, for secondary school teaching (Kinney 1964). It was also during this time that efforts emerged to professionalize teaching and education courses and teacher preparation programs began to gravitate into regular colleges and universities. By 1960, 44 states required a bachelor's degree to teach in elementary schools (Armstrong and Stinnett 1962).

By the early 1900s, many of the Normal Schools which began as teacher training institutions had progressed into regional state universities, and their mission grew from teacher training to educational programming across the arts and sciences, business, and engineering. Universities, such as Central Michigan University, Eastern Washington University, the University of Northern Iowa, and Illinois State University, all began as Normal Schools focused on teacher training and evolved into much larger educational institutions.

An important milestone for the credentialing and preparation of teachers in the United States occurred in 1954 with the founding of the National Council for Accreditation of Teacher Education (NCATE) (2017). The organization developed initial national standards for the preparation of teachers. The organization operated independently with no government assistance and worked with a majority of states to

accredit teacher licensure programs at various educational institutions. In 1997, a competing accrediting body, the Teacher Education Accreditation Council (TEAC), was founded, and in 2016, TEAC and NCATE completed a merger into the Council for the Accreditation of Educator Preparation (CAEP), which is now the de facto accrediting body for teacher preparation in the United States.

Although organizations such as NCATE and CAEP have a role to play in assuring the quality of teacher preparation programs, teacher preparation and requirements for licensure are largely a responsibility of individual states. As a result, while there are significant similarities among the states in what is required to become a teacher, there are also notable differences. Nowhere are these differences more pronounced than in vocational education, as we will see with the forthcoming sections of this chapter.

Vocational education was one of the first content areas to require a teaching credential of its teachers, and the Smith-Hughes Act expressly required vocational teacher education programming of the states receiving federal funding (this requirement also exists in the Carl D. Perkins Act of 2006, the present-day version of the Smith-Hughes Act). However, the initial group which advocated for vocational education programming in schools, the Federal Board for Vocational Education, also pushed for different teacher preparation methods for vocational teachers. The group, led by Charles Prosser, believed that traditional college and university teacher preparation programs were not capable of meeting the needs of vocational teachers. Prosser's group also believed that vocational teachers needed practical work experience in their occupation before they could teach students (Prosser and Quigley 1949). As a result, the requirement for occupational work experience has been a consistent component of vocational teacher qualifications through the decades.

This occupational work experience requirement espoused by Prosser and others was grounded in the belief that occupational work experience would result in better student outcomes (Lynch 1997) and that these benefits would increase as more experience was held by the teacher. It was also believed that vocational teachers needed specialized preparation that university-level teacher training could not provide. The Smith-Hughes Act of 1917 specified states must have sufficient programs of vocational teacher education and provided funds to do so. Most of these initial programs were provided by the states themselves in the form of specialized workshops, not college or university preparation programs. Thus, alternative pathways for both the preparation and licensing of vocational teachers were put into place.

As noted by Lynch (1997), an interesting contradiction existed in the thinking of the individuals charged with defining the training needs of vocational teachers. While teachers from the technical trades, such as drafting, machining, or construction, needed work experience and specialized teacher training, other areas of vocational education, namely, agriculture and home economics, could prepare teachers in a traditional college or university teacher training program, provided the students had agricultural experiences on a family farm or had "homemaking projects under the cooperative tutorage of her mother and her high school homemaking teacher" (Prosser and Quigley 1949, p. 310). This approach mirrors the educational

philosophy of John Dewey, who believed that education should prepare students for a lifetime of learning and “teachers must be prepared in general education and in professional education courses dealing with the context and understandings related to students’ activities” (McCaslin and Parks 2002, p. 13). The preparation of vocational teachers in broad vocational areas, such as agriculture and business, represents a more traditional approach to licensure, requiring baccalaureate degrees in a related subject area with professional education coursework (Ruhland and Bremer 2002), and more closely resembles the traditional requirements of academic teacher licensure in areas such as mathematics, language arts, and the sciences (Zirkle et al. 2010).

This dichotomy of parallel methods for the preparation of vocational teachers continues today. As vocational education programming has expanded into other subject areas, such as marketing education and health occupations, meeting the pedagogical training needs of such a variety of individuals has presented other challenges. In response, numerous vocational teacher preparation approaches among the 50 states have emerged. Most states have developed alternative teacher preparation programs for vocational teachers from industry using the resources of colleges and universities, moving away from Prosser’s earlier assertions that the needs of these individuals cannot be served by higher education institutions. Today, many alternative programs “blend” their curriculum into programs that prepare traditional vocational teachers of agriculture, business, and home economics (now known as family and consumer sciences).

Over the years, these dissimilar approaches have sparked discussion and criticism, mostly of the alternative pathways that have been developed, some of which require very little in the way of pedagogical training (Zirkle 2016). In 1994, the National Assessment of Vocational Education, conducted by the US Department of Education (Boesel et al. 1994), concluded that the decades-long belief that extensive occupational experience was key to positive student outcomes conferred no particular benefit, although some occupational experience was beneficial. The report noted that vocational teachers “would be better off with more formal education and less occupational experience” (Boesel et al. 1994, p. 75).

A companion study by Cramer (1994) cited these alternatively licensed vocational teachers for their lack of academic preparation, while still others have noted other concerns, including exemption from teacher proficiency testing (Bonsu et al. 2013; Gray and Wang 1989; Ohio Department of Education 2017a) and widely varying requirements as well as the shrinking number of preparation programs at colleges and universities nationwide (Fletcher and Gordon 2017; Fletcher et al. 2015; Zirkle et al. 2007).

In recent years, various state departments of education have responded to these criticisms in a variety of ways. Some have sought to increase alternative vocational teacher requirements, while others have reduced them. Other states have implemented vocational teacher testing, only to remove it (Ohio Department of Education 2017b). With respect to what is needed to enter vocational teaching, these events have led to a wide and diverse set of requirements, depending upon method of entry into teaching and the state in which licensure is sought.

## Teacher Licensure Requirements

Vocational education teachers in the United States currently number approximately 231,800 (United States Department of Labor 2017). Most teach in middle and junior high schools, comprehensive high schools, and area vocational centers, although 2-year community and technical colleges and correctional institutions also employ vocational education teachers (however, most states have no licensing requirements for vocational teachers at the postsecondary level). Each teacher must meet the requirements for licensure set forth by the respective state. As previously mentioned, vocational education, with its many subject disciplines, has historically had two pathways to certification/licensure: a traditional degree-based program and several different types of alternative pathways based on occupational work experience and some form of pedagogical training. Over the past three decades, a small number of studies have attempted to define more specifically the various requirements to become a vocational education teacher in the United States.

*Traditional pathway.* In the United States, the overwhelming majority of teachers in grades kindergarten through high school are licensed through a state-approved degree program of courses leading to either a baccalaureate or master's degree in education. A typical baccalaureate degree in education generally contains three broad course categories: general education courses in English, mathematics, the arts and humanities, natural sciences, and social sciences, usually to meet a given university's degree requirement; a specific number of courses in the content area to be taught, such as a vocational business teacher taking courses in accounting, finance, business law, economics, business writing, management, and information technology; and education/pedagogy courses, including field experiences and culminating in a student teaching experience. Individuals pursuing vocational teacher licensure through a master's degree program typically have a baccalaureate degree in a vocationally related subject area, such as agriculture, business, or consumer sciences. The master's degree would consist of the education/pedagogy requirements, including the field experiences and culminating in a student teaching experience.

The education/pedagogy requirements are fairly similar across all teaching disciplines, including vocational education, although some vocational preparation programs may have work experience requirements and testing variances (Zirkle et al. 2007). Sample pedagogical preparation that is required for vocational education teachers includes such courses as:

- Foundations of education/vocational education
- Educational psychology and learning theories
- Teaching methods
- Curriculum development
- Classroom and laboratory management
- Assessment/grading of student performance
- Using educational technology in instruction (Zirkle 2015)

To obtain a traditional vocational teacher license, additional requirements may need to be completed, such as exit tests. This requirement is prevalent in traditional vocational teacher preparation. As mentioned previously, each state is responsible for setting its own educational policies, and with regard to testing of these teacher candidates, there is wide variation. Some states require a test of basic academic skills such as the PRAXIS core academic skills tests, developed by the Educational Testing Service (ETS). These tests measure academic skills in reading, writing, and mathematics. Content area tests are very common, and many states require vocational teachers to pass tests of their knowledge of agriculture, business, family and consumer sciences, or marketing. Tests of pedagogical knowledge are also very common. Some states use the PRAXIS series of teaching assessments, while still other states develop their own tests. A few states partner with testing agencies to develop state-specific tests. An example of this approach is Ohio, which uses the Ohio Assessments for Educators (Ohio Department of Education 2017c), developed by Person VUE, a major producer of educational tests in the United States.

*Alternative pathway.* It must be noted and clarified at this point that the primary requirement for licensure in an alternative pathway to vocational teacher licensure is occupational work experience. This dates back to the early days of formalized vocational programming, when the Smith-Hughes Act stated that only personnel with practical work experience were permitted to teach in programs that were federally funded (Miller 1982). From a definitional standpoint, Humphrey and Wechsler (2007) defined alternative programs as “licensing routes that allow persons to enter the teaching profession by earning a standard license or teaching certificate without completing a traditional 4- or 5-year university-based program” (p. 485).

Alternative pathways for vocational teacher preparation are quite different than the traditional pathway. While the traditional pathway has many similar structural requirements across the states, the alternative pathway does not. Zirkle et al. (2007), in their comprehensive review of vocational teacher education, found more than 100 different sets of requirements for the initial licensing of vocational teachers through an alternative pathway. Variability exists in several areas, including the number of years of occupational work experience required, the requirement for specific occupational credentials, educational background, and the length, type, and methods of vocational teacher preparation.

As noted previously, occupational work experience has been a hallmark of vocational teacher licensure dating back to the early 1900s and has been specified through a variety of policies and state requirements through the years (Lewis 1926; Barlow 1967; Pinchak 2007). In a 1996a study, Lynch found the requirement for occupational work experience to be a range between 2 and 9 years. Zirkle et al. (2007) found this range to be 2–7 years, although they found some alternative routes which did not require work experience, but required passage of an occupational knowledge test. A study by Bonsu et al. (2013) found the occupational work experience requirement to be prevalent but also listed more flexible options to the work experience requirement, such as appropriate content area coursework professional development or passage of an occupational knowledge test.

The requirement for a specified level of education for vocational teachers entering through an alternative pathway is also varied. While traditional academic teaching disciplines have parallel content area degrees (e.g., baccalaureate degrees in mathematics, English, or chemistry), many vocational areas, such as automotive mechanics, electrical trades, or welding, may have no postsecondary degree. Instead, individuals in these areas get their training through various methods, such as apprenticeships, military training, on-the-job with a private company, or perhaps an associate degree from a community or technical college. The licensure requirements for vocational education teachers generally recognize these circumstances and set the minimum educational standard at a high school diploma. In some cases, there are a set of requirements that specify a minimum level of both occupational work experience and education and there can be some “give and take” between these requirements. For example, a state may require a high school diploma and 5 years of work experience, or if the individual holds a 2-year associate degree in a related occupational field, the work experience requirement may be reduced to 3 years.

Certain states may also require that industry-recognized certifications be held by vocational teachers. For example, industry certifications such as Automotive Service Excellence (ASE) and the American Welding Society (AWS) may be required to teach automotive technology or welding programs, and a separate professional license to practice as a registered nurse may be required to teach some health occupations programs.

Testing of these alternative pathway vocational teachers has been varied and has occasionally resulted in unforeseen outcomes. In addition to requiring occupational work experience, some states require a test of occupational knowledge. An example of this assessment is the National Occupational Competency Testing Institute (2017) set of teacher tests. These tests assess the technical knowledge of vocational teachers, and states can set requirements for an appropriate passing score in order to be licensed. Other states have developed their own technical knowledge assessments, while others do not require a technical knowledge assessment. To add to the variability of testing requirements, some states require passage of a test of pedagogical knowledge, using the PRAXIS tests or some other similar assessment. In some cases, these requirements have had mixed results. Many of these pedagogy tests have been standardized or “normed” on graduates of 4-year university teacher education programs. An overwhelming majority of individuals entering teaching through an alternative pathway do not have degrees in education; instead they may have degrees in nursing, agriculture, or business or perhaps no college education at all. In 2005, the state of Ohio implemented the use of the PRAXIS teaching assessment, only to remove it soon after when many vocational teachers could not pass the test.

Actual pedagogical preparation of vocational teachers has also been extremely varied with respect to the amount of training provided and required. Zirkle et al. (2007) found a few states that required as few as 90 clock-hours (equivalent to 6 semester credit hours) of teacher training as part of initial licensure, to states requiring between 45 and 60 semester hours, depending on the alternative pathway taken. This variability in the preparation of vocational teachers may be in part

responsible for the negative public perceptions of vocational teachers and vocational education in general in the United States.

Most states have limits on the duration of a teaching license and require periodic renewal of the credential. Again, there is much variability in this area due to individual state requirements. However, in general, teaching licenses generally are in effect for 4–5 years and then expire. Teachers must complete professional development activities to renew the license. These activities can include college/university coursework in a vocational content area, or teaching pedagogy; professional development activities, such as workshops and seminars; or, in the case of some vocational teachers, industry updates in the form of manufacturer-sponsored technical update training. With respect to the renewal of their teaching licenses, vocational teachers can be challenged to keep up with innovations in teaching methods while, at the same time, be required to stay current with technological changes within their occupational area.

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## Providers of Vocational Teacher Preparation

As referenced earlier, based on the beliefs of Prosser and others, the early years of vocational teacher preparation saw special workshops and other activities delivered by the states to those individuals entering teaching through business and industry. These efforts did not initially include colleges and universities. However, as time passed, many of the land-grant universities, which initially prepared agricultural education and home economics teachers, also began to offer alternative programs for vocational teachers entering the profession from business and industry. The Pennsylvania State University, the Ohio State University, and the Virginia Agricultural and Mechanical College (now known as Virginia Tech), which are all public, land-grant research universities, developed programs to prepare individuals for the teaching profession in a variety of traditional, degree-based programs as well as alternative pathways.

Vocational teacher preparation has historically had the support of the federal government, both in legislation and with monetary funding. Beginning with the Smith-Hughes Act of 1917, federal monies have been earmarked for various vocational teacher preparation programs. These funds, directed to the states, eventually found their way to college and university programs, which provided the needed pedagogical training. It should be noted that while much of the training in recent decades has been provided by colleges and universities, states have held the ability to provide the training themselves or to use third-party providers, dependent upon the individual state requirements for vocational teacher licensure. Lynch (1996b) found that pedagogical training provided to vocational teachers outside the confines of a college or university consisted of an average of only 120 clock-hours of training through either state programming or third parties.

In 1991, Lynch sought to define a national database examining, among other data, a listing of the providers of vocational teacher preparation at colleges and universities. In this study, Lynch found 90 teacher education programs in agricultural



education, 236 in business education, 32 in health occupations education, 268 in home economics education, 89 in marketing education, 176 in industrial arts or technology education, 122 in trade and industrial education, and 98 in vocational special needs (Lynch 1991, p. 191). A total of 432 educational institutions were listed as providers of vocational teacher preparation programs (some institutions offered preparation in more than one program area). At the time of Lynch's work in 1991, traditional degree-based programs were found within agricultural education, business education, home economics education, marketing education, and industrial arts or technology education and in vocational special needs, while alternative programs made up most of the preparation health occupations and trade and industrial education teachers, as these individuals were more likely to be entering teaching through business and industry. This structure is largely still in place today.

By 1996, many vocational teacher education programs were beginning to consolidate (Gray and Walter 2001) and had merged the preparation of their teachers into one common program of study. Thus, programs that previously may have prepared business teachers were folded together with home economics programs or agriculture education programs as a way to survive. In 2001, Bruening et al. sought to replicate parts of Lynch's earlier work and found some of the effects of this consolidation. Their study found 385 institutions across the United States offering some type of vocational teacher preparation program, an 11% decrease from Lynch's study just 10 years prior.

Numerous other studies in the late 1980s to early 2000s also documented the decline of various forms of vocational teacher preparation (Anderson 1986; Camp 1998; Hartley et al. 1996; Lynch 1996a, 1997; Miller 1982; Pratzner and Ryan 1990; Ruhland and Bremer 2002). Some of this decline can be attributed to declining enrollments in secondary vocational courses and programs in the late 1980s and early 1990s. These events also helped serve as a catalyst for many of the curricular changes occurring within the discipline of vocational education, starting in the late 1990s with the name change to career and technical education.

In 2015, Fletcher et al. replicated in large part the work of Bruening et al. (2001). Their study found 263 higher education institutions providing some form of vocational teacher preparation, either traditional, degree-based programs or some type of alternative preparation. This study documented the continued decline in vocational teacher preparation programs. In the past decade, a number of large universities with notable legacies of vocational teacher preparation have dropped some or all of their programs, including the University of Kentucky, Purdue University, and the University of Minnesota. A follow-up study by Fletcher and Gordon (2017) elaborated upon the 2015 study and noted the need for colleges and universities to consider online instruction in teacher preparation, the need for the recruitment of a talented and diverse vocational education teaching force, and that declining enrollments in vocational preparation programs were an ongoing concern.

As colleges and universities have reduced their involvement with vocational teacher preparation, states have offered workshops and seminars themselves or have contracted with third-party providers to provide teacher training. One of the more well-known providers is the Southern Regional Education Board (SREB), which offers a



program entitled *Teaching to Lead*, a 200 clock-hour program designed for new vocational teachers pursuing an alternative route to licensure. Many southern states, such as Mississippi, Tennessee, and Western Virginia, use the SREB-developed program to prepare at least some of their vocational education teachers.

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## Present-Day Issues and Challenges

At present, vocational education is experiencing a renaissance of sorts. Decades-long negative perceptions of vocational education programming are slowly changing (Zirkle 2016). Several initiatives have contributed to increased interest in vocational education. Project-based learning has become a common instructional method in vocational education courses and programs. These projects are often multidisciplinary, integrating multiple core academic areas. This approach incorporates rigorous academic content and focuses on skills needed by the workplace such as collaboration, communication, and critical thinking. As such, the academic preparation of vocational education students has vastly improved, which better prepares them for the workplace of the twenty-first century. This focus on academics has also helped develop initiatives such as postsecondary articulation between secondary and postsecondary vocational education courses and programs, which have led to “dual-credit” courses, in which students can earn college/university credit while enrolled in a secondary program. In addition, vocational education curricula have moved away from preparation for one specific occupation. The curriculum has been organized into career clusters, a curricular framework of broad career areas, designed to prepare students to transition successfully from high school to postsecondary education and employment in a career area. Imbedded in many of these courses and programs is an emphasis on work-based learning, featuring internships, pre-apprenticeship programs, and other efforts to get students “real-world” experiences outside the classroom.

As vocational education becomes more a part of the educational mainstream in the United States, other events are affecting the discipline in less positive ways. The United States is experiencing a nationwide shortage of skilled labor, particularly in several areas specific to vocational education (Applebaum 2017; Donnelly 2017; Mayersohn 2017). Occupations such as the construction trades (carpenters, electricians, plumbers, etc.), the manufacturing industry (machinists, welders), and the transportation sector (automotive technicians and mechanics) are facing an aging workforce with significant uncertainty as to where replacements will come from.

In addition, the American culture still prizes a 4-year college/university degree above all other forms of education. Many students, school officials, parents, and policymakers still believe the only path to success is through a baccalaureate degree. This perception exists despite the data documenting wages for technically skilled workers in the construction, healthcare, manufacturing, and transportation industries ranging anywhere from \$48,000 to \$65,000 for occupations requiring less than a bachelor’s degree (United States Department of Labor 2017).

The teaching profession in the United States does not hold high social status. In a recent study of the social status of teachers, the United States came in the ninth,

behind such countries as China, South Korea, and New Zealand (Klein 2013). In addition, the attrition rate for teachers in the United States is high, with as many as 8% of the teaching force leaving the profession each year (Westervelt 2016). This statistic, coupled with dwindling numbers of college and university students entering teacher education programs, has led to significant teacher shortages, especially in the areas of math, science, and special education.

The variability of the requirements for vocational education teachers, particularly those prepared through some type of alternative pathway, has led, in part, to a long history of challenges and concerns related to vocational education teacher quality and the expertise and abilities of these individuals. Numerous studies and analyses in the last quarter-century (Adams 2010; Cramer 1994; Dykman 1993; Lynch 1991, 1997; Rojewski 2002; Ruhland and Bremer 2002; Silverberg et al. 2004; Walter and Gray 2002; Zirkle and Martin 2012) have discussed this issue, with various recommendations made, largely on the basis of anecdotal evidence and observations. To date, scant research has been conducted to examine the associations between specific characteristics of CTE teachers and student performance in CTE courses and on standardized assessments. The lack of a national research agenda for vocational education has exacerbated this issue.

Finally, despite the recent resurgence of vocational education, the federal funding for courses and programs through the Perkins Act (the present-day version of the Smith-Hughes Act) has actually decreased by \$188 million in the period from 2004 to 2017 (Advance CTE 2017). This has led states in many cases to cut or discontinue funding for vocational teacher preparation, whether to colleges and universities, state programs, or third-party providers.

All of these issues have had significant impacts on vocational teacher preparation and the licensing of vocational teachers. As vocational education becomes more of a “first choice” in the minds of students, the need for quality teachers has never been more apparent. The ability for vocational education courses and programs to offer college/university credit and prepare students for both college and a career has put more of an emphasis on teacher quality and, in turn, high-quality teacher preparation.

This focus on quality comes at a time when skilled labor is in high need, and enticing talented workers to enter teaching is a challenge. This has led vocational education to experience many of the same teacher shortages documented in academic areas. This situation is not helped by the present social status of teaching in the United States nor the fact that recent studies have shown teacher salaries have fallen when compared to other professional occupations requiring a similar level of education (Baker 2017; Mulhere 2017; Partelow 2016). On average, beginning teachers make about 20% less than college graduates in other fields (Podolsky et al. 2016). While business and industry is increasing salary and benefits to recruit and retain skilled individuals, schools simply cannot compete on these key aspects of employment.

Part of the teacher shortage is driven by the low retention rates of new, beginning teachers. With respect to alternatively prepared teachers, research has shown (Carver-Thomas and Darling-Hammond 2017; Schaffhauser 2014; Strauss 2017) that the longer a teacher receives mentoring and stays engaged in pedagogical preparation, the longer they are likely to remain in teaching. Unfortunately, one of the current trends in

vocational teacher preparation has been to lower the requirements for entry into teaching as a way to address the teacher shortage, either through lowering the number of college/university credit hours needed or by creating more alternative-type paths, using third-party providers or state-developed online “modules” designed to get a vocational teacher into the classroom quickly. These efforts would seem to be in opposition to the research that demonstrates the need for ongoing, structured mentoring and training of vocational teachers entering from business and industry. This situation has also been magnified by the lack of increased funding for vocational education through the Perkins Act. As less funds are available overall, monies for teacher training of any type are compromised.

It would seem there exists a “perfect storm” of events affecting vocational teacher preparation at the present time. The labor market needs skilled labor, which reduces the pool of potential teacher candidates. The social status of teachers in the United States, along with low salaries, is discouraging individuals from entering the profession from either traditional or alternative pathways. Vocational teacher preparation programs at colleges and universities are struggling to keep operational, in part to lower requirements and standards for vocational teachers, and because of a lack of federal funding to support their efforts. The reduced requirements, while intended to reduce a teacher shortage, may actually be compounding the situation by producing poorly trained teachers, unprepared for the demands of teaching. The resulting revolving door of teachers entering and leaving the profession as a result will only harm efforts to improve the status and quality of vocational courses and programs.

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## Conclusion

It would seem prudent for the United States to invest in their vocational teachers, rather than “watering down” both the requirements for entry into the profession and the resulting preparation. Doing so will require effort and allocated resources on the part of legislators, policymakers, educators, and the public at large. To stem the skilled labor shortage, the country must have a cadre of teachers to prepare both present and future workers. These individuals must be prepared to address the challenges inherent in a vocational classroom and laboratory. Shortcuts and abbreviated preparation will not achieve the needed results, nor will it improve the public perceptions of vocational education and its teachers. More than 100 years ago, Prosser and his colleagues, and the resulting Smith-Hughes Act, recognized the importance of teacher training in the vocational education equation. It is equally important today.

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# TVET Teachers in the Changing World: The Case of Russia

# 92

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## Abstract

This chapter addresses different perspectives on the development and current state of play of TVET teacher training in Russia against a historical context of TVET evolution in the country. In the Introduction, basic facts and figures about the TVET system are presented followed by a brief historical overview of the evolution of TVET teacher training in Russia. This is presented against the transformations of the training of workers in the twentieth century when training teachers for TVET acquired a systemic character and respective research and programs began to be developed. The next section looks into the impact of societal and developmental factors, such as challenges of sustainable development, green economy, and green skills fostering, on the competences of teachers. Key weaknesses of the system of TVET teacher training are identified, and a set of measures to enhance its quality are reviewed. Challenges for TVET teacher training as well as solutions adopted are addressed, including the search for ways to effectively foster new competences of TVET teachers relating to changes in the graduates' skills required by the labor market in the framework of the sustainable development agenda and of the greening of the economy (green jobs, fostering

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green skills, greening the curricula and TVET schools). The impact of internationalization on the enhancement of TVET teacher training in Russia is also examined. The conclusions finalizing the chapter relate to possible ways to enhance quality of TVET teacher qualifications.

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**Keywords**

Teacher training · Teacher education · Competences · Curricula · Skills · Quality of training · TVET system

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## Introduction

In this chapter, a brief analytic overview of the evolution and current state of play of the TVET teacher landscape in Russia is presented against the background and evolution of the TVET system that in Russia is called secondary vocational education (SVET). However to avoid confusion, in this chapter, it will be referred to as TVET. Under the Law “On Education in the Russian Federation” adopted on December 29, 2012, the TVET system in the Russian Federation embraces both initial VET programs training qualified workers and secondary vocational education programs training mid-level specialists (Zakon 2012).

Before the adoption of the Law, the vocational education system was explicitly divided into two strands, namely, initial and secondary vocational education.

In terms of qualification levels (the European Qualifications Framework), programs training qualified workers can be compared to EQF level 3, while those training mid-level specialists can be compared to EQF level 4 and 5 (the latter advanced programs with a stronger practical focus) (The European Qualifications Framework 2011).

Initial and secondary vocational education programs can be accessed after completion of general secondary education (9 grades) or complete secondary education (11 grades). For those after the general secondary school, the programs integrate general education subjects, so that upon graduation students have an occupational qualification and a certificate of complete secondary general education. Naturally, the duration of training under these programs will be longer. The vocational education component of the curricula is identical for both categories of programs.

The overall TVET teacher cohort in Russia amounts to about 220,000 (2016 data) people, including 50,000 instructors of practical training. Over 87% of TVET teachers and 36% of instructors of practical training have a higher education; in addition, over 200 and 4,500 teachers have a doctoral and a postdoctoral degree (in Russian terminology, they are candidates and doctors of science), respectively. TVET programs are offered by technicums and colleges, and they are also implemented at 400 higher education institutions (Zolotaryeva 2016).

Like in many countries across the world, TVET in Russia originated in the fourteenth century within the crafts shops where apprentices learnt on the job from



the master craftsman. At this period, the knowledge, skills, and know-how for a specific trade were vested in craftsmen.

In the first half of the eighteenth century, first signs of the state's regulation of education appeared, with the opening of vocational schools, accompanied by the adoption of regulations for the content of study programs and of procedures for organizing instruction.

Starting from the early nineteenth century, in the context of the country's industrial growth, crafts schools emerged that were very well equipped and employed the best teachers and instructors available. During this period commercial schools (training students for the sector of commerce) and popular/people's schools (training teachers for primary schools) appeared. These were followed by engineering schools (also called industrial-technical schools) that marked the birth of the system of higher engineering education. The network of industrial-technical schools was later transformed into sector-affiliated higher education institutions, with profiles ranging from pedagogy to architecture to technology to civil engineering to agriculture and later on to railroad building and to veterinary science.

By the second half of the nineteenth century, the TVET system as such was formed, and the "General normal plan for industrial education in Russia" was adopted. (The titles of documents and publications are reproduced in the word-for-word translation.) Toward the end of the nineteenth century, the TVET system comprised crafts schools and lower and secondary technical schools for boys of 11–14 years of age. The content of 3-year programs was largely practical work-based training under the guidance of specialists from industry. No specific preservice TVET teacher training was in place, which negatively impacted the quality of training.

At this time the never-ending debate about the content of TVET programs started, triggered off by a publication "Vocational schools and teaching crafts to the youth" produced by Nicolay Vessel who advocated against teaching general subjects at TVET schools, claiming that TVET should admit only the youth with a sound general school education. This debate recurs every once in a while up to the present day (Saprikin 2009).

At the turn of the past century, the first theoretic approaches to TVET were developed that later impacted the content of TVET teacher training. For example, it was proposed to organize the TVET training around operations and techniques appropriate for an occupation, but without regard to the final products (Kairov and Petrov 1968). At that time, this methodology was widely acclaimed internationally. Namely, the Russian TVET system got international recognition at the Polytechnic Exhibition in Moscow in 1872, at the International Fair in Vienna, and at the International Industrial Fair in Philadelphia in 1876.

The above approach persisted for decades in the Soviet and post-Soviet TVET system in Russia, and it still widely – even if subconsciously – impacts the mentality and practices of TVET teachers and methodologists, slowing down the implementation of outcome-based approaches.

However, at the time of its origin, it had an indisputable advantage, allowing one teacher to train a big group of apprentices.

Due to the development of the TVET system, in 1910 there were 1,423 TVET schools in Russia, with over 80,000 students. And to regulate the system in 1916, the Council for Affairs of Vocational Education was established chaired by Minister of People's Education Ignatyev.

After the 1917 revolution, the TVET system lived through various stages. During the first years of the Soviet State, all achievements of the earlier TVET system were disowned, and the continuity with the past was severed for ideological reasons (Shaïdenko 2002). As a first step, all TVET schools (private, public, sector affiliated) were integrated despite the differences in the content and methods of training, and about 20 policy decrees were issued about TVET. In July 1920 a Decree on the compulsory participation in TVET (the so-called TVET "conscription") was issued making it mandatory for all workers from 14/18 to 40 years of age to undertake some sort of vocational training. Then the so-called factory-plant apprenticeship schools were established that were the first TVET schools in the Soviet Union. The keynote idea underpinning these developments (advocated by Alexei Gastev [1882–1939, a revolutionary, trade unionist, poet and writer, theorist of the scientific labor organization, director of the Central Institute of Labour]) in terms of the content of training was to separate TVET and general education content.

On October 2, 1940, a centralized system of vocational and technical education was established by the Decree of the Presidium of the Supreme Soviet "On the state labour reserves of the USSR," and a Regulation "On conscription of urban and rural population to crafts schools, railroad-building schools and schools of factory and plant training" was adopted. The Decree stipulated the establishment of two types of TVET schools – schools with a 6-month duration of training to train workers of mass occupations and 2-year crafts and railroad schools to train qualified workers.

During the Great Patriotic War of 1941–1945, TVET schools were transformed into the so-called "school plants" that produced ammunition for the front. In 1959–1963 the above schools were transformed into TVET schools with differing duration of training. And then a whole package of reforms followed. In 1987 all TVET schools were transferred under the jurisdiction of the Ministry of General Education.

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## **TVET Teacher Training**

The above processes of TVET evolution could not but impact training of the teaching staff for the system. Some issues relating to this evolution bear a systemic character and were common to many countries, conditioned by a gradual crystallization of TVET as a system in its own right, and some are country specific, as the dramatic turns in the development of Russia exacerbated TVET's quest for its identity, which naturally reflected on the training of teachers.

TVET teacher training was shaped within the overall social institute of teacher training and will be examined against this broader context.

As indicated above, originally occupational knowledge and skills were transferred from craftsmen to apprentices in the process of what we now call work-based

learning. The first mention of the training of vocational teachers in Russia goes back to the end of eleventh century. However at that time the teachers did not receive any pedagogic education, they taught the skills they themselves had been taught.

In the nineteenth century, teacher education (or, as it is commonly called in Russia today, pedagogic education or professional-pedagogic education) was meant to train teachers who could teach literacy and numeracy or a broader range of general education subjects to children. Teacher training programs offered at universities aimed largely at training teachers for the same universities. On top of that, 3-year pedagogic institutes (preservice teacher training institutions) were opened at universities to train primary and secondary school teachers. However, they did not last long.

After 1864, specialized preservice teacher training institutes were established. In 1892 “Rules for future specific subjects teachers and for supervisors of practical classes at secondary and lower technical schools” were adopted, stipulating the requirements to hiring teachers. According to these requirements, people from industry, who were graduates from sector institutes and secondary technical schools, were eligible to work as TVET teachers.

Later, 1-year teacher training courses were launched for holders of a university or higher technical school diploma. However, the curricula did not have a practical training (work place) component, and the courses of pedagogy and history of pedagogy were very generic. The above model was not perfect and often relied on a trial and error method that could hardly prove effective for a beginning teacher, or instructor of practical training.

By 1917, there were 58 preservice teacher training institutes, and their graduates were offered a sound grounding in pedagogy and methodology.

Within the above system of teacher preservice and in-service education, the system of TVET teacher training (also often referred to as professional-pedagogic education and engineering professional education) shaped. The history of professional—/engineering-pedagogic education can be said to have passed through a number of stages.

Stage 1 started in the 1920s. During this period, the “Head Committee for Vocational Education” was established. Also, research in this area began to emerge, on issues of the organization and methodology of preservice TVET teacher training and of curricula content, using the experience of Germany and the United States. At this stage the term “engineer-teacher” emerged, and its evolution started. The term “engineer-teacher” suggests a combination of functions of the instructor of practical training and of a teacher of specific and generic occupational subjects. The term “engineering-pedagogic education” is often used in Russia as a synonym of a broader term “professional-pedagogic education.”

The need for TVET to have its own teacher training system was first voiced in Russia by Rubinstein who claimed that a TVET teacher must be an engineer competent in his or her occupational field, with competences in the field of psychology and pedagogy. According to him, the curricula for training TVET teachers must embrace philosophy and methodology of technical sciences, pedagogy, and history of pedagogy, psychology, anatomy of a human being, hygiene, and others (Rubinstein 1927).

In Petrograd (now St. Petersburg), the first professional-pedagogic education institution was opened in 1920 – a Technical Pedagogic Institute – which offered part-time programs for holders of a higher education diploma. The 6-month program comprised 30 general technical, specialization, and psychological-pedagogic subjects. However, the latter were very modest in volume and comprised experiential psychology, experiential pedagogy, history of schools and methods of teaching, and four methodological disciplines. Unfortunately, this experiment was short-lived for lack of equipment, manuals, and teaching and learning materials.

Other forms and formats of engineering-pedagogic education also existed, like the higher scientific-pedagogic courses, to retrain holders of higher education diplomas or graduate students. These courses trained TVET teachers of polytechnic and specialization (occupation specific) disciplines. However, their organizational and pedagogic aspects lacked an in-depth perspective. With time, three strands of training (or profiles) crystallized, namely, two for teachers of technical subjects (1 or 3 years of study) and one for instructors of practical training (9 months).

The training of instructors of practical training began after the establishment of Moscow industrial-pedagogic technicum where future instructors not only obtained a secondary TVET diploma (equivalent of level 4 EQF) but also acquired a sound occupational training.

A prototype of higher education institutions and faculties making up the contemporary system of professional–/engineering-pedagogic education can be observed in the Losinoostrovsky Agro-Pedagogic Institute (1922/1923) that offered fully fledged higher education programs integrating pedagogic and occupation-specific subjects.

As a rule, the engineering-pedagogic curricula covered engineering and technical subjects, psychology, pedagogy, and occupational skills development, as well as subjects relating to the management of TVET institutions or of training units at enterprises. As a result all curricula had sector-specific elements.

In the beginning of the 1930s, there were three professional–engineering-pedagogic institutes and over ten teacher training institutes offering training to TVET teachers. However, in 1937 all of them were closed down, and the preparation of staff for TVET went back to the short-term courses (lasting from several days to 6 months). This can be explained by a number of reasons, the central one being a lack of research to support the development of professional-pedagogic education.

The second stage goes back to the early 1940s. By 1942–1943 in the context of the Great Patriotic War (Second World War), industrial-pedagogic technicums (technical colleges) and teacher training departments at sector-affiliated colleges were established to train TVET teachers and instructors of practical training (the latter would have a secondary technical qualification, pedagogic knowledge, and a high occupational qualification).

The attention to instructors of practical training was conditioned by their dramatic shortage. In 1945 instructors were trained at 16 technicums and in 22 occupations of training. These technicums offered programs to workers who had an incomplete secondary education (seven classes at that period) and an occupational qualification of workers and who opted for a qualification of an instructor of practical training.

The content of training embraced general education subjects (39.9%), generic technical subjects (20.0%), specialization subjects (26.2%), pedagogic subjects (8.6%), work placements at the enterprises, a practical teaching period, and a practical training period prior to the presentation of the diploma project, as well as military training and preparation of the diploma project. There was a mandatory requirement for graduates to work as instructors of practical training for no less than 5 years after graduation.

After the war, the mass character of TVET resulted in the establishment of professional-pedagogic departments at universities. However the programs implemented at these departments focused on specialized occupation-related content, which undermined the quality of training TVET teachers.

The third stage began with the reform of the system of education stipulated in the Law “On the strengthening of links between school and life and on the further development of the system of people’s education in the USSR” that was promulgated at the end of 1958. To implement the reform, more TVET teachers were needed. To this end new departments/faculties were opened at the teacher training and sector institutes. By 1959 such education institutions amounted to 123 (On the reform of general and vocational school. Collection of documents and materials 1984).

In 1966, the All-Union Institute for Upgrading Qualifications of Engineering-Teaching Personnel opened with branches in many regions. Later on, upskilling faculties for this target group were established at sector HEIs.

Despite the above, the quality of training was not high for lack of a systemic approach, as the content of the implemented curricula represented a sum total of subjects from engineering and teacher training programs without a due focus on the specifics of the environment the graduates were supposed to work in.

At this stage the number of industrial-pedagogic technicums and occupations of engineers-teachers grew. In 1970 they were also trained at 13 higher education institutions.

It was during this period that in-depth theoretical and methodological research into issues of professional-pedagogic education began (Ternovskaya et al. 2014).

Until the late 1960s to early 1970s, TVET teacher training was still seeking its identity within the teacher training education. As a result, a network of higher education institutions training TVET teachers emerged that grew rapidly in the 1970s to early 1980s. By 1970 there were 52 universities in Russia, one third of graduates from which got jobs at schools and TVET schools. For example, in 1975 TVET teachers for the agricultural sector were trained at five HEIs (Batyshev 1976).

The fourth stage began in 1979 with the establishment of the Professional-Pedagogic Institute in Yekaterinburg (transformed in December 1993 into Urals State Professional-Pedagogical University), followed by two more – in Kharkov (now Ukraine) and in Nizhny Novgorod. These institutes pursued a twofold aim of providing a sound pedagogic/psychological education and occupation-relevant skills to its students – future teachers for secondary and higher education institutions (Romantsev and Fedorov 2010).

Currently, the Yekaterinburg University is the leader in professional-pedagogic education (that is also called engineering-pedagogic education). It has initiated a

methodological network of universities and colleges involved in training TVET teachers and instructors that comprises 222 education institutions (134 HEIs and 88 colleges where a qualification of instructor of practical training can be obtained). The university delivers both bachelor- and master-level programs.

In the 1980s much attention was given to enhancing quality of teachers for general and TVET schools, as was stipulated in the policy documents “Key areas of reforming general and TVET schools”; “Key areas of re-structuring higher and secondary specialized (TVET) education” (Key areas of reforming higher and secondary specialized education in the country. Collection of documents and materials).

By the mid-1980s, the content of university TVET teacher training curricula integrated provision of sound knowledge related to the sector occupation and to academic subjects, and fostering psychological and pedagogic skills.

The fourth stage lasted from late 1980s to early 1990s and carried further the developments of the previous stage. At this stage the quality of skills of graduates from TVET teacher training institutions enhanced. However, the taken measures failed to fully meet the demand for teachers and instructors of practical training.

The fifth stage started in the early 1990s of the past century, with a tectonic and often dramatic change in Russia’s political, social, and economic developmental paradigm and is currently on (Bolotov et al. 1992).

In the early 1990s, many HEIs stopped training TVET teachers for about 5–7 years. By the early 1990s, there were 2 engineering-pedagogic universities, 38 faculties at HEIs, 68 industrial-pedagogic technicums, and a network of institutes for upgrading teacher qualifications (Fedorov 2001).

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## Current State of Play

In the overall number of TVET teachers of generic occupational and specialization subjects, the majority have a higher professional-/engineering-pedagogic education, 5% have a secondary professional-/engineering-pedagogic education, and 1% have initial vocational education. About three quarters of the administrative and teaching staff are specialists with an industrial background without a teacher training qualification.

Quality of training teachers for the TVET system is a key target of the national policy in education, including TVET. This objective is explicitly stated in the Strategy for the Development of the System of Training Workforce and Fostering Applied Qualifications up to 2020 (Zeer et al. 1994). This issue is also in the sights of the Union of TVET Principals (a professional association of principals of TVET institutions established as a forum for fostering mutual learning, disseminating best practices, and initiating relevant change on the policy level).

The adequate supply of qualified teachers and instructors of practical training for the TVET system remains an issue and continues to top the education system agenda both on the policy and practical level, despite abundant research and publications on these issues. It would not be wrong to assume that the traditional model of training

TVET teachers lacks a student-centered orientation and a focus on practical aspects of organizing the learning of the students. This may be due to the gap between the research findings and their implementation.

Despite the above, positive developments are obvious. Namely, after the period of the early 1990s marked by political and economic changes due to a dramatic change in the political and economic development paradigm, and despite the never-ending chain of financial crises, enterprises in Russia have developed an awareness of their own role in enhancing quality of TVET and that of training teachers for the system. To this end, they are increasingly cooperating with TVET schools, which results in fostering new skills in TVET teachers relating to the cooperation with the world of work. Teachers and instructors of practical training now have access to internships at enterprises and to a first-hand exposure to industrial developments.

On the whole, the awareness of a need for new TVET teacher skills is growing, and opportunities for their acquisition are formally integrated in the content of preservice curricula and in-service teacher training programs, all of which are competence-based and address fostering subject-specific and generic competences.

However, the new developments have not yet fully transformed the TVET teacher training system, and the current situation remains characterized by a dual bottleneck, that of skills shortages and skills gaps. The first issue relates to a persistent shortage of TVET teachers and instructors (around 30%, by the RF Ministry of Education and Science estimates). The second relates to a lack of up-to-date competences in teachers.

This may be due to the fact that TVET teacher training curricula fail to offer a balance of psychological, pedagogic, and occupational content. Also, university teachers training TVET teachers remain themselves largely within the knowledge-based teacher-centered paradigm and fail to implement in practice the synergy of up-to-date methodologies adequate to the present-day requirements.

The content of curricula in higher education remains discipline-based, even though formally competences underpin the structure of the curricula. The comprehensive student-centered paradigm is missing and is often replaced by active methods of teaching.

Another problem the training of teachers for TVET is facing is low prestige of the teaching profession (cf. in 1913 this profession was very popular, namely, every third student wanted to be a teacher; by 1925, every tenth student) due to its social status and low pay.

The RF Government has approved a number of policy documents concerning the development of the system of education, in which issues relating to enhanced quality of training TVET teachers are mentioned (Federal Programme for Education Development 2016–2020; Kairov and Petrov 1968; Shaidenko 2002). For example, in the Package of measures to develop the TVET system for the period 2015–2020, it is envisaged to put in place a comprehensive system of continuing training for TVET teachers and administrators (Package of measures aimed at enhancement of SVET for 2015–2020). The objective of TVET teacher upskilling is explicitly set down in the Strategy for the Development of the System of Training Workforce and Fostering Applied Qualifications up to 2020.



Under the draft Concept of Staff Provision for the TVET System currently under development, by 2020 about 70% of SVET teachers and instructors will have undertaken an upskilling course. The draft concept is supplemented by draft Methodological Recommendations aimed at updating and piloting new models of training teachers and instructors of practical training for the TVET system. These Recommendations stipulate a merger of academic- and occupation-specific subjects and – as a consequence – of the jobs of teachers and instructors of practical training, a shift to teamwork, as well as enhanced methodological, psychological, and pedagogic skills of teachers (Methodological recommendations for upgrading and piloting model of training teaching staff for the system of secondary vocational education, Package of measures aimed at enhancement of SVET for 2015–2020).

Preservice TVET teacher training curricula are to provide opportunities for students to acquire multiple qualifications that would enhance their mobility on the labor market and employability. For example, under the master-level program “Pedagogic Education,” three qualifications can be obtained, that of a:

- Methodologist specializing in the program development
- Methodologist for an education institution
- Teacher of generic occupational modules (multidisciplinary courses) or instructor of practical training

The Methodological Recommendations outline different trajectories for the entry in the profession and stress a need to estimate and anticipate the labor market needs for TVET teaching staff. It is indicated that all teachers at professional–/engineering-pedagogic higher education institutions must have a bachelor degree in pedagogic education of a specific profile matching the subject area they will teach.

Hence the curricula should emphasize methodological and psychological grounding as well as an up-to-date knowledge in a specific subject/occupational area.

Specific competences of future TVET teachers envisage abilities to:

- Identify learning outcomes based on the labor market requirements
- Construct and implement outcome-based curricula integrating theory and practice
- Organize and manage students’ individualized learning plans
- Perform assessment of learning outcomes in the format of a skills demonstration
- Interact with different categories of customers including employers
- Create the learning environment and organize work-based learning opportunities for their students at enterprises
- Manage individualized learning of students, for which aim teachers must be knowledgeable of the concept of the learning styles and have good negotiation and conflict resolution skills
- Manage one’s own learning and professional development

To this end it is recommended to allocate more time in the curricula for independent student work, including projects and individual learning plans. The content of



the curricula must build around the competences to be fostered and not use the traditional discipline-based approach (ibid).

To meet the above ambitious goals, the TVET teacher training curricula are gradually undergoing a transformation. In this context, teachers are living through a very painful period of transition from the role of the “talking heads” and “holders of the truth in the last instance” to advisors, mentors, and managers of the teaching and learning process, who are responsible for the final product – graduates’ skills – and not for the students’ marks for a specific subject.

Hence, the methodologies and didactics of TVET teacher training are becoming more oriented toward new constructivist and behaviorist approaches underpinning the competence-based approach, as well as those of social learning, even if the teachers themselves are not aware of the theoretical foundations of these transformations. The constructivist approach involves letting the students create own new meanings in the context of a more and more complicated and sophisticated knowledge-based economy and society and in the context of the fourth industrial revolution. The behaviorist component includes social learning and enhancing own behavior to adequately address the challenges of the rapidly changing environment.

It was expected that the TVET teacher training curricula’s content would improve under the impact of the occupational standards “Teacher in vocational training, vocational education and continuing education” (Approved by Ministry of Labour on September 8, 2015, № 608Н), as currently all education curricula must reflect the requirements set down in the occupational standards. (Development of occupational standards covering all qualifications levels was institutionalized by the Presidential Decree of May 2012.) However, the expectations have not been justified, as the given occupational standards are not based on learning outcomes and contain a list of functional duties that lack a qualitative element and can hardly serve to improve the TVET teacher training.

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## Sample Curricula

To illustrate the current state of play in TVET teacher training/engineering-pedagogic education, two examples are given below of bachelor- and master-level curricula in “Engineering Pedagogy,” based on the Federal TVET Teacher Training Standard for Higher Education. The Federal HE Standards stipulate requirements to the content of education and to the quality of the education content (curricula and syllabi), to the teaching and support staff, and to information support of the teaching and learning and of the research.

The Federal Standards carry descriptions of universal (generic) competences, generic occupational competences, and specialization occupational competences. All HE curricula in Russia are described in credits, adapted from the ECTS system. One credit is 36 h.

The new generation of standards (currently under finalization) will carry only descriptions of the universal (generic) competences and generic occupational competences for a broad occupational area of training. However, to form a picture of

SVET teachers as they are and have been for the decade, an overview of the acting curricula may prove illustrative.

The examples are taken from Yekaterinburg Professional-Pedagogical University. Overall, master-level programs comprise profiles such as organizational psychology, professional-pedagogic technologies, research and methodological support for VET students with special needs, engineering pedagogy, economics and entrepreneurship, economics and governance of TVET schools, vocational education, etc.

Structurally the master-level curriculum in engineering pedagogy – taken as an example – may be represented as shown in (Table 1).

The program comprises over 30 mandatory disciplines relating to the engineering sector-specific occupational areas (e.g., transport, welding, machine building, automotive industry, metallurgy), including: management; organization of operation of work units at enterprises; quality management at enterprises; pedagogy, andragogy, teaching methodology of engineering education, innovative technologies in science and education, ICT in education, history and methodology of engineering education, history and methodology of pedagogical science, mathematical modeling in engineering education, expert assessment in education, pedagogic measurements, pedagogic projects development, development of the learning environment, development of curricula, psychology of engineering occupations, and current problems in TVET.

On top of that, the curriculum also incorporates such general/academic subjects as history and methodology of science (with courses in social ecology and in methodology of scientific creativity), mathematical and IT aspects of engineering education (courses in IT and mathematical modeling), as well as modules in the theory and methodology of engineering education (history and methodology of engineering-pedagogic education and psychology of engineering occupations), and psychology and pedagogy of engineering-pedagogic education (psychology of labor; pedagogy of higher and vocational education).

To add to the mandatory core subjects, there are electives (e.g., “Curricula development,” “Assessment of quality of education,” “Pedagogic measurement of learning outcomes”).

To that list, the university has added more subjects, namely, psychology and pedagogy of higher education and projects in education and methodology of teaching engineering disciplines; pedagogic technologies in engineering education; systems analysis, modeling, and design in engineering occupations; and quality management at machine-building enterprises.

**Table 1** The structure of the master program

Structural elements		Credits
Element 1	Disciplines (modules)	57–66
	Core part	9–18
	Electives	
Element 2	Practical training periods (work placements and research project)	45–57
Element 3	Final assessment	6–9
Total credits		120 credits

Also, the curriculum envisages two compulsory work-based training periods and a research graduation project.

The syllabus envisages the following formats of the program's delivery: lectures, practical classes/seminars, laboratory assignments, and students' independent work.

As is, the curriculum is mosaic looking and lacks a holistic character, which can be accounted for by the domineering disciplinary approach that has yet not given way to a multidisciplinary perspective.

The overview of the above curricula reveals a number of bottlenecks in the description of competences that inevitably tell on the ultimate quality of training. Namely, there are many overlapping competences, certain competences are formulated in a way that precludes their transparent assessment, and differing "scales" are used to describe competences – some are very broad, while others are too narrow, to mention but a few.

On top of that, there is a lack of competences relating to green skills, green economy, etc. Hence the overview also reveals that the TVET teacher training curriculum is not addressing in full measure the concept of green economy and green skills in the context of the sustainable development agenda. These issues are only mentioned in the course of economics, and some aspects of lean management are sometimes addressed in generic occupational subjects.

It has to be mentioned that in the multitude of in-service teacher training courses, there are practically none relating to sustainable development and green skills.

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## **Internationalization as a Tool to Enhance TVET Teachers' Skills**

In the age of globalization and ICT, internationalization of TVET is imminent, including the teacher training curricula. In the recent years in Russia, the key internationalization factors impacting quality enhancement of training TVET teachers can be identified as the Tempus and Erasmus+ program, the WorldSkills movement, and the Russian-German project on dual education.

Under the earlier Tempus and the current Erasmus+ program, the overall philosophy of student-centered, project-based, and work-based learning is promoted irrespective of the subject area of the project. Due to dissemination, the "ripple effect" reaches out to the university community at large.

Enhancement of TVET teacher skills has been performed via the dual education project with GIZ (Germany) – "Training of workers for high-tech sectors by means of the dual education model" – which has offered TVET teacher internships at enterprises during which they could come to grips with the latest developments in the occupational area, acquire new occupational skills, familiarize with lean management practices, as well as enhance their soft skills (communication, business etiquette, etc.). This project started in 2013 and involved over 100 TVET schools from 15 RF regions.

A third venue to upskill and professionally develop TVET teachers is the involvement of teachers and instructors of practical training in the WorldSkills movement that Russia joined on May 17, 2012. Currently, practically all RF regions

participate in WorldSkills. The high standards of the WorldSkills competences, the competitive spirit of the movement, as well as the involvement in the WS Russia of over 250 industrial companies/enterprises are a benchmark both for TVET teachers and for students to improve performance and to enhance quality of teaching and learning.

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## Conclusion

As a result of the overview, it can be concluded that training teachers for TVET in Russia has its own history that abounds in dramatic turns, upheavals, and problems. The dramatic turns in the TVET development including the training of teachers for the system were conditioned apart from the natural search by the TVET system for its own identity, by the multiple changes in the country's development paradigm.

Despite the wealth of theoretical research in diverse areas of pedagogy, including the professional–/engineering-pedagogic education, its impact on the actual quality of TVET teacher training curricula has not been strong, and the gap between science and research and the implementation of the results generated there persists.

Currently the quality and efficiency of TVET teacher training is topping the policy agenda, and ways are being sought and piloted to introduce up-to-date methods in the preservice curricula and in-service upskilling programs.

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# Vocational Teachers and In-Company Trainers in Mexico: Under-Trained and Under Pressure

# 93

Kristina Wiemann

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## Abstract

Mexico enjoys dynamic industrial growth and is seen as one of the world's largest economic centers. Its demographic profile is favorable to this growth, with nearly one fifth of the population aged 15 to 24. Against this backdrop, vocational education and training (VET) is particularly relevant, yet it enjoys only low status in Mexico. Vocational training is considered an option only for those young people who cannot afford high university fees or who fail the university entrance examinations. Their peers prefer to enter the labor market immediately after finishing school, without “wasting time” on technical education of any kind. Meanwhile, companies complain of the inadequate quality of formal vocational schools, including the low level of qualifications held by teachers.

This study focuses on these issues and aims to shed light on the Mexican educational and VET system. Particular attention is paid to training for vocational

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school teachers. The study also explores the work of in-company trainers in production companies, their educational background, and how their activities fit into the wider context of the educational system.

The findings show that vocational school teachers are inadequately prepared for their role, since there is no formal training for VET teachers. They also address the demand for well-trained trainers and train-the-trainer provision at company level. Most companies rely for their supply of trainers on workers who, while technically experienced, have not been trained to teach and therefore have little, if any, pedagogical and methodological knowledge. This creates challenges, especially in the manufacturing sector. As production processes become increasingly complex, companies – both national and multinational – are in growing need of skilled workers for their production operations. For specialist positions in particular, task-specific on-the-job-training (OJT) by experienced colleagues is of only limited value. As a consequence, there is a huge demand for methodologically and technically well-qualified trainers to improve in-company training.

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**Keywords**

Mexico · Teacher Education · Educational Reforms · Dual Vocational Education and Training

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**Introduction: Vocational Education and Training in Mexico**

Mexico is an emerging economy with an excellent demographic profile: 66.2% of its population of 127.5 million are of working age (15 to 64), with almost one in five aged between 15 and 24. Many in this age group are making the transition between school and employment (World Bank [n.d.](#)). However, the potential represented by this favorable demographic starting point needs to be exploited if it is to give Mexico a competitive advantage over the steadily ageing populations of the advanced economies and offer real scope for economic and social development. The labor market has a particular need for well-trained technical specialists with excellent practical skills rather than formal academic qualifications. However, the training provided in vocational schools is not very practice-oriented, so those completing courses in vocational schools often find the transition from training to employment problematic, while companies report difficulties in meeting their needs for skilled labor (Horna and Santana [2012](#)).

The Mexican vocational education and training system seems only partly to reflect companies' needs. While education generally enjoys a high status in Mexico and is often linked with the concept of social and economic advancement, these expectations are in practice confined largely to academic education and training. Vocational training has long been seen as peripheral: specifically, it has been viewed as the alternative for young people who cannot afford to spend years in formal education at school and university or who fail university entrance examinations. Many young people in these situations seek out other academic education or training pathways, but where these are not an option, the alternative is

often low-skilled work. Vocational training generally enjoys a poor reputation, with both companies and young people and their families associating it with poor quality and inadequate preparation for employment. Meanwhile, the plethora of private and public sector provision is frequently difficult to navigate (Arteaga García et al. 2010).

The Mexican government has recognized these weaknesses and has embarked on far-reaching reforms to the country's education and training system. Since 2008, upper secondary-level education has undergone a root and branch transformation. In 2013, meanwhile, a pilot project jointly run by Mexico and Germany got under way. One of its aims is to tailor vocational training better to the needs of companies. The project is known by its Spanish initials as MMFD – the Mexican Model of Dual Vocational Education and Training.

As many studies have shown, vocational educators – vocational school teachers and in-company trainers – are crucial to improving the quality of training systems (see, for example, Hattie 2009; Terhart 2013 in relation to vocational schools and, for example, Rose and Wignanek 1990 in relation to companies). There are many existing professional profiles of vocational educators (Grollmann 2008, 2009), but our focus here is on teachers in vocational schools and in-company trainers. Against the background of the growing importance of lifelong learning, these groups can be regarded as “core professions in the knowledge society” (Grollmann 2008, p. 536). However, they are also crucial stakeholders in the process of adapting and reforming training policy: reforms will be successful only where they support and implement such change (Wernstedt and John-Ohnesorg 2010). In other words, change can be successfully implemented only where it is integrated into day-to-day teaching and learning processes.

The lack of skills development activities for vocational educators has in the past been a major contributor to the poor quality of the VET system, and such activities now underpin reform initiatives introduced by the Mexican government. Two initiatives in particular can be singled out: the 2013 professionalization of teachers across upper secondary-level education and the wide-ranging expansion and formalization of skills development provision for in-company trainers as part of the MMFD.

Research findings on vocational educators in Mexico are limited. One reason for this is that vocational education and training enjoys only low status among young people and their families and among employers. Another factor is the profile of educational research in Mexico, which frequently focuses on general education or regards VET as merely a non-differentiated area of upper secondary-level education.

The aim of this chapter is to provide an overview of the Mexican VET landscape with a particular focus on vocational educators. In line with the title of this edited volume – *International Handbook of Vocational Education and Training for the Changing World of Work* – this chapter focuses particularly on the changes currently under way in the areas of skills development and professionalization for vocational school teachers and in-company trainers.

The chapter begins by providing an overview of Mexico's vocational education and training system with a view to contextualizing the specific aspects of the work



of vocational educators before moving on to outline the issues represented by the current situation, focusing both on teachers in vocational schools and on in-company trainers. In the case of the latter, the focus is on companies in the production sector, since their demand for skilled personnel is particularly high. This is followed by a presentation of the current reforms and change processes initiated by the government in response to weaknesses in the system. Here, too, the chapter considers vocational school teachers and in-company trainers separately. It concludes with an overview of the reforms currently under way, centering on the extent to which these approaches by the Mexican government promise success and represent effective ways of tackling the challenges outlined.

The design and methodology of this study are based on a comprehensive search of both the national and the international literature. As noted above, there is very little robust academic research on this issue, so use was made primarily of reports and other documents published by the institutions involved and of their constitutions. The Ministry of Education is a vital source of information, supplying a range of information to enable (future) teachers to come to terms with the changes introduced by the reform. However, our research into in-company trainers proved more difficult: this area is (or, as will become evident below, has traditionally been) largely nonformalized, so little theoretical attention has been paid to it. The findings of earlier research funded partly by the German Research Foundation (known by its German initials as DFG) were an addition to the information available. (The project described here was partly funded by the DFG as “TITLE” (REFERENCE). We would like to thank our project partners NAME and NAME for their many valuable insights and suggestions from an economic geography perspective.) This qualitative study explored in-company learning in Mexican and German companies and used 21 semistandardized interviews with eight experts in Mexican manufacturing companies, a further eight in German manufacturing companies and five vocational training experts in Mexico (Wiemann and Pilz 2017). The focus in this study was on Mexican companies. The German government has been very influential in introducing the dual model of vocational training in Mexico, so the views of Mexican multinationals are also an important addition to the literature, giving the reader a comprehensive insight into a range of options for vocational learning and the requirements different options make of teachers and trainers. Our description of the reform process and its current impact is, however, a snapshot, and rapid changes can be expected in this area.

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## Overview of Vocational Education and Training in Mexico

Compulsory education in Mexico comprises preschool education (*preescolar*) (normally for children aged between 3 and 5), primary education (*primaria*) (children aged between 6 and 11), and lower secondary-level education (*secundaria*) (children aged between 12 and 14). These three elements together make up basic education (*educación básica*). Since 2012, upper secondary-level education (*educación media*

*superior*) has also been compulsory in Mexico. Higher education (*educación superior*) follows upper secondary education.

Vocational education begins at secondary level. School students who have completed primary education but not secondary education have the option to move on to courses that prepare them specifically for employment (*capacitación para el trabajo*). On average, these courses last for between 3 and 6 months and provide theoretical and practical knowledge of the core activities involved in a particular vocational profile, enabling those completing the course to enter directly on to the labor market. They do not, however, enable students to move directly into postsecondary academic training. Students at technical secondary schools (*secundarias técnicas*) are able to opt for a technical focus at the lower secondary level.

Traditional vocational education and training in Mexico is provided by vocational schools, which offer three options. First, students can complete a vocationally-oriented higher school-leaving qualification (*bachillerato tecnológico*), which is more or less equivalent to a vocational baccalaureate, but focuses more on general than on vocational subjects. Students acquiring this qualification can either move on to higher education or directly access the labor market in their chosen specialist area (for more detailed information, see Kis et al. 2009, Sánchez-Castañeda 2007, Villar et al. 2013). The qualification is offered by a range of schools under the centralized supervision of the Ministry of Education and includes a number of vocational focus areas, including manufacturing, agriculture, and marine studies.

One of the most important institutions providing vocational education and training is the National College of Technical Professional Education (*Colegio Nacional de Educación Profesional Técnica* or CONALEP). This decentralized provider, which forms part of the Mexican government, runs more than 300 training locations across the country. CONALEP offers the second option, a special form of the vocationally oriented upper secondary-level qualification, the *profesional técnico bachiller*. This qualification has a clear vocational focus, although around 40% of course content is general in nature. Particular emphasis is placed on self-competencies and social skills (including modules in independent learning, problem-solving, and communicative skills). The remaining 60% of course content focuses on the student's chosen vocational specialism. Students can specialize by choosing a focus that is more or less practical or academic. Students who complete this course have the option of either entering the labor market directly or going on to higher education.

Third, students who have completed secondary education can complete a 2- or 3-year course of specialist vocational training (*educación profesional técnica*). This is geared to direct entry to the labor market and therefore comprises practical training units (CONALEP 2016a). CONALEP has traditionally been the major provider of this "pure" form of vocational training, but the year 2013/2014, this qualification has been replaced by the *profesional técnico bachiller* and is now offered only as an exception. In the year 2015–2016, 36.5% of students acquired the *bachillerato tecnológico* (or completed the course of CONALEP training that led on to the

*profesional técnico*). Only 1.4% of all students enrolled in upper secondary-level education completed the traditional *educación profesional técnica* (SEP 2016).

Formal vocational education and training in Mexico is not particularly geared to the needs of companies, so companies rely on their own training activities to fill in the gaps. In-company on-the-job training (OJT) is therefore highly relevant and may be regarded as the most common form of initial and continuing training provided by companies (Arteaga García et al. 2010, p. 209). Many companies use this form of training to develop their employees' skills, with most setting only very low conditions in terms of prior vocational knowledge. Completion of lower secondary-level education is often sufficient, while for some occupations – especially in technical fields – trainees need only to have completed primary education. Employers place greater emphasis on the right personal attitude and aptitude as reflected in such characteristics as punctuality, reliability, and honesty.

There is very little standardization of in-company training, which tends to be shaped directly by the requirements of the individual company, although there are, of course, exceptions. Frequently, no specific induction program is offered, with new employees being inducted on the job. They usually begin with simple tasks and work their way up the company hierarchy on the basis of long service and good performance within the company. Training therefore varies in content, but there is substantial similarity between companies in terms of their basic pattern of vocational induction (Wiemann and Pilz 2017). Labor legislation is largely irrelevant here: it stipulates that every company must offer its workforce continuing training and that employees should take advantage of these activities. However, the law does not specify how much training should be provided, and half-days or single days of training are often considered adequate provision for a whole year. Companies can determine the content of their own courses, and training provision often focuses on aspects of health and safety (Cámara de Diputados del H. Congreso de la Unión, 04-01-1970).

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## **Overview of the Situation of Vocational Teachers and In-Company Trainers**

This section considers the current situation of vocational educators, distinguishing between vocational school teachers and in-company trainers. The picture is currently undergoing reform, so future changes are likely. However, the challenges described are not new – some have existed for decades – and nothing will change overnight. Moreover, it is not yet possible to predict the outcome of the change processes currently under way.

### **Training for Teachers in Vocational Schools**

Mexico has institutions that train primary and lower secondary-level teachers, including teacher training institutes and pedagogical universities, but there are few

options for training specifically to teach at upper secondary level. Some universities offer a degree in upper secondary-level teaching, but teacher training for this level of education has long been largely unregulated, especially for teachers in vocational schools. Our experts noted that the formal requirement – that trainee teachers must have a university level qualification, although not necessarily in the area in which they wish to teach – is not always enforced where schools face a shortage of teachers in certain subjects. Teachers do not require specific training in pedagogical skills, either, and the selection and recruitment criteria for teachers tend to be arbitrary. Vacancies are often reallocated or even exchanged for payment, with clear interference from the teaching union. Promotions are based on seniority, and many teachers opt for teaching solely because of the social security covering their affords. Many supplement their low teachers' wages with freelance work, often in the informal sector.

### **Training for In-Company Trainers**

Similarly, low-quality standards also apply to in-company trainers in production companies. Training trainers enjoys only low status in Mexico, and theoretical courses and the induction of new employees is left either to representatives of the HR department or to technical experts at supervisor level or above, depending on the subject area. Expert interviews in companies show that supervisors or experienced colleagues are responsible for OJT as initial and continuing training. In small and medium-sized companies in particular, there is often nobody in overall charge of coordinating induction. OJT is an add-on to the role of those who undertake it and one that they have to fulfil along with their main duties, so it tends to be perceived as a burden. In the companies interviewed, the selection of these *instructors* was made primarily on the basis of their technical expertise. Vocational and person-based criteria (such as “excellent communication skills” or “positive presentation”) are also important. It is rare to find continuing training provision (e.g., provided by the Ministry of Labour, private providers, or vocational schools) or preparatory courses organized by companies themselves. Moreover, even where such provision does exist, it focuses less on pedagogical content and primarily on enhancing trainees' presentational skills. A supervisor or line leader, with support from the HR department, usually coordinates individual activities.

Registered “training agents” are used to provide compulsory in-service and continuing training measures. Their registration is overseen by the Ministry of Labour and is a very straightforward process, requiring only minimal formal conditions to be met. In theory, authorization to conduct continuing training is subject to certification of some kind; in practice; however, it can also be based on personal experience where an appropriate case is made (STPS 2016).

It became clear from our expert interviews that both national and international companies are sometimes dissatisfied with this situation. Role-specific induction by colleagues has limitations, in particular where future specialists in production are being trained (e.g., in repairs and maintenance (Wiemann and Pilz 2017)), because trainers can only pass on what they themselves have learned. Practitioners who have

learned and developed the skills for individual processes within their role will find it difficult to support new employees in acquiring complex skills; so will graduates with a broad theoretical basis but only limited insight into practice. This applies particularly where the trainer also lacks experience in actually teaching content.

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## **Changes in Vocational Education and Training in Mexico: Two Reforms**

As described, then, training activities for vocational training staff fell short of their major potential to improve training for many years. There is a clear need for skilled labor, both to facilitate transitions from school to work and to provide companies with skilled workers. The government has therefore introduced two reforms intended to improve the situation. The first is the current reform of training courses for all upper secondary-level teachers, including those in vocational schools. Second, the introduction of dual vocational training is changing the profile of in-company trainers and giving them an entirely new role. Both these approaches will be described in the following sections.

### **Teachers in Vocational Schools: Greater Structure**

Poor quality across the Mexican school system – to which the low standard of teacher training is regarded as a major contributing factor – led in 2013 to a far-reaching reform instigated by President Peña Nieto. The enactment of two new pieces of legislation has had an impact on initial and continuing training for teachers. A law on the Institute for National Educational Evaluation (*Ley del Instituto Nacional para la Evaluación de la Educación*) and another on services in the education sector (*Ley General del Servicio Profesional Docente*) represent a new framework for the recruitment, induction, regular appraisal, and permanent employment of teachers in both basic and upper secondary-level education. It should be pointed out again here that these changes apply not only to general schools but also to vocational schools, which are regulated by the Ministry of Education. In terms of the provisions of the legislation, there are only minor differences between general and vocational school teachers, however, so we shall not explore these differences in detail but focus solely on teachers in vocational schools.

With regard to recruitment, a competency profile has been developed with the intention of making recruitment decisions transparent. Recruitment is now based on selection procedures carried out regularly once or twice a year in each federal state. For teachers at vocational schools, selection takes the form of a nationwide aptitude test comprising a standardized multiple-choice assessment of candidates' knowledge of the skills required for the teaching profession and compilation of a lesson plan. These two elements together give the candidate a total points score, and those scoring above a minimum number of points are allocated to vacant teaching posts on the basis of their points score (SEP 2017a).

Contracts of employment are initially based on a 6-month probationary period. During their first 2 years in post, new teachers are supported by an experienced tutor and have access to training provision to enhance their teaching skills. Once they have completed their first year in post, they then undergo a diagnostic assessment intended to identify their needs for further targeted support. Assessment involves a report on the teacher's current performance on the basis of a standardized questionnaire completed independently by the teacher and the school principal. Teachers also describe their wishes and needs for further support (SEP 2017b).

Once a teacher has completed 2 years' service, he or she begins regular appraisals. Appraisals explore whether the new teacher is able to teach in line with formal requirements and form the basis for subsequent appraisals, as the next section explains. If a teacher reaches a satisfactory standard, he or she is employed permanently in the school system. The introduction of the new legislation on teacher training also provides for teachers in this position to be reconfirmed in post at least every 4 years in a three-stage procedure. The first stage involves two standardized online questionnaires designed to identify the teacher's strengths and weaknesses; one is completed by the teacher and the other by his or her direct superior (usually the school principal). The second stage involves compilation of a lesson plan and a written piece of reflection, which are both submitted online. The third stage involves a standardized online test in which the teacher has 4 hours to answer questions both on his or her subject and on pedagogical issues (SEP 2017c, 2017d).

There are four possible outcomes to an appraisal: teachers can be graded "unsatisfactory," "satisfactory," "good," or "outstanding." If they are graded "unsatisfactory," then participation in further training courses is compulsory, and they are reassessed a year later. Any teacher graded "unsatisfactory" at his or her third attempt is barred from continuing to work as a teacher and is offered employment in school administration or voluntary early retirement. Teachers graded "satisfactory" are confirmed in their post for a further 4 years and, by agreement with their principal, can voluntarily take courses to further develop their teaching skills. Those graded "good" or "outstanding" receive a salary increase and are eligible for promotion to more demanding posts. If they wish, they can participate in courses to deepen their skills, which count toward a possible academic specialization (Cordero Arroyo and González Barbera 2016). The first appraisals to be held under this system, in academic year 2015–2016, involved more than 29,000 teachers, with around 78% being graded at least "satisfactory" (SEP n.d.).

The provisions of the legislation on teacher training apply to all teachers within upper secondary-level education and also explicitly include decentralized institutions. However, there is a gray area here. Only few of the teachers at CONALEP are employed by the Ministry of Education; the rest are employed directly by CONALEP and are therefore exempt from Ministry of Education regulations with regard to appraisal and in-service training. They are also covered by the collective agreements negotiated by other trade unions. CONALEP has adopted the closer competency orientation of the education reform and is guided by the upper secondary-level teacher profiles laid down by the Ministry of Education but has formulated its own recruitment rules. These rules are derived from CONALEP's own

academic model, which is based on the findings of constructivist theories of learning and is geared to general, academic, and vocational competencies. This is intended to establish a clear connection between aspects of education and training and the demands of everyday life and of the world of work. A key component in this model is the trainee's ability to deal with diverse groups in terms of their cultural and social characteristics and of their educational background.

Against this background, CONALEP has its own program for boosting teachers' skills (*programa de fortalecimiento de las competencias de los docentes*). The program comprises eight basic modules and ten specialist modules, each with a differing focus. The modules are delivered either face to face or online, and some have been developed as collaborative ventures with national and international institutions and companies (CONALEP 2016b). In addition to CONALEP's own program, there are also further smaller courses, but these will not be further described here.

### **In-Company Trainers – Key Figures in Dual Vocational Training**

In 2013, dual vocational training was introduced in Mexico, initially as a pilot project in 6 vocational skill areas and across 11 federal states. At the time the research for this chapter was being completed, the reform had been implemented in 24 of Mexico's 32 federal states (BIBB 2017). The overarching goal of this initiative, which was financed and supported by the German government, has been to make vocational training in Mexico more needs-oriented and practical in its focus. It takes two main forms. The first is based closely on the German model of dual vocational training, while the second is geared more to the Mexican context. Changes planned include strengthening the strategic and regulatory framework for this latter model and further developing standards for in-company training. The intention is that companies in particular should be more closely integrated into the formal education system, given that vocational training currently focuses more strongly on vocational schools (BIBB 2015; Cáceres-Reebs and Schneider 2013). On completion of the pilot project in 2015, the dual vocational training model was officially acknowledged by the Ministry of Education as part of upper secondary-level education with a formal announcement in the Mexican Federal Law Gazette. The legal framework was at this stage very vaguely drafted and stipulated that dual training provision must last for at least 3 years and follow a curriculum built around general, technical, and vocational competencies. As part of the final examination, students are required to demonstrate their acquisition of the relevant competencies (SEGOB 2015). The aim is to put these provisions in place nationwide and to roll them out to other training occupations. Mexico's dual vocational training model is still bedding in and may yet take a number of different directions, but the concept of the dual model of vocational training is increasingly popular and attracts substantial interest from companies, training providers and political stakeholders alike.

Train-the-trainer measures are crucial to implementing dual vocational training in Mexico. The German-Mexican Chamber of Commerce (known by its Spanish acronym as CAMEXA) is a key provider of such measures and offers two



internationally oriented courses geared closely to the training standards laid down in the German Ordinance on Trainer Aptitude (AEVO) regulations. The AEVO stipulates legally binding conditions for training providers operating in Germany. In over 80 hours (or 40 hours in a shortened variant), participants acquire the basic skills required to deliver high-quality vocational training. The second variant addresses those participating in the Mexican model. CAMEXA cooperates with the employers' association COPARMEX to offer 40-hour courses for trainers, some of which are delivered online. These cover similar content to the AEVO training but are geared more closely to the Mexican employment market (CAMEXA n.d.).

Planning and preparation of training processes, recruitment of trainers, and implementation and award of certification underpin train-the-trainer courses. Formulation of rotation plans for trainees, communications and coordination with vocational schools, employers' association and CAMEXA coordinators, and other stakeholders, and handling the learning platform used by trainees to access academic content are key components. However, of course, the core remains supervision of apprentices and the design of practice-based opportunities for workplace learning.

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## Conclusion

The reforms we have outlined demonstrate that the Mexican vocational training landscape – and in particular, the skills development and professionalization of vocational teachers and trainers – is currently in a state of flux. Changes are currently bedding in, making it difficult to draw any conclusions about their prospects for success. Nevertheless, this chapter concludes with an exploration of some of the potential represented by the reforms and the challenges they face.

The introduction of reforms to the teacher training system is intended to boost transparency and consistency of quality. The formulation of skills development standards, with a focus on changes to the recruitment criteria for teachers, and of regular appraisals are the means by which these goals will be achieved. However, these changes have triggered mass protests in some regions in Mexico, which reached their peak in 2016. With clear evidence of interference by the teaching union, teachers and union officials protested for several weeks, blocking main roads, and there were violent scuffles with the police and strike breakers. According to the interviewed experts, opponents of the reform are critical of the fact that it does not tackle the core issue of quality shortcomings in the education system. In the view of these critics, the core issues are the lack of resources in schools, particularly in disadvantaged regions, along with poor infrastructure and poverty, which prevent children from attending school. Implementation of national standards is, they argue, unhelpful, as it simply exacerbates existing inequalities. Critics also argue that the appraisal criteria for teachers are insufficiently transparent and actually make it easier for schools to dismiss teachers, thereby saving costs. Finally, the rigid requirements resulting from the profiles of “good” teachers are, in the view of the critics, too academically focused and hamper teachers excessively in their work (Wiemann 2018; for a more detailed discussion of the National



Teacher Qualification Standards, see Gerds 2009). The Organisation for Economic Co-Operation and Development (OECD 2015) considers consensus between teaching unions and reformers a crucial factor in effective implementation in the classroom and, hence, in the eventual success of the reforms. It is therefore likely that existing political differences will make successful implementation more difficult.

Moreover, only time will tell whether these changes really do boost teachers' professionalism. Learning in the workplace is a crucial element and a key factor in professionalizing vocational school teachers. Grollmann (2009, p. 1198) makes it clear that "[...] the professionalization strategy of TVET teachers has to balance policies that improve the individual learning of teachers, their education and preparation [for] their job, but needs to take into account at the same time the continuous reform of their institutions. The institutions are the environment that needs to allow for the teachers' knowledge and skills to be enacted quite autonomously in the reality of everyday practice." Against this background, the impact of teacher training reforms offers scope for directly embedding induction in actual teaching, though much will depend on exactly how it is implemented. In their expansive and restrictive framework for teachers, Evans et al. identify the key factors underpinning successful workplace learning in the context of a school (2006, pp. 52). These include "close collaborative working with colleagues," "[o]ut-of-school educational opportunities, including opportunities to reflect and think differently" and "[a]n explicit focus on teacher learning, as a dimension of normal working practices." "Isolated, individualist working," "only narrow, short training programmes" and "[t]eacher learning dominated by government and school agendas," by contrast, inhibit such learning processes, they argue. Mexico's current reforms could go either way and here, too, much will depend on how measures are designed and implemented. The focus is not only on teachers themselves but also on the school principal, who has the capacity to promote or restrict such learning processes for his or her staff. Where there is little time for learning activities and reflection, colleagues are unable to share views and experiences and deterred from focusing on issues outside their own narrow area of teaching. Under such circumstances, the changes now under way cannot realistically be expected to achieve major success.

Change is also currently under way in Mexico in terms of improving company-based training processes. Despite initial success by the MMFD, a number of challenges remain. Here, too, it is important to note that the MMFD is currently bedding in. Many of the arrangements described represent the current favored forms of implementation, but there are a number of other options. For example, increasing standardization is an important step both for vocational schools and for companies if they are to guarantee an adequate level of quality. Training the trainers is an important aspect here. In terms of prospects for success, it is currently difficult to make an assessment because provision in this area is still at an initial stage. In general terms, however, the introduction of established and experienced trainers into a company enhances the status of

training activities within that company. And when the status of the trainer is enhanced, training itself takes a more prominent role in a company. The introduction of “train-the-trainer” programs means that teachers are not limited to the experience acquired as part of their own training and do not, therefore, pass on outdated training models to apprentices. In particular, more complex teaching and learning activities, such as promotion of problem-solving abilities and transferable skills, require background knowledge of teaching methods if teachers are genuinely to encourage such processes rather than merely to teach (OECD 2005). Nevertheless, it is logical that trainers do not bear sole responsibility for the day-to-day delivery of training: underpinning any dual vocational training scheme is the involvement of apprentices in everyday working processes and their ability to cooperate with a wide range of colleagues, learning from them even where those colleagues have not themselves had any specific training in teaching or training others (Ostendorf 2012). Nonetheless, there is an argument that better skilled trainers enhance the status of training and make it easier to manage in a more structured way. Here, too, the impact will, though, depend on the practical implementation on the ground.

There are already many examples of good practice. For example, national and international companies are implementing complex training arrangements for people working on the shopfloor, especially for highly skilled specialists. Some of these are their own programs and have been strongly influenced by the home base of the parent company, while others are directly integrated into Mexico’s dual training model (Wiemann 2017; Wiemann and Pilz 2017). Well-trained trainers, whether from within the company or from an external or international skills development program, are now carrying out complex training activities.

The question of the extent to which the change processes set in train by the Mexican government can solve the problems described above is impossible to answer at this early stage. What is clear, however, is that the challenges have been acknowledged and are being tackled. Whether the “right” measures have been taken, and whether these measures are being introduced in day-to-day teaching practice in the “right” way, are questions that cannot be addressed here and now.

A further step toward improving vocational training provision, facilitating transitions from school to work and avoiding a shortage of skilled labor is better coordination between the training provided in vocational schools and the actual needs of companies. Sustainable success requires companies to express their willingness to make a greater investment in training than merely providing skilled trainers and representatives of vocational schools to be willing to design their teaching to be practically oriented and based on actual needs.

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# Teacher Training Education for VET Teachers in India

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## Abstract

Training teachers to impart quality Vocational Education and Training (VET) to learners is a worldwide concern. Technology keeps upgrading and changing in a rapid phase. Teachers have a responsibility to upgrade their knowledge, and the same must be imparted to learners. Simultaneously, there have been debates in the field of education regarding whether the profession of teaching is a “vocation” or “calling.” Considering these two sides of a model, we need to analyze how prospective teachers identify teaching as a vocation and how vocation operates in one’s own life. If teaching itself is a vocation, teachers themselves gain knowledge and know the existing social practices to choose the vocation. One needs to cultivate real interest in teaching to keep the students attentive, if he/she chooses teaching as a profession. More than that, preparing students to become

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learned professionals and showing the path to discover their own vocation are a challenging task. In this context, this chapter discusses how Indian teachers in VET choose teaching as a profession in VET and how they constantly upgrade their knowledge in the changing situation.

On the one hand, the chapter gives an overview of the Indian VET system and teacher training in VET in India. On the other hand, it discusses the aspects mentioned above by focusing on the existing literature in the field and empirical findings of teaching quality in the different regions of India.

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**Keywords**

Teaching as a vocation · Indian education system · Indian VET system · Teacher training in VET

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## Introduction

India is of interest for researchers in VET from all over the world (Pilz 2016a). The country is one of the fastest growing economies in the world, which faces dual challenge in the current scenario. One is the paucity of the trained workforce, and another is the lack of opportunity for the large sections of the educated youth who possess little or no employability skills (Basu 2008; Pilz et al. 2015; Ministry of Skill Development and Entrepreneurship 2015; Mehrotra 2014). Along with the growing economy, more than 62% of its population are in the working age group of 15–59 years as well as more than 54% of its total population is below 25 years of age (Ministry of Skill Development and Entrepreneurship 2015; Mehrotra 2014). India is considered as one of the youngest nations in the world. It is estimated that the labor force in industrialized nation will decline by 4% in the next 20 years. At the same time, the labor force in India may go up by 32% (Ministry of Skill Development and Entrepreneurship 2015). The Government of India has taken a number of initiatives to reap the benefits of demographic dividend. It has set up a separate Ministry of Skill Development and Entrepreneurship and notified the same in the year 2014. It has also devised a National Policy for Skill Development and Entrepreneurship 2015 by superseding the existing policy of 2009 with the objectives of skilling youth with quality in a sustainable manner. There are various schemes/programs to upgrade the existing Industrial Training Institutes (ITIs) and setting up of new ITIs (Mehrotra 2014; Wessels and Pilz 2018). In the process of achieving set targets, it is necessary to train and appoint the teachers in the vocational training institutes. It is also significant to improve the infrastructure. Infrastructure not only means physical infrastructure, necessary human resources for the training is the prime concern. Trained teachers need to be appointed in the ITIs and polytechnics to train the youths. The Ministry of Labour and Employment in the Government of India takes the efforts to train the youths to appoint as instructor/teachers in the ITIs. It is required to look at the existing research on the perception of teaching as profession before discussing teacher training in VET in India.

## Teaching as Vocation

There have been debates in the field of education regarding whether teaching is a “vocation” or “calling” (Booth 1988; Hansen 1995, 2001; Huebner 1987). Considering this contradiction, this chapter discusses how prospective teachers identify teaching as a vocation and how vocation operates in one’s life. Hansen (1995) provided two approaches to vocation. Both refer vocation as the activity or work that provides personal satisfaction and service to others. In this context, Buechner (1973), a theologian, defines vocation as “the place where your deep gladness and world’s deep hunger meets” (Buechner 1973, p. 119), which plays an important role. According to Hansen (1995, p. 3), “Vocation is a work that results in service to others and personal satisfaction in the rendering of that service.” Bearing in mind the above definitions, we can conclude that vocation is not just about financial security, but more about individuals calling for self-satisfaction in helping others. Teachers are the backbones of education. They facilitate learners to acquire knowledge and skill. Education serves a number of social purposes. The core activity of education is knowledge acquisition, acquiring capability of generating knowledge, applying the same for initiating qualitative changes in one’s own attitude and behavior, and skills for human resource development. Along with knowledge creation, it has to impart skills and values. Human development is to ensure the overall well-being of the person. Education plays a significant role in human development. Educational indicators are part of measuring the phenomena of continuity and change in both qualitative and quantitative indicators in education. Teachers are core persons in these activities. Teaching is a diverse and complex activity. It is multidimensional. Boys/girls learn and acquire knowledge culminating in overall personality development with skills of self-reliance. There are various stages in these processes. Various teaching methods need to be adopted in each stage of humans to impart knowledge and skill. The methods and content may vary depending upon the age of the learners. Teachers can draw and construct teaching methods and transmit knowledge by identifying significant points from these elements. Unlike other professions, education not only creates knowledge base but is also a practicing profession. Teachers need to draw theories of learning and bodies of knowledge to generate student learning, understanding, and later on helping them to apply it in their lives for addressing different challenges. Teachers are not only generating learning in others, they also learn while teaching. There are three forms of teacher knowledge as suggested by Shulman (1986). These are propositional knowledge, case knowledge, and strategic knowledge (Shulman 1986).

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## An Overview of the Indian Education System and VET System

The Indian education system consists of primary education (1st standard to 5th standard), upper primary (6th standard to 8th standard), secondary education (9th and 10th standard), higher secondary (11th and 12th standard), and collegiate education (3 years for science and arts stream and 4 years for engineering). Students



need to learn in schools till secondary education, whereas higher secondary education is imparted “either in schools or junior colleges” (Gupta et al. 2016, p. 43). After completion of higher secondary education, students have access to higher education. School education at the level of secondary and higher secondary education is considered to be significant as students must decide if they want to continue in regular stream or vocational training (Gupta et al. 2016, p. 42 f.).

The Indian VET system includes two levels: the school level and the higher educational level (Wessels and Pilz 2018). At the school level, VET starts at the higher secondary level (11th–12th standard) and offered as separate group, which lasts for 2 years. The Department of School Education in the Ministry of Human Resource Development is responsible for the vocational education at schools (Venkatram 2012, p. 172; Agrawal and Indrakumar 2014, p. 484ff.). One hundred sixty vocational courses in agriculture, business and commerce, engineering and technology, health and paramedical [care], home science, and science and technology are taught at around 10,000 schools in India (Agrawal and Indrakumar 2014, p. 487; Gupta et al. 2016, p. 45).

At the higher educational level, VET is mostly provided by the government ITIs and private ITIs (Agrawal 2012, p. 456; Venkatram 2012, p. 172). Directorate General of Training (DGT) in the Ministry of Skill Development and Entrepreneurship is responsible for the vocational training and education at the higher education. Training at the higher educational level is imparted under two schemes, namely, the Craftsmen Training Scheme (CTS) and the Apprenticeship Training Scheme (ATS) (Agrawal and Indrakumar 2014, p. 484 f.; Gupta et al. 2016, p. 46).

ITIs were set up with the goal to fulfill the requirements of the labor market under the CTS in the year 1950 (Sodhi 2014, p. 458). The structural reform in the macro economy in the year 1991 has increased the economic activities. It has also created the demand for skilled labor. The government and private players rapidly have expanded the number of ITIs in the 1990s. The number of ITIs has doubled, from 2,137 to 4,274 between 1990 and 2000. The number of ITIs has grown even faster since 2000. Most of the newly established institutions were private ITIs whose number has grown from 2,772 in 2001 to 6,498 in 2010 (Joshi et al. 2014, p. 87). The growth of government ITIs was not so strong. It has increased from 1,727 in 2001 to 2,189 in 2010 (Joshi et al. 2014, p. 87). In 2015, there were 11,964 ITIs (2,284 government ITIs and 9,680 private ITIs) in India that offer training courses in 126 trades (DGT 2015).

The period of training ranges from 1 to 2 years depending upon the course in the ITIs (DGT 2015). Those who completed 8 or 10 years of schooling may get admission in ITIs (Gupta et al. 2016, p. 46). The courses at the ITIs have been designed in such a way that the percentage of practical component occupy the major portion of the syllabus. But, teaching or instructions of theory dominate over practical instruction in reality (Tara et al. 2016, p. 3). Students receive National Trade Certificates after the completion of the training program (DGT 2015).

ITIs also train “semiskilled workers” (Venkatram 2012, p. 174). ITI graduates should undergo and complete apprenticeship training in order to be considered as a skilled worker (Venkatram 2012, p. 174). On-the-job training is imparted in different



government-run and privately owned companies under the ATS. The duration of the training ranges from 6 months to 4 years (DGT 2017d). There are five categories of apprenticeship training: trade, graduate, technician, technician (vocational), and optional trade apprenticeship training (DGT 2017d).

Furthermore, there are polytechnics that offer diploma programs in the engineering and technology streams. They offer programs for 3 years and are open to students who have completed 10th standard and above (Wessels and Pilz 2018). The level of the polytechnic studies is considered as higher than the certificate courses offered in the ITIs (Majumdar 2008, p. 20). Thus, we are not dealing with the polytechnic programs in this chapter.

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## Problems in VET

As we have mentioned earlier in this chapter, India needs skilled manpower for the growing needs of the economy, but “the progress in establishing vocational schools and the subsequent enrolment are rather slow” (Venkatram 2012, p. 173). It is estimated that 12 million people will enter the labor market annually. However, the training capacity of the technical institutes is about 4.3 million, which means that including all forms of training in different institutions, 64% of the labor force will not be able to undergo any formal training (Saini 2015, p. 4).

Moreover, the participation in vocational courses is very low. According to the National Sample Survey Office (NSSO) data collected in 2011–2012, only about 3% of the Indian population aged between 15 and 59 years have completed or are completing vocational training (Ahmed 2016, p. 333). In 2014, less than 3% of students have opted for vocational education at the school level (Agrawal and Indrakumar 2014, p. 487).

This is partially due to the fact that the manual jobs are associated with poor educational achievement and low income in India (Venkatram 2012, p. 173 f.). People show huge reluctance to undertake vocational training due to the absence of a qualification framework. Vocationally trained workers remain in blue-collar jobs throughout their lives (Sodhi 2014, p. 459). As general and vocational education in India is separated from each other from higher secondary schooling onward, it is not possible for learners to switch over from general to vocational or vice versa. There is a stigma attached to vocational education also. Many learners may feel reluctant to undergo vocational training since it has an inferior status in society as compared to other streams of education (Ajithkumar 2016, p. 190; Agrawal and Indrakumar 2014, p. 488).

Furthermore, the quality of education at VET institutes is very low, and many skills imparted to the students are out of date (Saini 2015, p. 4; Pilz 2016b). Learning in the vocational education establishments resembles academic learning, and the training curriculum has little relevant to the requirements of the labor market (Agrawal 2012, p. 456; Sodhi 2014, p. 459).

As many vocational graduates do not possess the required skills, companies often choose to employ candidates with higher qualifications in engineering or people with

secondary education and provide in-house training (Agrawal 2012, p. 458). As a result, vocationally trained workers have difficulties in finding jobs. The World Bank report (World Bank 2008) showed the employment situation of the vocationally trained graduates and their difficulties in finding jobs. The situation of the large percentage of vocationally trained graduates has not improved much after the completion of the course. Only 16.2% of the trained workers in the State Orissa managed to find paid employment or became self-employed or joined family business according to the study conducted by the International Labour Organization (ILO) in 2003 (Agrawal 2012, p. 455).

In response to the abovementioned problems, the Indian Government devised a policy with the support of the World Bank and its own scheme to upgrade 500 ITIs during 2005–2006 with the goal to train labor force to world class standards (DGT 2017e; Tara et al. 2016, p. 7). In 2016, there were 1,896 government ITIs in India that had been upgraded into the Centers of Excellence (COE) (Tara et al. 2016, p. 7). However, despite the great significance of VET for the development of Indian economy and many efforts of the government to improve it, its capacity has still not been utilized effectively because of many problems; one such problem is the shortage of competent instructors (Ajithkumar 2016, p. 183). For this reason, it is important to analyze teacher training in VET in India and its current challenges, which is studied and discussed in the forthcoming section.

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## VET Teacher Training Programs

The DGT in the **Ministry of Skill Development and Entrepreneurship** is responsible for the training of VET teachers in India. The schemes related to the training of instructors include the Craft Instructor Training Scheme (CITS) and the Hi-Tech Training Scheme (HTS) (Ajithkumar 2016, p. 193 f.).

Teachers or trainers are trained by the CITS at various DGT training centers. There are 1 national level Craftsmen Training Institute (CTI), 5 regional Advanced Training Institutes (ATIs), 1 National Vocational Training Institute (NVTI), and 12 Regional Vocational Training Institutes (RVTI) in India. They cover 29 out of 121 disciplines of teacher training (DGT 2014). The total training capacity of the institutions for engineering trade is around 1,600 teachers per year, including the NVTI and RVTI for women's training, which alone train around 500 female participants per year (DGT 2017a).

The applicants must possess either an academic or a technical qualification to get admitted into Craft Instructor Training course (Central Training Institute for Instructors 2016). Moreover, all candidates must clear the All India Common Entrance Test, which consists of multiple-choice questions (75%) on a specific trade and open-ended questions (25%) measuring “logical, numerical, and reasoning” ability (ATI Chennai 2017).

In 2009, 1-year craft instructor training was converted into modular training program to allow more flexibility in the choice of the training institutions. Single modules could be completed in 3 months (Ajithkumar 2016, p. 194; DGT 2017a). In

August 2014, a revised version of the teacher training program was introduced, which lasts for 1 year (Central Training Institute for Instructors 2016).

Courses consist of four modules. All students undergoing instructor training must complete a module on Training Methodology (TM) that covers the topics such as “principles of teaching, learning psychology, workshop administration, motivation, use of computers and audio-visual aids in teaching, preparation of lesson plan,” etc. (Central Training Institute for Instructors 2016). Moreover, trainees in engineering trades must successfully complete a module on Engineering Technology (ET) and two modules on Trade Technology depending on their trade. Trainees in non engineering trades are required to complete a module on Vocational Calculation and Science and two Trade Skill modules (DGT 2017a).

Trainees must complete the two-semester training course “within 3 years of their admission” as an eligibility criterion to take the final exam (Central Training Institute for Instructors 2016). After completing their training, they undergo All India Final Trade Test and receive a National Craft Instructor (ITI Instructor) Certificate (Ajithkumar 2016, p. 194; DGT 2017a).

The Central Training Institute for Instructors was founded in 1962 under the auspices of the NCVT, the DGT, the MoLE, and the Government of India with the support of the ILO. The aim of the institute is to provide training to the trainers for ITIs and ITCs. The only national facility is located in Chennai with all modes of good connectivity like flight, train, and road network. The 1-year program is divided into four modules, each with a duration of 3 months, in the subjects of Trade Technology I (TT-I) and II (TT-II), ET, and TM. In order to complete the TT-II module, the trainers need to complete the TT-I module and should pass.

The cost of the training varies depending upon the individual and the form of enrolment. The cost of a module for already posted officials is 1.50 euros. It costs 8 euros for regular participants, and it costs only 2.50 euros if the participants belong to the Scheduled Castes (SCs) or Scheduled Tribes (STs) community. Since the CTI is local, accommodations are made available to the teaching staff. The cost of accommodation is 4 euros per module (Central Training Institute for Instructor 2014).

The ATS program employs a total of 15,000 teachers, which shows a positive growth with respect to number of participants. For this reason, the DGT calculates with an increase of 2,000 teachers per year. In addition, approximately 3,000 teachers are required each year to counter natural processes such as retirement (ATI Chennai 2017). With the ATS and CTS training programs, an additional 10,000 teachers may get recruited every year (ATI Chennai 2017).

The ATIs were founded by the DGT with the support of the United Nations Development Program (UNDP) and the ILO. A total of five ATIs are located in Howrah, Hyderabad, Mumbai, Kanpur, and Ludhiana. The programs (like the central CTI teaching facility) are addressed to the incoming teachers at ITIs/ITCs or other training facilities. The courses last for a year and teach the “Principle of Teaching (PoT).” There are also refresher courses for teachers who want to expand their knowledge and skills or incorporate the latest technologies into the classroom (see National Skill Development Corporation Mart 2011, p. 82). This flagship program can train up to 1,200 per year.

Under the HTS, high-technology training is provided for 2- or 3-week courses in the ATIs/Advanced Training Institute for Electronics and Process Instrumentation (ATI-EPI) for the industries/public sector undertakings/government organizations/trainers from the institutes/industries, etc. (Ajithkumar 2016, p. 195).

The HTS was envisioned as a scheme of the World Bank-financed Vocational Training Project. It is currently funded by the Government of India. The aim of the HTS is to impart skills in the application of electronics, computer, and the modern production system required by the industry, commerce, and domestic consumers (Ajithkumar 2016, p. 195; DGT 2015). A total of ten ITIs and central institutes (ATIs/ATI-EPI and Apex Hitech Institute at Bangalore) teach courses in CAD/CAM, CNC, Control Technology, and other programs (DGT 2017b).

A number of vocational training institutes for women have been established by the national and state governments to improve employment prospects of women from different age groups and social backgrounds (Ajithkumar 2016, p. 194). The NVTI in Noida and the RVTIs in Mumbai, Bangalore, Thiruvananthapuram, Jaipur, Allahabad, Indore, and Vadodara offer instructor training programs only for women “in non-engineering trades like Secretarial Practice (English), Secretarial Practice (Hindi), Electronic Mechanic, Dress Making, Computer Aided Embroidery & Needle Work, Fashion Technology, Architectural Assistantship, and Beauty Culture & Hair Dressing” (DGT 2017a).

In response to the rapidly changing technological development, Mentor Councils were established, which make recommendations for curriculum development, necessary equipment, pedagogy, and assessment of different courses provided by the Ministry of Labour and Employment (Ajithkumar 2016, p. 195). The Ministry has recognized the necessity to impart training to the existing VET teachers with the newly developed curricula and has even thought about the employment of technology-powered distance learning for this purpose. After a large-scale study of different technologies, DGT opted for a nationwide Internet solution (Ajithkumar 2016, p. 195).

For the CTS program, 60,000 teachers are currently employed (20:1 pupil-teacher ratio), whereby the ITCs require about 5,000 new teachers per year (see DGT 2014).

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## Problems in VET Teacher Training

Despite the abovementioned VET teacher training programs, India faces a huge shortage of qualified instructors. We look at the problems of VET teacher training in India based on our study. One of the major problems is the low availability of seats in the teacher training institutes. Currently, few seats are available for teacher training in VET institutes. Under the CTS, there are 8800 ITIs (2,217 government ITIs and 6,583 private ITIs) as per 2011 date offering 1,220,000 seats, which need approximately 60,000 instructors. The number of training seats in the ITIs is growing by about 100,000 annually. This means that the need for instructors in ITIs is rising by 5,000 yearly (DGT 2017b).

Under the ATS, training is provided by 25,472 establishments in 235 designated trades (DGT 2017b). The number of seats offered by these establishments was 310,000 in 2011, which means that 15,000 instructors were required. The demand for instructors is also growing in these establishments by 2,000 instructors per annum (DGT 2017b).

Moreover, about 3,000 additional instructors are needed in case of retirement and job change of instructors. Therefore, the total demand for instructors for the CTS and ATS schemes was about 75,000 in 2011, and the additional demand was 10,000 instructors per year (DGT 2017b). Especially in rural and less attractive areas, the vacancy of teaching positions is high (Pilz and Wilmshöfer 2015).

However, despite a huge need for qualified trainers, the maximum seating capacity of Craft Instructor Training institutes is only 1,600 instructors per year (DGT 2017a, b). Of those 1,600 seats, approximately 500 seats are reserved for women undergoing instructor training in NVTI and RVTIs (DGT 2017b). Also, the ATI in Chennai and ATI-EPIs in Hyderabad and Dehradun began to train instructors, and the maximum seating capacity has risen to 3338 (DGT 2017a). Moreover, in 2010, the national government granted permission to the state governments and different types of organizations (such as “companies like sole propriety, private/public limited registered under Companies Act, Societies and Trusts registered as per Act and promoters of SEZs” [special economic zones]) to undertake instructor training (DGT 2017a). Such establishments are called Institutes for Training of Trainers (IToT), and they must fulfill specific requirements to be approved by the government (see DGT 2014).

Another problem in VET teacher training is the availability of limited financial resources. The investments from the governments for the vocational education are not sufficient (Venkatram 2012, p. 173 f.). The jobs at ITIs are not attractive to the qualified trainers because of the low payment (Pathak 2017). Moreover, vocational education is seen as low status and, thus, does not attract qualified teachers (Sharma 2014, p. 411).

As a result, most ITIs suffer due to the lack of instructors. As half of the posts remain vacant, ITIs are forced to employ “ad hoc instructors” and instructors on short-term contracts (Joshi et al. 2014, p. 108 f.; Pathak 2017). According to a survey conducted in 2010, contractual and ad hoc instructors consist of 55.3% of the faculty (Joshi et al. 2014, p. 108 f.).

In 2014, Tara et al. (2016, p. 5ff.) interviewed principals at government ITIs in the states of Karnataka, Orissa, Tamil Nadu, and New Delhi and found that about 50% of respondents had difficulty in finding qualified trainers and were forced to employ temporary instructors without required skills. Consequently, ITIs are often criticized for their poor teaching quality, which is looked closely at the next section.

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## Empirical Findings: Teacher Quality at VET Institutions

Joshi et al. point out (2014, p. 106) that the qualification of instructors is “[o]ne of the indicators to measure quality of training.” The Federation of Indian Chambers of Commerce and Industry (FICCI) Skill Development forum stresses

pedagogical competence of the instructor to bring better student learning outcomes (FICCI n.d., p. 15). Thus, it is important to examine the teacher quality at VET institutions in India (Jambo and Pilz 2018).

As has already been mentioned, teaching at ITIs in India has often been subject to criticism. The National Policy on Skill Development emphasizes the importance of improving the quality of instructors by “innovative ways of recruiting” them, “award and incentive mechanisms,” “innovative skill development schemes” (students acquiring theoretical knowledge “at the institution [. . .] [and] practical skills in the workplace”), etc. (DGT 2009, p. 19).

In their study, Joshi et al. (2014, p. 89ff.) analyze the qualifications of instructors at government ITIs and private ITIs on the basis of the IAMR survey conducted in 2010. The results (see Table 1) have shown that the majority of instructors (37.1%) only possess the ITI certificate. Only 18.5% of instructors have completed 1-year Principles of Instructor Training (PoIT). Only 6.8% of the instructors working at ITIs (both government and private) possess degrees. While the percentage of instructors possessing a diploma or a degree is slightly higher at private ITIs than at government ITIs, the proportion of graduates with Instructor Training Certificate is significantly higher at government ITIs.

Even at the Centers of Excellence, which are supposed to train “multi skilled workforce matching world standards,” the majority of instructors are only ITI certificate holders (292 out of 421 instructors) (DGT 2017c; Joshi et al. 2014, p. 114). Only 42 instructors possess academic degrees and 87 are diploma graduates (Joshi et al. 2014, p. 114). Joshi et al. (2014, p. 111) describe this situation as “distressing” as, although the need for skilled workers is rising, there is a serious lack of qualified instructors, which has a negative effect on the training quality. Joshi et al. (2014: 108 f.) also examine other factors that could lead to poor training quality such as instructors’ salaries, involvement of instructors in “activities other than training students,” and their “employment status.”

Mathur et al. (2014, p. 179ff.) look at the quality of training at ITIs from the learner’s perspective. For this purpose, they interviewed 2,507 ITI graduates (out of them 508 did not plan to undergo an apprenticeship training), 905 ATS graduates, and 1,518 trainees. The results of the survey have shown that most students are primarily disturbed by the low quality of training, which they mainly attribute to poorly qualified teachers. Students reported that in order to reduce personnel costs, ITIs employ instructors only for a short period of time. Frequent change of staff

**Table 1** Technical qualification of instructors in government ITIs and private ITIs. (Modified from Joshi et al. 2014, p. 107)

Technical qualification	Government ITIs (%)	Private ITIs (%)	Total (%)
ITI graduate	37.8	34.5	37.1
ITI graduate with PoIT	20.1	13.1	18.5
Diploma	30.4	38.1	32.1
Degree	6.7	7.1	6.8
Data not reported	5.0	7.1	5.5

hampers the continuity of learning. Moreover, courses are occasionally taught by instructors specialized in other trades since no suitable instructors are available.

In her study, Ajithkumar (2016, p. 198ff.) interviewed 47 instructors in private ITIs (six of which are principals) in the State of Maharashtra. The data has shown that only 27% of instructors completed “preservice training in ATI.” The principals revealed that there is lack of instructors with National Craft Instructor Certificates due to the insufficient number and geographical “inaccessibility of ATIs.” Moreover, it is practically impossible to grant 1 year off to teachers for their professional development. Ninety percent of instructors reported that they are not motivated to improve their qualifications since they do not get any rewards, for example, in the form of a pay increase, “paid leave [. . .] [or] promotions” (Ajithkumar 2016, p. 200).

Although 100% of trainers recognized the significance of information and communications technology, all of them indicated that it was not included in their preservice training. Fifty-seven percent of instructors reported that they kept themselves up to date with the technological developments with the help of the Internet, 41% attended “workshops and seminars,” and 2% did research (Ajithkumar 2016, p. 202 f.).

After they had undergone their preservice training, none of the trainers were sent to “any refresher course at the ATIs” (Ajithkumar 2016, p. 203). Nevertheless, all instructors participated in different kinds of “professional development programs” which they consider to be “inadequate” (Ajithkumar 2016, p. 204).

Although all instructors recognized the significance of “industrial work experience,” 68% of them possessed not more than 6 months of work experience, and only 6% of the instructors had work experience of over 2 years. As a result, the majority of instructors reported it was easier for them to teach theory than practical skills (Ajithkumar 2016, p. 204).

In a study conducted by MART engaged by National Skill Development Corporation Mart (2011, p. 11ff.), 360 instructors at 71 training institutions (government and private ITIs, NGOs) in 8 regions of India were interviewed. The study covered 18 trades (plumbing, dressmaking, housekeeping, accounting, etc.) across 6 sectors. The results of the study have shown that most teachers at government and private ITIs possess technical skills (96% and 90%, respectively). However, they lack teaching skills as only 38% of trainers at government ITIs and 30% at private ITIs have acquired teaching skills.

Only 29% of trainers at government ITIs possessed skill certificates (technical, teaching, soft, and entrepreneurship development certificates) (26% government certificates and 3% private certificates). At private ITIs, the number was even lower as only 25% had certificates (13% government and 12% private certificates). A great proportion of instructors were in the age group below 30 years and had experience of less than 3 years.

In the abovementioned study of Tara et al. (2016, p. 5ff.), the interviewed principals at government ITIs emphasized the importance of upgrading the skills and technical and pedagogical knowledge of the teaching staff. The majority of the teachers interviewed at six CoEs in the state of Karnataka stressed that it was imperative that training programs were offered regularly to keep up to date with the industrial developments (see also Jambo and Pilz 2018).



Joshi et al. (2014, p. 115) emphasize that qualifications of instructors play a crucial role in vocational training, and it is crucial that more instructors are trained and that the quality of their training improves. According to Mathur et al. (2014, p. 192), it is essential that instructors undergo high-quality training along with regular “refresher courses.” One of the main recommendations of the FICCI Skill Development forum for the 12th Five-Year Plan was to improve the quality of instructor training (FICCI n.d., p. 15).

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## Conclusion

The Indian Government has realized the importance of skill development and has initiated many schemes intended to impart skills to its young population. However, there are still many problems that impede skill development in India. Student enrolment in vocational training programs is still very low due to the prejudice attached to vocational training as being of low status and only for people who fail to pursue higher education.

Furthermore, the Indian Government has failed to provide high-quality training and sufficient number of seats at VET institutes. As training has little connection to the needs of the labor market, it does not improve employment prospects of VET graduates. To a large extent, this is due to the lack of qualified instructors at vocational training institutes.

The results of the studies revealed that the majority of instructors possess an ITI certificate but lack teaching qualifications. Even in upgraded ITIs (CoEs), most trainers do not have teaching qualifications. Moreover, most instructors lack relevant industrial work experience and do not attend any refresher courses after their preservice training. Despite the great importance of being up to date with technological advances, it was not included in the instructors’ preservice training.

Low investments in teacher training, few job performance incentives, and social stigma attached to vocational training lead to frequent staff turnover and employment of instructors with short-term contracts and no relevant skills.

The overview on VET teacher education in India has shown very clearly the demand for future developments not only in quantitative ways but also in relation to quality. The upgrading of VET teacher education by offering academic programs combined with practical experience in the world of work on the one hand and a proper VET research at universities and other high-ranked research institutions on the other hand are highly important in the future.

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# Vocational School Teacher Education in Switzerland: Roles, Responsibilities, and Training

# 95

Anna Keller and Antje Barabasch

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## Abstract

In Switzerland two-thirds of all young people completing compulsory education enroll in upper-secondary vocational education and training (VET) and subsequently choose one of around 230 occupations. Most VET programs consist of part-time classroom instruction (1–2 days a week) at vocational schools combined with part-time apprenticeship at a host company (3–4 days a week). There is also a large availability of professional education (PET) which can be

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attended after initial upper-secondary level VET training. Since VET and PET are highly connected, this chapter refers to vocational *and* professional education and training (VPET). Within this system specific teacher and trainer profiles are required. Providing training to apprentices at a host company, for example, requires work expertise as well as a pedagogical qualification, teaching vocational subjects at vocational schools or colleges of higher education requires work related as well as theoretical and pedagogical knowledge, whereas teaching general education subjects requires a teaching diploma but no work expertise. Because of the challenge of combining practical and theoretical training in VET and because young people can choose from a large variety of further studies and career options within the framework of professional education and training, various roles and different functions have to be assumed. The entire personnel educated for this purpose in Switzerland is called “professionals responsible for vocational and professional education and training.” This chapter focuses on their responsibilities, their training, and on the training and certification structures.

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**Keywords**

Vocational education and training VET · Professional education and training PET · Teacher education · Switzerland · Vocational school · Workplace training · Host company · Branch course training center

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**Introduction**

The academic performance of children and young adults is inter alia influenced by school-related factors of which teacher ability is generally seen to have the biggest impact on student learning (Hattie 2009). This is also assumed for the sector of vocational and professional education and training (VPET). Teachers and trainers and their professional qualities are a key factor for successful vocational and professional learning (e.g., OECD 2010; Hensen-Reifgens and Hippach-Schneider 2015, p. 17).

The quality of the work of VPET teachers is essential, because with their work at the interface between the education system and labor market they contribute to the efficacy and quality of the future workforce (Hensen-Reifgens and Hippach-Schneider 2015). The demands on the work of vocational and professional teachers and trainers are high and constantly changing, for example, due to innovations in products and processes within trades and the usage of new media and technologies, but also due to changing expectations of young people and societies (Hensen-Reifgens and Hippach-Schneider 2015, p. 17). Even though the work of VPET teachers and trainers is important and challenging, not much is known about their work and training (Kirpal and Wittig 2009, p. 2). One difficulty of the research in the field of VPET teachers can be seen in the fact that “VET is nationally focused like no other form of education” (Shaw et al. 2016, p. 94). Vocational and professional education and training respond to national economies, are “delivering to national employment needs,” and have to be able to adapt to local changes (Shaw et al. 2016, p. 94). Accordingly, it is difficult to make generalizable statements about VPET teacher education, and it is not easy for VPET institutions to

collaborate in research on a global scale. Also, practitioners have difficulties “to understand what equivalence there is in other countries to their job, or their courses, or the qualification level they teach” (Shaw et al. 2016, p. 99).

This chapter focuses on VPET teacher education in Switzerland and is based on research as much as policy papers, guidelines, and expert interviews. Switzerland has one of the lowest youth unemployment rates of OECD countries (OECD Data 2017). The dual structure of training, which can be found in Germany and Austria as well, enables early labor market experience of young adults as well as socialization into the world of work and employment opportunities after graduation. It can be assumed that “traditional apprenticeships, strongly supported by the firm, where the apprentices are trained for a large amount of time, are still an attractive alternative to firmly school-based VET-models, which produce in some cases overqualified, in other cases low qualified or simply wrongly qualified students and alumni, who face transition problems from school to the world of work” (Gonon 2007, p. 7). VPET in Switzerland facilitates the inclusion of almost all adolescents in the education system and leads to a high percentage of young adults with a professional qualification (Gonon 2007, p. 8). Apprenticeship teachers and trainers, who significantly contribute to the functioning of the VPET system, are rarely a research topic. Therefore, this chapter is a first attempt to summarize how training and certification of professionals responsible for vocational and professional education in Switzerland is conducted.

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## The Swiss VPET System

In this section an overview of the Swiss system of vocational and professional education and training (VPET) is provided, the framework in which the different roles and functions of professionals responsible for vocational and professional education have to be carried out.

After compulsory school, young people enroll either in upper-secondary vocational education and training (VET) or in upper-secondary schooling to get admission to universities. Two-thirds of all young people in Switzerland take part in VET programs. Although the number of students enrolling in VET is slowly decreasing, while upper-secondary schooling becomes more popular, with about 70% of each cohort, Switzerland currently has the highest percentage of students enrolling in VET in Europe. VET students work at a host company in a chosen occupation, and from the beginning of their apprenticeship, they earn a salary that increases over time. Besides the training at the host company, they attend a vocational school for 1–2 days per week where vocational subjects and general education subjects are taught. Some VET programs take place entirely at schools, where vocational and general education subjects are taught and practical skills are trained, but the majority of VET programs consist of schooling at a vocational school and “on-the-job training” at a host company. One particularity of the Swiss VET system is that there is a “third learning site” provided by labor market organizations. Labor market organizations carry out special training sessions (courses from 1 day to 1 week) “off the job” once or several times per year for learners from different companies. These

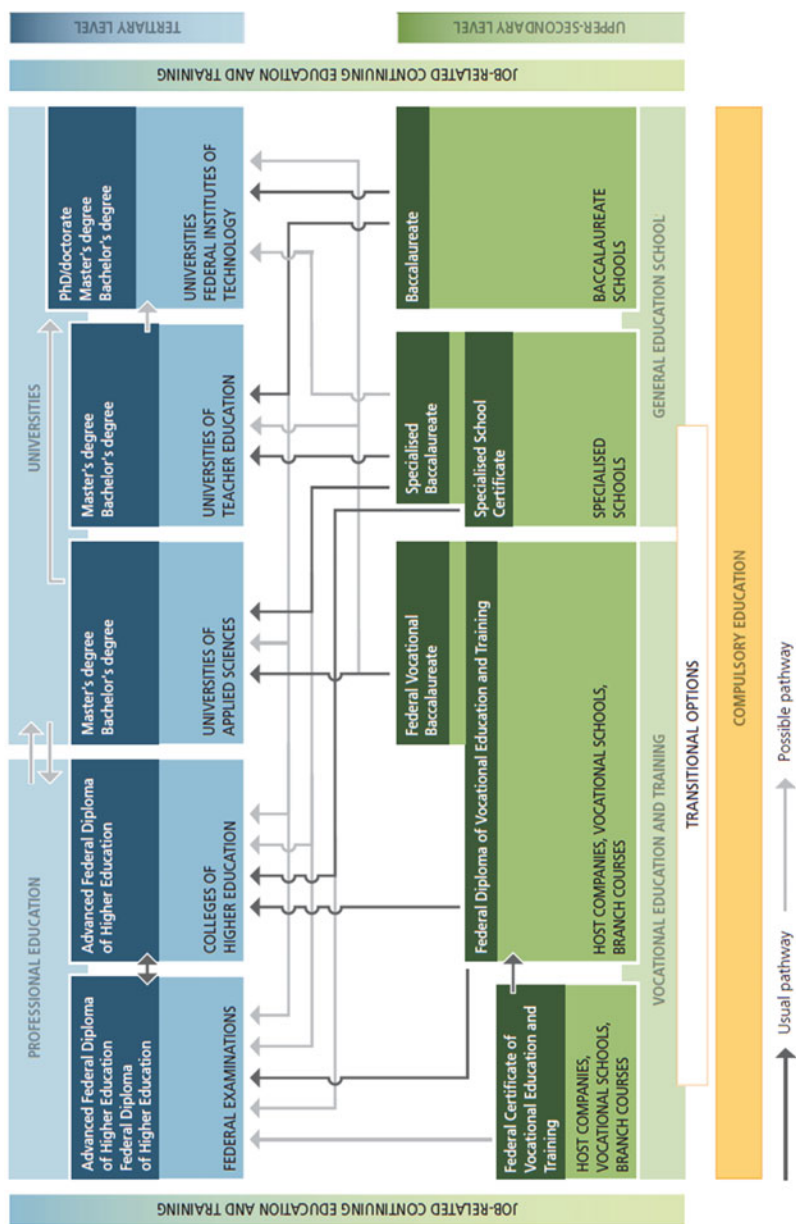
training sessions (branch courses) aim at connecting the knowledge of workplace and school-based learning (Wettstein and Gonon 2009, p. 175).

Regular VET programs take 3 or 4 years and lead to the Federal VET Diploma (Federal Diploma of Vocational Education and Training). It is also possible to attend a less demanding 2-year program (leading to the Federal Certificate of Vocational Education and Training) that consists of training at a host company and schooling at a vocational school as well (Stalder and Nägele 2011).

Tertiary-level professional education and training (PET) offers a variety of career options that build on upper-secondary vocational education and training (VET) and are aligned to labor market needs. After obtaining the Federal VET Diploma, young people can take federal examinations on two levels. Federal examination on level 1 can be attended to specialize in a particular field. It leads to the Federal Diploma of Higher Education. Federal examination on level 2 requires expertise in practice (working in the corresponding occupation for several years) and is intended for people that want to hold managerial positions. It leads to the Advanced Federal Diploma of Higher Education (State Secretariat for Education, Research and Innovation SERI 2017, p. 7). Since both examinations are competency-based, they provide the possibility to credit prior learning such as informal learning from working in the field. After obtaining the Federal VET Diploma, young people also can study at colleges of higher education. The study programs of colleges of higher education build on work-related knowledge and enable learners to develop specific skills as well as leadership and managerial competences. Besides the abovementioned VPET programs, there are lots of non-formal, job-related courses and seminars at all levels which support transition processes into the different programs and provide the possibility of lifelong learning.

Although the Swiss VPET system is aligned to the demands of the labor market, it is also an integral part of the education system (Gonon 2007, p. 9). The Swiss education system has no dead-end pathway. Instead it is highly “permeable.” Learners can switch between different levels and between VPET pathways and general education/university pathways (see Table 1). In the Swiss education system, “the academic-vocational divide” in the past last 25 years has diminished (Gonon 2007, p. 10). A popular career, for example, with both vocational and general education qualifications, can be realized through the Federal Vocational Baccalaureate (FVB) which exists since the early 1990s (Wettstein and Gonon 2009, p. 165). After upper-secondary vocational education and training, learners can attend a 1-year preparatory course in general education subjects and then take the FVB examination. The preparatory course is often also attended already during the 3- or 4-year VET program. Candidates that pass the FVB examination are entitled to enroll at universities of applied sciences. Holders of the FVB have the option to take the University Aptitude Test. This “pathway” exists since in the year 2003. Successful candidates are entitled to enroll in the cantonal universities or in one of the two federal institutes of technology (For further information about the Swiss VPET system, see Wettstein and Gonon (2009) or Dubs (2006).).

**Table 1** The Swiss education system (Source: State Secretariat for Education, Research and Innovation SERI 2017)





## Roles and Responsibilities at the Different Learning Sites

The Swiss VPET system is governed by three partners, the government, the cantons (communal authorities), and the labor market organizations. The government leads the VPET sector strategically, the cantons are responsible for implementing the strategic guidelines, and together with the government they finance the VPET sector. In all other sections of the Swiss education system, the cantons are fairly autonomous, while the VPET sector is centrally (nationally) managed since it is interlinked with the world of work and its regulations. The collaboration with labor market organizations of different trades facilitates a good coordination of VPET with the labor market.

The government provides ordinances (*Verordnungen*) for the VET program of every occupation based on the Federal Act on Vocational and Professional Education and Training (portal of the Swiss government 2017a). In the ordinances it is determined which part of the VET program is covered by vocational schools, host companies, or branch course training centers. Comprehensive curricula build on the ordinances and provide didactical guidelines for the specific occupations. They contain a detailed description of the aims and the structure of the program as well as of the organization of the branch courses and the qualification process. Curricula are also provided for PET programs. For each occupation there are committees, consisting of representatives from labor market organizations, cantons, and government that keep the ordinances and curricula up to date in respect to labor market requirements. For the professionals responsible for VPET, ordinances and curricula are relevant for their work at the following learning sites:

### Vocational schools

- Teachers of vocational subjects
- Teachers of general education subjects, including sport teachers
- Teachers of subjects of the Federal Vocational Baccalaureate

### Host companies

- Workplace trainers

### Branch course training centers

- Branch course instructors

### Colleges of higher education

- Teachers at colleges of higher education

The training and certification of the abovementioned professionals responsible for VPET is officially regulated and will be focused on in this chapter. Besides these professionals, other groups of people are working in the framework of VPET. An example are the trainers in the facultative preparatory courses for the federal examinations on levels 1 and 2 that are widely not regulated (Fazekas and Field 2013, p. 15),



people involved in job-related education and training such as seminars or workshops (also called continuing education and training (CET)), people working in examination processes within VPET, or managerial staff leading VPET institutions.

## Vocational Schools

Learners are taught in classes from 10 to 24 learners in the closest VET school to their host company. Vocational schools often are specialized in one occupation or a group of occupations. All learners of one class learn the same occupation or very similar occupations. The vocational schools are organized by the cantons. To cover locally required schooling, inter-cantonal collaborations are possible. In most cases the students are taught by a teacher of vocational subjects, a teacher of general education subjects, and a sport teacher. Often preparation courses for the Federal Vocational Baccalaureate are held at vocational schools as well (Wettstein and Gonon 2009, p. 163).

**Teachers of vocational subjects.** Teachers of vocational subjects are responsible to teach the theoretical foundations and background knowledge of an occupation. In most cases they are holders of the highest professional qualification of the corresponding occupation (e.g., hold an Advanced Federal Diploma of Higher Education), have elaborated subject-related knowledge, and often have a great deal of working experience (Hof et al. 2011, p. 2).

**Teachers of general education subjects.** According to Gonon (2007), “preparing for the world of work does not only include the acquisition of solid professional skills but also of knowledge management skills and the ability to ask the relevant questions in order to prepare for uncertainties” (Gonon 2007, p. 10). Teachers of general education subjects are responsible to ensure that VET programs lead to an adequate level of general knowledge. Although teaching general education subjects like mathematics, languages, and communication, in their teaching teachers always refer to professional situations as a point of reference. Teachers of general education subjects are usually not experts in practice but have a high level of general knowledge. Typically they might, for example, have a regular teaching diploma for primary or secondary schools or they have studied at a university.

**Teachers of subjects of the Federal Vocational Baccalaureate.** Teachers of subjects of the Federal Vocational Baccalaureate (FVB) are responsible to prepare learners for the FVB examination and support them to develop the skill sets for studying. They are responsible to pass on extended general knowledge to VET learners. Students that prepare for the FVB examination are taught basically the same subjects as students in high schools, such as a first (regional) national language, a second national language, English, mathematics, and natural and social sciences (Erziehungsdirektion des Kantons Bern 2017a). Teachers of subjects of the FVB in most cases have an academic background and sometimes also are holders of a high school teacher diploma.

## Host Companies

Dual VET requires low public expenses. Only around 25% of the costs of VET programs in Switzerland are paid out of public budget (of government and cantons); approximately 35% are paid by the host companies (who, in average, get these expenses back from the productive work outcomes of the apprentices). Around 40% of the costs are covered by VET learners, who, because they are receiving only a small salary, are financing a part of their training themselves (Maurer and Gonon 2013, p. 62). Cantons give companies the authority to train apprentices if they can provide adequate structures for it. The maximum number of apprentices simultaneously trained in a host company depends on the number of skilled workers that a company employs (Wettstein and Gonon 2009). To hire VET learners can be an advantage for enterprises because in most cases the productive outcome of the work of apprentices exceeds the training costs (Wettstein and Gonon 2009), and companies and labor market organizations profit from providing career prospects for young people because this secures the supply of skilled workers needed in a branch (Staatssekretariat für Bildung, Forschung und Innovation SBFI 2017a). Around 20% of all companies in Switzerland train apprentices (Mühlemann et al. 2007, p. 144). The engagement of firms in training is relatively stable over the years and a sufficient amount of posts for VET learners is provided. In the year 2017, firms in Switzerland offered 97,000 new posts for VET learners, of which in August 2017, 90,000 were taken. The supply exceeded the need of posts, 7000 posts for VET learners remained open (SBFI 2017b). Jobs for VET learners in general are opened in branches where the demands for skilled workers are high, which also means in branches, in which future skilled workers probably will find an employment.

In countries with dual VET systems, it is important that the “involvement and commitment of industry and firms” is continuously strengthened (Gonon 2007, p. 11). In Switzerland the engagement of enterprises in training apprentices is supported by the development of new forms of vocational training at workplaces such as intercompany alliances in which enterprises work together in training apprentices, which facilitates the development of the branch-specific skills (Wettstein and Gonon 2009, p. 122). Though, in general it can be assumed that “as long as training regulations and the market situation permit a cost effective training of apprentices, companies do not need specific labor market regulations or institutions to offer training posts” (Wolter et al. 2003, abstract). Cost-effective training can, for example, be ensured, if the major part of the VET training takes place at workplaces and not at vocational schools, so that apprentices are able to contribute effectively to the productive outcome of their host company and if workplace training is not hampered by “too restrictive curricular guidelines” (Wolter 2008; Maurer and Gonon 2013, p. 69). Also workplace trainer education should not be too cost- and time-consuming for that reason. In Switzerland the trainer education, that skilled workers who want to train have to attend, is relatively short, only taking 100 learning hours, which corresponds to 3 ECTS (The European Credit Transfer and Accumulation System (ECTS) was

**Table 2** Training duration for teacher/trainer profiles “as a second job” and “on a full-time basis”

Profile	Specification	Learning hours	ECTS
Teachers of vocational subjects	As a second job	300	10
	On a full-time basis	1800	60
Teachers of general education subjects		1800	60
Sport teachers		1800	60
	With high school teacher diploma	300	10
Teachers of subjects of the FVB		1800	60
	With high school teacher diploma	300	10
Workplace trainers		100	3
Branch course instructors	As a second job	300	10
	On a full-time basis	600	20
Teachers at colleges of higher education	As a second job	300	10
	On a full-time basis	1800	60

established to make students’ workload comparable and transferable from one university in Europe to another. 1 ECTS point is equivalent to an average student workload of 30 h.) (see Table 2).

**Workplace trainers.** Workplace trainers in host companies generally have work expertise related to the business of the host company. They are responsible for supporting the practical skills development among apprentices, plan and evaluate their training, and “have a very important role to play by helping the apprentices to socialize in the world of work and to develop a professional identity as well as commitment to the enterprise” (Hensen-Reifgens and Hippach-Schneider 2015, p. 5). In small companies, the work of apprentices is closely coordinated with the work of the workplace trainer who is often also the head of the company. This allows the apprentices to acquire the skills by working together with a more experienced colleague, whereas “the trainer is a crucial role model for the following generation of employees” (Hensen-Reifgens and Hippach-Schneider 2015, p. 5). Apprentices working in larger companies are often trained by several skilled workers responsible for sections of the training curricula.

Typically, “on-the-job” training takes place while productive work is carried out for an internal or external client. During this process, instruction is secondary to production and training should not hamper productive work (Wettstein and Gonon 2009). VET learners also work without supervision and are responsible for a part of the productive work, which can include highly demanding and complex work steps, and some VET learners carry a lot of responsibility (Hoffman and Schwartz 2015). Workplace training provides the opportunity for “authentic learning processes.” The fact that what is learned at a workplace can directly be used with the workplace setting is considerably motivating for young learners (SBFI 2015, p. 5). A study that compared school-based VET programs to VET programs at workplaces showed that 89% of young people in VET preferred

workplace to school-based learning. Typical statements of young learners displayed in the study were “I am fed up with school,” “I want to do something real,” and “I want to work practically and not struggle with theories” (Mjelde 1993 cited by Gonon 2007, p. 7).

## Branch Course Training Centers

Branch course training centers are organized by labor market organizations. The cantons support their development and have to ensure that all necessary courses are provided. Some of the costs for the branch courses are paid by the cantons which include corresponding contributions of the government; the other part is paid by the companies or by labor market organizations or, where they exist, out of vocational training funds (Wettstein and Gonon 2009, p. 176). Large labor market organizations hold regional training centers or even national training centers, like, for example, the “Center for Young Professionals in Banking (CYP).” Smaller labor market organizations that have to provide only some courses during the year therefore rent rooms in a vocational school or in a company.

Branch course training centers provide the kind of practical training that cannot easily be acquired at the workplaces because the resources needed are not available there (SBFI 2015). Because practical training “off the job” does not have the same relevance for every occupation, the duration of the branch courses varies largely between occupations, and for some occupations these courses have to be attended by learners at the beginning of a VET program, while for others it occurs later on (Wettstein and Gonon 2009, p. 175).

**Branch course instructors.** Branch course instructors are responsible for the practical training “off the job.” Instructors and apprentices are not bound in an employment relationship. In branch course training centers, apprentices are learners rather than workers. In contrast to the situation of workplace trainers in a host company, branch course instructors are exclusively responsible for good instruction and not to guarantee productivity. Branch course instructors provide learning environments that simulate the reality of the most relevant and representative problems and work processes. The aim is to teach very closely to practice but also to include, where necessary, theoretical concepts and to connect the skills from workplace training to what is learned in vocational schools (Wettstein and Gonon 2009). The skills that VET learners acquire in their everyday work at the host company can be more or less specific, and there can be differences in the training quality. According to Reto Catani, from SVIFET, branch course instructors teach VET learners what the “standards in practice” of a certain occupation are (personal communication, November 6, 2017).

## Colleges of Higher Education

Colleges of higher education are run by cantons or private providers. For former VET students, they provide (nonacademic) tertiary schooling. Study costs are paid

**Table 3** Subject areas of colleges of higher education (Erziehungsdirektion des Kantons Bern 2017b)

Subject areas of colleges of higher education
Technology
Hospitality industry, restaurant, and tourism
Economics
Agriculture and forestry
Health
Social affairs and adult education
Art and design
Traffic and transport

by students as well as by cantonal contributions that cover around 50%. For some study programs that are currently of high public value (e.g., the health sector), cantonal contributions can be up to 90% (SBFI 2017c). Approximately 8500 persons annually get qualified by colleges of higher education and often work in leading positions later on (SBFI 2017c). When they start their studies, students at colleges of higher education usually are under 25 years old which means that they often start to study only some years after they have obtained their Federal VET Diploma. In general students at colleges of higher education are employed and study part time (Schmid and Gonon 2013, p. 152). Colleges of higher education in Switzerland offer 52 different study programs in 8 subject areas (Table 3).

**Teachers at colleges of higher education.** Teachers at colleges of higher education in general are experienced skilled workers. They are holders of a Federal VET Diploma and have studied at a corresponding college of higher education. Teachers at colleges of higher education are responsible for supporting their students in developing methodological competences, in analyzing occupation-related problems, and in applying theoretical knowledge in practical contexts (Erziehungsdirektion des Kantons Bern 2017b).

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## Training of Professionals Responsible for VPET

### Standardization and Quality

Even if in Switzerland VPET teacher/trainer education can have local specifics (e.g., in the different linguistic regions), in general VPET teacher/trainer education follows national standards. SERI publishes a list of all recognized providers for teacher/trainer education programs that lead to a nationally recognized teacher/trainer diploma (Table 4). Federal, cantonal, or private institutions provide a diverse selection of programs which are evaluated by SERI (yearly reporting and visits every 6 years). Workplace trainer courses are only provided by private institutions and corresponding certificates are valid in the canton that issued it. Workplace trainer courses are supervised by the cantons, with the exception of courses

**Table 4** Prerequisites of VPET teacher/trainer education programs, summary of training contents, and training institutions

Prerequisites of VPET teacher/trainer education programs, summary of training contents, and training institutions
<b>Teachers of vocational subjects</b>
<b>Prerequisites</b>
PET diploma (Federal Diploma of Higher Education or Advanced Federal Diploma of Higher Education) or university degree (bachelor/master) in the corresponding teaching field
Six-month practical work experience in the corresponding teaching field
Employment at a vocational school and sometimes also teaching experience
<b>Summary of training contents</b>
Development of methodical competences such as how to initiate, support, and evaluate learning processes
<b>Training institutions</b>
SFIVET, University of Applied Science HAFL, Universities of Teacher Education (St. Gallen, Zurich, Lucerne), Federal Institute of Technology Zurich ETH
<b>Teachers of general education subjects</b>
<b>Prerequisites</b>
Teaching diploma for obligatory school or university degree (bachelor/master) preferably in a field related to general education subjects
Six-month practical work experience in the corresponding teaching field
Employment at a vocational school
<b>Summary of training contents</b>
Building up methodological competences of teaching general education subjects
<b>Training institutions</b>
SFIVET, Universities of Teacher Education (St. Gallen, Zurich)
For sport teachers with high school teacher diploma: SFIVET in collaboration with Universities of Teacher Education (Berne/Jura/Neuchâtel, Vaud, Thurgau, PHFHNW, Zurich, Lucerne), SFIVET in collaboration with the University of Fribourg
<b>Teachers of subjects of the Federal Vocational Baccalaureate</b>
<b>Prerequisites</b>
Tertiary education in the corresponding teaching field. For teaching subjects that require a university degree: high school teacher diploma or university degree bachelor/master in the corresponding teaching field
Six-month practical work experience in the corresponding teaching field
Employment at a vocational school
<b>Summary of training contents</b>
Knowledge of the dual VET system, understanding the working situation of learners
<b>Training institutions</b>
Universities of Teacher Education (FHNW, Zurich, Lucerne), University of Zurich, University of St. Gallen, SFIVET in collaboration with Teacher Universities (Berne/Jura/Neuchâtel, Vaud, Thurgau, Lucerne), SFIVET in collaboration with the University of Fribourg
<b>Workplace trainers</b>
<b>Prerequisites</b>
Federal VET Diploma in the corresponding teaching field
Two years practical work experience in the corresponding teaching field

*(continued)*

**Table 4** (continued)

Prerequisites of VPET teacher/trainer education programs, summary of training contents, and training institutions
<b>Training contents</b>
Vocational pedagogy, how to support the “theory-practice transfer”
<b>Training institutions</b>
Private providers
<b>Branch course instructors</b>
<b>Prerequisites</b>
PET diploma (Federal Diploma of Higher Education or Advanced Federal Diploma of Higher Education) or university degree (bachelor/master) in the corresponding teaching field
Two years practical work experience in the corresponding teaching field
Employment at a branch course training center
<b>Summary of training contents</b>
Planning of the branch courses according to the teaching plans
<b>Provider</b>
SVIFET, private providers, Universities of Teacher Education (St. Gallen, Zurich, Lucerne)
<b>Teachers at colleges of higher education</b>
<b>Prerequisites</b>
Diploma of a college of higher education or university degree (bachelor/ master) in the corresponding teaching field
Employment at a vocational school and sometimes also teaching experience
<b>Summary of training contents</b>
Andragogic methods, support of the “theory-practice transfer”
<b>Training institutions</b>
SFIVET, Universities of Teacher education (St. Gallen, Zurich, Lucerne), Federal Institute of Technology Zürich ETH

For foreigners it is possible to apply for the recognition of their diploma by SERI that recognizes diplomas if they are equivalent to corresponding Swiss diplomas (VPETO Art. 69, portal of the Swiss government 2017b).

provided by large labor market organizations such as “Swissmem” or VSSM, which are supervised by SERI because they operate at a national level (SERI 2017d). Research in Switzerland supports the development of VPET teacher/trainer education. Changing conditions in the framework of VPET that are aligned to changes in the labor market require constant adjustment and updating. According to Barbara Grob of SFIVET, for example, some structures of the teacher education for VET sport teachers are being changed (personal communication November 2, 2017).

## **Institutions of Teacher/Trainer Education**

The implementation of a new act on vocational and professional education in 2004 set off several processes. Former institutions for teacher education in Switzerland

were restructured to be “universities of teacher education,” and some of them started to offer VPET teacher/trainer education programs. As can be seen in Table 4, regular universities are also involved in VPET teacher education. The former institution for VPET teacher/trainer education, called Swiss Pedagogical Institute for Vocational Education (SPIVE), was restructured in 2006 and today is called the Swiss Federal Institute for Vocational Education and Training (SFIVET). SFIVET, under contract to the government, provides teacher/trainer education programs for all professionals responsible for VPET (with the exception of workplace trainers), a variety of courses for further training (*Weiterbildung*) in the VPET sector (such as courses for examination experts and leading staff), a research/development center for VPET, and a master’s program (MSc) in VET. Many collaborations have been established between SFIVET and several Swiss universities of teacher education as well as with cantonal universities and international partners.

### **Structural Characteristics that Support the Linkage of Theory and Practice**

The linkage of theory and practice of VPET in Switzerland is facilitated by a particularity of the teacher/trainer education. Professionals responsible for VPET can study toward a “teacher/trainer as a second job” designation (*Lehrperson im Nebenamt*). After studying in this pathway, they can teach/train “as a second job” (work quota 1–50%). This is different from regular part-time employment. Whereas, for example, a regular teacher can work part time or full time as a teacher, teachers/trainers that have completed the “teacher as a second job” profile are only allowed to work 50% or less as a teacher/trainer. They continue working as regular workers in industry, which allows them to include their up-to-date knowledge of the developments in the world of work in their teaching, which helps them to support VPET learners in linking theory and contemporary practice. For teachers and trainers who teach full time, it can be difficult to hold their professional knowledge up to date, a problem that can lead to legitimacy issues.

Because in Switzerland the linkage of theory and (contemporary) practice is considered to be of utmost importance, to study in these profiles is attractive: compared to the profiles that lead to “teacher/trainer on a full-time basis” (*Lehrperson im Hauptberuf*, possible work quota 1–100%), they require less time (see Table 3). The study profile “teacher/trainer as a second job” is only available for a part of the professionals responsible for VPET: teachers of vocational subjects, branch course instructors, and teachers at colleges of higher education (see Table 3). For teachers of general education subjects and for teachers of subjects of the FVB, up-to-date skills and knowledge of developments in industry are less important. They can only study in the profile “teacher on a full-time basis” (see Table 3). Most recent statistics show that around 42% of all teachers employed at VET schools work less than 50% as a teacher (Bundesamt für Statistik 2014).



## Dimensions of VPET Teacher/Trainer Education

**Theory and practice.** According to Reto Catani, SVIFET, to be well trained after a VPET program and to be “professionally competent” means that a person does know what to do and also knows why he or she does it this way (personal communication, November 6, 2017). Professionals responsible for VPET support the development of VET learners’ professional competences, which requires comprehensive learning beyond separately taught subjects (SBFI 2015, p. 5). Professionals responsible for VPET have to be educated so that they are able to refer to the context of practical work, e.g., by including learners’ work-related experiences in class, and simultaneously are able to familiarize young learners with the essential theories that help them to better understand, plan, and carry out their work (SBFI 2015, p. 5). Theory and practice can be integrated in teaching/training through the concept of “situated learning” or “problem-based learning.” Applying these concepts, a teacher organizes teaching and learning processes from the perspective of relevant work situations or work-related problems. “Real-life work situations” or problems are addressed with knowledge and theories to encourage a linkage of theory and practice.

**Collaboration of colleagues at the different learning venues.** Of main importance for the quality of VET in Switzerland is the coordination of the learning at the three different learning venues: vocational school, host company, and branch course training center. If it functions well, students can profit from learning in different environments and from the accumulated knowledge of the teachers/trainers involved. VET teacher/trainer education therefore aims at developing the teachers’ and trainers’ ability to cooperate with colleagues at the different learning venues (SBFI 2015, p. 5). It is, for example, vital that all teachers/trainers involved know and understand the different learning environments their students are confronted with. Only if they understand the learning situation of learners and their level of education can they address them accordingly and effectively support their learning process. How to build bridges for the learning among the three learning sites (e.g., through media usage such as iVideo or REALTO) is also a particular concern of research (e.g., Cattaneo and Sauli 2017; Aprea et al. 2012).

**Pedagogy and andragogy.** VPET teacher education in Switzerland aims to pass on pedagogical approaches as well as andragogic approaches to future teachers and trainers. Since at the start of their VET programs, young learners on average are around 16 years old, VET teachers/trainers have to act as general educators and need pedagogical knowledge (Hensen-Reifgens and Hippach-Schneider 2015). During the 3 or 4 years that regular VET programs take, young learners get more independent and start to manage their own lives as adults. For the professionals responsible for VET, this means that in this time, they have to start to address young learners more as adults and apply andragogic approaches. How this transition toward adulthood, the first steps toward financial and social independence of VET learners, has to be reflected in the teaching is a core theme of VET teacher/trainer education (SBFI 2015, p. 5). It can be summarized, that, within the progress of a VET program, young learners have to be supported to take over the responsibility for their learning progress. Teachers therefore, for example, can provide the opportunity of self-regulated studying.

## Prerequisites to Be a Professional Responsible for VPET

VPET teacher/trainer education programs in Switzerland are short, but they all build on specific prior experience and qualifications and are addressed to existing specialists. Specialists (some in technical occupation specific subjects, some in vocational subjects, some in general education subjects) are trained in relatively short programs on how to use their knowledge or skills to teach/train learners in VPET.

Table 4 shows which prerequisites for the different education programs are requested (which specialists the programs are addressed to). What is common for all profiles is that students have to have at least some experience in the industry, i.e., work (not teaching) experience for at least 6 months (see Table 4), which is supposed to facilitate the connection of theory and practice in their teaching. Table 4 also gives a summary of the basic contents of each program to show what the different “specialists” additionally are trained in to become a professional responsible for VPET. As can be seen in Table 4, the backgrounds required for the different profiles are diverse and (future) professionals responsible for VPET are a heterogeneous group. The diversity of backgrounds of teachers and trainers leads to a vocational and professional education and training that is strong in developing practical skills as well as strong in developing general subject knowledge.

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## Recruiting Professionals Responsible for VPET

Several factors contribute to successful recruitment of professionals responsible for VPET.

1. As can be seen in Table 4, enrolling in training programs for professionals responsible for VET (with the exception of workplace trainers) is only possible if a candidate is already hired by a vocational school or a branch course training center. The recruitment of the professionals responsible for VPET is carried out by vocational schools and branch course training centers where the “best candidates” (most suited regarding subject knowledge, practical experience, personality, and social skills) are selected before they attend teacher/trainer education (Hof et al. 2011, p. 2). This increases the number of people who are eligible to apply for open positions. For example, all skilled workers with 6-month practical work experience that have an (Advanced) Federal Diploma of Higher Education can apply for a job as a teacher of vocational subjects. If they have 2 years of practical work experience, they can also apply for a job at a branch course training center. All teachers for obligatory school or high school and persons with a university degree in the corresponding teaching field can apply for vacancies at vocational schools.
2. The work of professionals responsible for VPET can be considered to be attractive. Pay is at least equal to industry for teachers/trainers that work at branch course training centers or vocational schools (Hof et al. 2011). The wage of teachers at vocational schools is equal to regular teacher wages (D-EDK

Deutscheschweizer Erziehungsdirektoren- Konferenz 2017). At vocational schools such as at every public school in Switzerland, in general, teachers (in one canton) have the same wage, regardless of their previous career or background (Hof et al. 2011, p. 3).

3. Teacher/trainer education is based on previous education and work experience of candidates. The additional training of professionals responsible for VPET can be completed with relatively low expenditures, for example, 600 learning hours (20 ECTS) for the certificate to be a trainer at a branch course training center on a full-time basis or 1800 learning hours (60 ECTS) for the certificate to be a teacher of vocational subjects on a full-time basis (see Table 4), which leads to regular teacher status and a high wage. Teacher/trainer education programs only have to be completed in the first 5 years of working as a teacher/trainer, which means that for the completion of teacher/trainer education programs, an ideal time can freely be chosen (Vocational and Professional Education and Training Ordinance VPETO Art. 40, portal of the Swiss government 2017b). If professionals responsible for VPET work less than 4 h per week on average (around 160 h in a year) as a teacher/trainer, they legally even are not required to complete a teacher/training education program at all (VPETO Art. 47, portal of the Swiss government 2017b).

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## Challenges and Criticalities Within the Approaches to Teacher/Trainer Qualification

Workplace training builds the major part of most VET programs, and therefore the quality of training on the job is of utmost importance. However, workplace trainer education is very short (100 learning hours, 3 ECTS), and their certification is not nationally regulated. Higher requests on the training of workplace trainers could hamper company engagement in VET training. As a result of these minimal regulations, the quality of workplace training can differ widely between companies. For learners in VET, this means that quality training is not always assured. This is also discussed against the background of relatively frequent cancellations of VET contracts (10–40%, depending on the occupation), which is related to high individual and collective expenses (Schumann et al. 2015, p. 2) (After a cancellation of a VET contract, most of the young learners do not drop out of the VET system completely, but start a new program or start/continue in a new company (Schumann et al. 2015, p. 2).).

In comparison with the neighboring country Germany, VPET teacher education is quite a bit shorter. (Ongoing) practical work experience is higher valued than academic credentials and academic learning in the teacher education program. VPET teachers often start working without a specific pedagogic qualification and acquire pedagogic skills later on while working. This can have implications on their teaching quality and raises questions in respect to the readiness of teachers to develop their own teaching material, adjust to new curricula, respond adequately to the large variety of classroom management situations, etc. However, the persisting

argument in defense of the design of VET teacher education programs is that work experience is largely relevant and provides credibility in the classroom. “Learning by doing” is a persisting Swiss narrative which permeates VET teacher education and teaching practice as well.

In Switzerland teachers for around 230 occupations have to be educated. The challenge is that teachers of vocational subjects need general pedagogical knowledge and knowledge how to teach aspects of a particular occupation. Today the teaching methodology of all of these occupations is not systematically elaborated. To find an adequate teaching methodology for a specific occupation, teachers of vocational subjects often refer to their own experiences as a learner and worker in the field; they sometimes refer to related academic subjects and teaching methodologies, or they simply rely on general methods and approaches and apply them to the occupation they teach. It is an ongoing exercise for teachers of vocational subjects to find adequate solutions to balance the situation.

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## Conclusion and International Perspectives

Successful and well-considered recruitment of professionals working within VPET is essential for high-quality VPET, especially to maintain a high connectedness of VET to the labor market. It can be assumed that it is only possible to find good practitioners to teach the future skilled workers if working as a professional responsible for VPET is attractive and if getting there is not too demanding. In the Swiss context, equal conditions of work as a teacher/trainer to industry and to regular teaching and the low training expenditures contribute to the fact that it is possible to recruit talented, experienced, and successful practitioners for teaching and training in VPET. Programs of VPET teacher/trainer education are short. The programs build on prior knowledge, experiences, and corresponding certificates and only cover the contents that the different “specialists” additionally need to use their prior knowledge and skills to successfully teach in VPET. Because the VPET teacher education programs are short, research to increase the quality and quality assurance are of utmost importance as well as the possibility to develop and adjust structures where needed.

Various publications have addressed the possibility of policy transfer between countries in respect to teacher education (e.g., Barabasch and Watt-Malcolm 2013; Dehmel 2011; Grollmann 2005; Steiner-Khamsi 2015). Particularly relevant is the topic for the European Union, signified by a large number of publications released by Cedefop (2014, 2015). The Swiss education for teachers and trainers takes a unique approach that could be a model for various countries with an interest in applying an affordable and pragmatic approach to quality training for VPET teachers and trainers. In contrast to its neighboring country Germany, Switzerland’s VPET teacher education is mostly not based at regular universities but instead provided by various universities of teacher education. Although academic in nature, it largely builds on practical expertise, which is highly valued. VET teachers often come with a wealth of acquired work experience and are skeptical of theoretical content brought across within higher education. They enforce quality training with their critical

questions and expectations toward the “usefulness” of the knowledge delivered in teacher/trainer education programs. In this way universities of teacher education are constantly challenged to provide an education that serves the particular needs to this target group and strongly builds on applied research and practical content and on building strong bridges between the world of work, the world of VPET education, and prior knowledge and experiences of the VPET teacher. Additionally, there is the possibility for VPET teachers to choose between part-time or full-time teaching for which different conditions apply. This flexibility is attractive to many practitioners, who either have a strong intrinsic interest or need to compensate their existing income. With this possibility a strong ongoing relation to practice is ensured while at the same time making the profession of VET teacher or trainer much more attractive to a large group of workers.

For all the reasons mentioned above, the Swiss approach to VPET teacher and trainer education has much to offer and can be considered as a potential model for policy transfer or policy borrowing. More systemic comparisons between countries’ approaches to it would be needed, especially within Europe, where making the profession more attractive has been a policy concern over many years. An open question that remains for the system, however, is to what extent the relative small amount of academic education within teacher education programs in comparison with their German counterparts, for example, will be sufficient in the future.

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# Pedagogical Issues in Vocational Teachers' Learning: The Importance of Teacher Development

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## Abstract

This chapter explores pedagogical approaches used by vocational teachers to capture new techniques, technology, and knowledge developed through shared practice in workplaces. It argues that this is both a challenging and a problematic endeavor as teachers are situated in contexts removed from where vocational knowledge is developed. In addition, the nature of vocational knowledge which is complex, complicated, and in constant motion and flux compounds the practical

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problems of collection and recontextualization of new techniques and innovations from workplaces to teaching environments. Examples are given from research findings of how vocational teachers overcome these challenges by utilizing professional development activities to capture new techniques, technologies, and knowledge. These are discussed in order to shed light on the agentic action of vocational teachers and how they self-determine and self-select the activities they engage with. It is also shown why some activities are perceived by teachers to be valuable and why some hold little value. It is further shown that this is largely determined by the relational value of the activities engaged with and how relevant they are to the day-to-day practices of the individual teacher. The hidden nature of the pedagogy that teachers use is also illuminated. This exploration reveals the main characteristics of effective teacher pedagogy that are (a) teacher agency, (b) relational networks, and (c) hidden pedagogical practices. The chapter concludes by arguing for new ways to both organize and conceptualize pedagogical approaches to the development of vocational teachers' occupational expertise.

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**Keywords**

Vocational teachers · Vocational knowledge · Expertise · Pedagogy · Professional development · Professional associations

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**Introduction**

In everyday workplaces, new approaches, techniques, and technologies are developed; new ways of doing are adopted. It is therefore reasonable to say that vocational knowledge as it is applied and used in context is in a constant state of flux; it is temporal and has high levels of currency. This raises particular pedagogical issues for vocational teachers in how to keep abreast of new knowledge, skills, and work processes. Once vocational practitioners have moved away from their occupation on a day-to-day basis to become vocational teachers, they are removed from where vocational knowledge is developed and so find it deeply problematic to ensure that their vocational expertise is maintained and refreshed. Regardless of these practical problems, the expertise and therefore the continuing professional development (CPD) of vocational teachers is central to high-quality vocational education and training (VET) pedagogy. Within many of the debates concerned with high-quality provision are calls for highly experienced vocational teachers with a broad knowledge base and extensive expertise (see, *inter alia* Gamble 2013; Billett 2011). For Gamble (2013), vocational teachers require formal subject or technical knowledge, pedagogic expertise, and practical workplace experience. Wheelahan and Moodie (2011) in their report on Australian VET teachers also focus on the skills held by vocational teachers. Their view is that this rests on both initial training, mainly focusing on pedagogy and on continuing professional development to ensure currency in the occupational area is maintained. Congruent with these views, the focus of this chapter is the pedagogical approaches used in CPD activities by teachers to ensure that vocational expertise is maintained. The chapter argues that high-quality

vocational pedagogy offered by these teachers to vocational students, in the main, rests firmly on the vocational skills and expertise they hold.

Through exploring the interplay between teachers' professional development activities and subsequent enhanced student learning, a further and central argument of this chapter is that teachers are able, through CPD activities, to link occupational contexts to learning contexts so as to transport updated and fresh vocational expertise to share with their students. This central role of vocational teachers is described as

They reformulate vocational knowledge from work where it has mainly a productive function to a teaching-learning function, and they make this recontextualized vocational knowledge comprehensible to others – to students and novice practitioners or workers. (Moodie and Wheelahan 2012: 17)

This also suggests that an important aspect of high-quality VET provision is how a teacher's newly acquired vocational knowledge and skills is recontextualized from occupational sites to learning sites so as to provide rich and meaningful learning experiences for their students. It suggests that transportation of vocational knowledge across contexts is not a straightforward process.

Following this introduction, the chapter first examines currently accepted approaches to the CPD of teachers. From here, the theoretical positions on the nature of vocational knowledge, the development of expertise, models of professional learning, and how vocational teachers know are discussed. Within these discussions, the importance of context is also explored. The following section briefly explains the research methodologies adopted in a study of the professional development activities of vocational teachers, followed by a presentation of findings. These findings begin to shed light on how vocational teachers are able, through their development activities, to enrich the learning experience of their students. To further illuminate the approaches taken, the discussion exemplifies how, due to the very nature of vocational knowledge and practice, it is problematic and difficult for vocational teachers to maintain and enhance their vocational expertise once removed from vocational settings where it is developed and practiced. The particular pedagogy of the professional development activities that vocational teachers engage with to manage these difficulties is explored and examined. It is argued that their CPD activities enable them to cross boundaries and to link the geographical and contextual sites where vocational knowledge is produced, to learning sites where it is shared with vocational students. Within this process, they recontextualize this new and refreshed knowledge and so enhance the curriculum offered to their students through richer learning experiences.

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## **The Continuing Professional Development of Teachers: A Brief Exploration of Models**

Effective pedagogy within accepted approaches to vocational teachers' CPD is problematic to identify as while there is a relatively wide and mature body of literature on school teachers' professional development, post qualification, relatively, there is

paucity on that of vocational teachers. However, while the literature focused on school teachers is not directly transferable in all instances, it can shed light on what works generally for teachers in their developmental activities. Suggested within this literature is a duality of approach which tends toward conceptualizing professional learning as knowledge transmission or, alternatively, as collaborative and more social approaches. The literature suggests that collaborative approaches have long been recognized as being effective by providing the richest opportunities (see, e.g., Goodson and Hargreaves 1996; Hargreaves 1994). In their study, Hodkinson and Hodkinson (2005) found that high levels of collaboration bring an additional dimension to learning. It is richer and not bounded by notions of formal learning. Learning is informal and ongoing whenever teachers are together through discussions, consultations, and sharing of materials and ideas.

In contrast, Day (2002) has argued for a more individualistic model of reflective practice and suggests that the normal CPD offer to teachers was through narrowly conceived “training” models, implemented for external compliance requirements. More recently, Day (2017) suggests that the application of competency-based approaches, in the form of professional standards for teachers, atomizes knowledge and skills. He argues that any professional development activities for teachers must provide opportunities for deep learning and take account of the individual motivations of teachers.

Turning to the CPD of vocational teachers, Andersson and Köpsén (2015), drawing on the concept of dual professional identity (for an example of this within the English vocational education system, see Orr and Simmons 2010), argue that to be knowledgeable about their subject (occupation) requires them to have a distinct vocational identity that must be current and thus maintained. In order to do this, vocational teachers need to continue to have contact with their original occupational field and be active participants within it. This appears to suggest that vocational teachers are best served in their professional development by returning in some way to their original occupation. This further suggests that they will meet and work in collaborative and informal ways with those still working within the original occupation. However, the actual activities and thus the pedagogical approach that vocational teachers engage with through collaborative learning to maintain their vocational identity are problematic to easily identify. A comparative study by Lloyd and Payne (2012) sheds some light on this, and they identified three ways in which hairdressing teachers maintain and develop their occupational expertise. These were through working occasionally in a friend’s salon, by suppliers of hairdressing products running workshops in the college salons, and through collaborative learning within the college by sharing ideas and reflecting on practice.

This short review of pedagogy within approaches to teachers’ CPD suggests a duality of approach, either through knowledge transmission and individualist or through collaborative and more social approaches. It begins to suggest that the more collaborative approaches are the more effective. The following section offers a theoretical exploration.

## **Understanding Vocational Knowledge: The Interplay with Teacher Expertise and Context**

This section explores three key conceptual frameworks for understanding pedagogical issues in vocational teachers' development. It begins by addressing concepts of vocational knowledge to identify what it is that vocational teachers need to refresh and learn to maintain their expertise. To enable the exploration of key elements of effective pedagogy for vocational teachers, the discussion then moves to explore the concept of expertise and, within this, models of professional learning. Finally there is a brief discussion on how vocational teachers know, and the debates as to where knowledge is said to reside are explored. Discussed within these sections is the importance of context for professional learning.

## **Understanding Vocational Knowledge: What Teachers Need to Acquire**

The ways and mores of a vocation or occupation and thus the knowledge, skills, and attributes that vocational teachers pass on to their students in learning settings are complex, complicated, and multiplicitous. In starting to explore this further, this section focuses on the often-contrasted concepts of codified and tacit knowledge. Guile (2011) distinguishes these two types of knowledge as "know-how" which is situated, tacit knowledge and "know that" which consists of decontextualized, codified knowledge.

Codified knowledge is also deemed by Lave and Wenger (1991) as being decontextualized, and Eraut (2000) describes it as public and propositional knowledge. Within these conceptions, it is understood to be separated from practical activity and to be abstract in nature. The style that codified knowledge takes is that it is embedded in written form and as such can be presented to others in transparent and more easily understood ways. Codifying knowledge enables it to be transported across contexts. For vocational teachers and their students, codified knowledge is separated into disciplines and occupational areas and is found in course materials, assessment tools and accompanying textbooks, and other teaching and learning materials (Guile 2011). However, this form of knowledge has inherent limitations. Gamble (2006) draws attention to this and suggests that codified knowledge enables a separation of thinking from execution. It divorces the "know that" from the "know-how." However, even given its limitations, within the realm of the teaching and learning of vocational knowledge and skills, it forms a distinct and influential aspect of what vocational teachers use and deploy in their teaching of students. A further limitation, however, is that once codified, knowledge becomes static and thus loses its currency fairly rapidly.

Distinct from this, tacit or uncoded knowledge makes up the significant majority of knowledge shared, used, and applied in vocational settings. It is developed through practice; Hordern (2014) and Kotzee (2012) describe it as being what

individuals either know or can do when they take part in social practices. This suggests that there is something ethereal about tacit knowledge. It points to it being fluid, temporal, and in motion (Broad 2016) rather than fixed, tangible, and stable. Supporting this conception and through contrasting codified and tacit knowledge, Polanyi (1967), who originally developed the concept of tacit knowledge, described it as that which we know but cannot tell. This in itself raises challenges for vocational teachers in that, as it cannot be told, it is problematic and not straightforward to turn this into learning experiences and teaching materials for students. However, the importance for vocational teachers and their students' learning is captured by Livingstone and Guile (2012) who argue that tacit knowledge is becoming the most important form of knowledge in learning organizations and increasingly so for the production of new knowledge. It is imperative, if teachers are to ensure that their students are conversant with current workplace practices, for them to capture and then recontextualize, for learning contexts, this newly formed tacit knowledge.

The problems of viewing these two forms of knowledge as distinct from each other are often highlighted in the literature, and Guile (2011) suggests that theoretical and practical concepts of knowledge, rather than being separate, have a mediated relation to one another. A practical example of the inherent problems of separating "know that" from "know-how" can be seen in the processes involved in how to teach someone to tie a shoelace; "A brief list of all that is involved in tying a shoelace would overwhelm a learner" Duguid (2012: 151). Rather, the better approach would be to show the person in practical terms how to tie a shoelace and perhaps support this with some theoretical constructs in the form of an aide-memoire or diagrammatic aid. Nevertheless, it is important to distinguish between codified and tacit knowledge and to recognize that both forms of knowledge present distinct problems for vocational teachers in bringing vocational expertise to the classroom settings of students. Emerging from these differing conceptions of vocational knowledge and the interplay between the two frames this chapter by highlighting the complexity of, and thus difficulty in, teachers ensuring that their occupational expertise is maintained.

## **Understanding Vocational Expertise in the Context of Vocational Teachers**

No single theory of learning, professional or otherwise, currently exists. Rather there is a multiplicity of varying and, at times, competing theoretical positions (Russ-Eft 2011). Historically, these have been drawn from psychological positions such as behaviorism and cognitive theory (Billett 2001). More recently, concepts have emerged from social learning theory that recognize the importance of both the social aspects of learning and the importance of situatedness and that of the context in which learning occurs. Influential in this is the work of Lave and Wenger (1991) and their central concept of the vehicle for learning, "communities of practice," in which individuals are shown to be able to learn through participating in shared activity.

These two conceptual approaches for understanding professional learning and the development of expertise have been crystallized into a dichotomy of theorizing, with cognitive psychology contrasted to social theories of learning. As a facet of social learning theory, Pelissier (1991) takes an anthropological approach and examines various dichotomies in the constructions of differences in approaches to, and understandings of, learning within education, drawing the distinction between practice and capacity. Others, however, have challenged this dualism and accept that understanding expertise requires an understanding of the relationship between the mind and social conditions of learning (Billett 2001). This is also encapsulated in the work of Sfard (1998) who suggests two metaphors of learning: learning as acquisition and learning as participation. She warns, however, of the dangers of favoring just one. In the former model, learning is seen as the individualistic learning of facts, knowledge, and skills and in the latter as participation in communities and in social practices. The importance here is that, "Different metaphors may lead to different ways of thinking and to different activities. We may say, therefore, that we live by the metaphors we use" (Sfard 1998: 5). This suggests that the way in which learning is conceptualized will determine the approach taken. It is argued here that in terms of pedagogy for vocational teachers, that aims to ensure the continued development of expertise, participative approaches will serve to be the most effective. Indeed, as discussed earlier, collaborative and thus participative approaches appear to be the most useful way of organizing CPD for teachers. However, to be able to recontextualize this across contexts, new knowledge will need to be internalized so that teachers can recontextualize and transport it from occupational to learning contexts.

## How Vocational Teachers Know

These debates concerning the nature of vocational knowledge and the development of expertise raise interesting ontological and epistemological questions concerning "knowing" and how experts know. Within approaches to understanding knowledge, it is seen to reside either in the heads of individuals (psychological approaches) or within social practices (social constructivist theories). As we have seen from the above, psychological explanations, drawn from cognitive perspectives, view knowledge as being held in the mind of individuals. Social constructivist explanations view it as being situated in contexts, shared between individuals and collaborative groups, and distributed through networks.

Early conceptualizations of tacit knowledge align with psychological theories in viewing knowledge as residing internally within the individual, rather than externally in social practices. Both Canning (2008) and Kotzee (2012) explain that Polanyi, in his development of the concept of tacit knowledge, and Schön (1991), in his use of tacit knowledge in understanding reflective practice, held this position. Eraut (2000) also takes this line and discusses tacit knowledge in terms of personal knowledge. However, as explored above in the discussion of expertise, more recent conceptualizations have shifted understanding of tacit knowledge to a shared social

conceptualization and to view knowledge as a network effect (inter alia, McArdle and Ackland 2007; Fox 2000).

The importance of this discussion for understanding learning and the development of expertise is explored by Collins (2007) who explains that within psychological and somatic approaches, it is generally accepted that learning is seen as independent of context and therefore as transferable, unproblematically, to a range of diverse contexts. However, Hager (2011: 22) states powerfully that, "It seems that skillful practice of occupations is both holistic and significantly contextual, rather than atomistic and context-free." Eraut (2000), even though he suggests that knowledge is held in the minds of individuals, reinforces the importance of context for learning and states that the learning context affects the knowledge acquired and if that knowledge is to be applied in a different context, it will need further learning or recontextualization.

Actor-network theory (ANT) draws knowledge and learning together and views both as highly contextual with learning emerging out of distributed practice networks. One conception takes a geographical position and views learning as, "...activities [that] are organized across space and time and [that] are produced in social practice or within social practices" (Nespor 1994: 1). Similarly, Latour (1986) views knowledge as performative and argues that it is developed in networks through action. It is through engagement within these performative networks that learning occurs. Drawing on sociology of associations, he states, "If a dancer stops dancing, the dance is finished. No inertia will carry the show forward" (Latour 2007: 37). This raises particular issues for vocational pedagogy when these practices take place in occupational sites, geographically separate from classrooms, and taught by vocational teachers who are also in the main divorced from the occupation. The main concern is how these separate geographical locations can be connected in performative ways.

In summary, the conception of vocational teachers' pedagogy presented here suggests that it is highly complex, heterogeneous, and contextual. This suggests that uniform approaches to the CPD of teachers may not be beneficial. Pedagogical approaches used need to enable vocational teachers to connect teaching environments, geographically and conceptually separated from where vocational knowledge is developed in networks, to occupational sites. It is suggested here that nature of vocational knowledge and of the development of expertise should be understood as residing both within these performative networks and in the heads of teachers as they work to learn and develop and then contextualize this for consumption by students in classrooms and learning settings.

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## Researching Vocational Teachers' Pedagogy

The findings presented here are drawn from a study that sought to understand, in practical terms, the practices that vocational teachers engage with to maintain and develop their vocational expertise. To capture the complexity described above, a material-semiotic approach, actor-network theory (ANT), was adopted. A rallying



call in ANT is to “follow the actor” (inter alia, Latour 1987, 2007 Callon 1986) and led mainly to the use of ethnographic research methodology being used. The initial starting point for the research (see Broad 2013, for further details) was by surveying vocational teachers to begin to understand their approaches to the continued development of expertise once qualified. This was followed with in-depth interviews with vocational teachers and the chairs of two professional associations, the Association of Hairdressers and Therapists (AHT) and the Association of Painting Craft Teachers (APCT). The AHT was subsequently followed through participant observation. Further in-depth interviews were conducted with the AHT teachers and other actors.

## Examining the Pedagogical Approaches Adopted by Vocational Teachers

The research approaches adopted, described in the previous section, enabled the capturing of the pedagogical practices of teachers on the ground, as they happened. Their recollections of their experiences also allowed a deeper and richer understanding to emerge. Key themes emerging was the importance that teachers place in maintaining their expertise, the varied and myriad ways in which they ensured that they kept up-to-date with their specialist vocational area, and the perceptions they held that their activities enhanced the learning experiences of their students.

## The Importance of Occupational Expertise

The maintenance and development of occupational expertise is seen by teachers to be crucial to their teaching role. No matter the subject or occupational area taught, or the contractual arrangements of the teacher, they all stated that it was important to some extent to maintain and develop their vocational expertise, with none of the sample seeing developing occupational expertise as not important. Within this, the majority of 64 (83%) saw it as very important. The remaining 13 (17%) saw it as important (Table 1 below).

This importance is echoed in the amount of time teachers report devoting to CPD activities to maintain their occupational expertise, as opposed to for other reasons. More than half said maintaining and developing occupational expertise was the most frequent reason for CPD activity.

**Table 1** Importance to teachers of maintaining and developing subject expertise

Answer options	Response percent	Response count
Very important	83.1	64
Important	16.9	13
Not very important	0.0	0
Not important at all	0.0	0
Answered question		77



## How Teachers Develop and Refresh Occupational Expertise

Vocational teachers use a range of activities to develop occupational expertise. The first activity reported here, short courses and workshops, was a frequent activity. However, these proved to be either very useful or of little value. Thirty-eight teachers (51%) reported that they had attended short courses and 46 (62%) had attended occupationally relevant workshops, which are short, often half day or 1-day events.

### Courses and Workshops

Often these courses and workshops are viewed as not helpful by teachers because they cannot easily identify commonality between the subject matter of these events and their day-to-day practices as vocational teachers. An example was offered by three teachers in different vocational areas, employed at different colleges of internally provided safeguarding courses. One teacher of painting and decorating found it helpful because of the nature of the students he taught and that there had been “a serious problem” that he did not feel equipped to deal with. The course suggested a range of practical strategies. Two other teachers, one in applied sciences and the other business management, both teaching mature students, found little value in the course. The applied sciences teacher said:

The last one we did as far as I can recall, we spent a lot of time talking about how the new student disciplinary procedures were to be implemented. And, a lot of it was not appropriate [for my subject] anyway because of the nature of our students.

There are difficulties in pitching CPD courses at the appropriate level to teachers who have a wide range of knowledge and experience. It is also problematic when the audience is made up of teachers drawn from a wide range of subjects who also teach their subjects at varying levels. One often used solution is to generalize course content so that it “fits” with as wide a range of circumstances as possible. However, this sets its own challenges, explained again by the applied sciences teacher:

It wasn't really relevant for lots of the stuff I mean bits of it were, but most of it wasn't and it was done in a very fluffy way. Not very specific and bits and pieces like that.

Teachers found value in workshops that enabled them to network with and fold across to the occupational world. Why these courses and workshops are more beneficial than those provided by organizations is that they enable teachers to access expertise. The early years teacher discussed how she was able to listen to Tina Bruce (an academic consultant in early years and childhood studies), who she described as, “One of the leading lights in early years, she is amazing.” The carpentry teacher had attended a week-long course provided by a tool manufacturer on making a Windsor chair which he described as being challenging but rewarding:

But the amount of work you have to do was quite incredible. To have a chair completed from you know, wood. [. . .] And that's a nice incentive and a great push, but they were long days.

He also explained that he was afforded opportunity to learn new techniques which he had not used when working in the occupation:

It was covering techniques that I haven't had experience of myself in my woodworking career, one of them being steam bending. [...] The other part of it too, was wood-turning which I haven't done much of.

### **Learning with Students and Colleagues**

Teachers commonly liaised with manufacturers and in particular learnt alongside students. In response to the survey, 21 (28%) of the teachers learnt from participating in guest speaker events organized for students. The hairdressing teacher at interview and two AHT teachers also described the use of student training events. The construction teacher also explained this use of student training events:

I would much prefer to have people come to them and it's what we have done, had specialists come in, delivering say new technology in laser levels and things like that.

Teachers also independently access manufacturer training. An example was offered by the applied sciences teacher who attends seminars and conferences organized by his professional association where much of the content is supplied by manufacturers:

[named manufacturer] they are going round the country giving free talks [...] So you turn up and listen to that

### **The Use of Professional Associations**

Professional associations play a significant role in the maintenance and development of occupational expertise for teachers. Twenty-six (60%) teachers surveyed were active in a professional association. The activities provide by these include student competitions, seminars, meetings, and specialist occupational publications.

One of the main forums for collaborative learning through professional associations is student competitions and is central activities for both the AHT and the APCT. The benefits for teachers were described by an AHT hairdressing teacher as:

You see the changes and the styles changing and the fashions and the colour trends coming through.

Another AHT hairdressing teacher commented that she always learns something new at hairdressing competitions and explained how these competitions would tend to broaden her experiences of different approaches and techniques and said:

I've not seen that tool used in that way before. So I've taken some photographs and I'm going to go and get that tool when I get back.

She further explained that this form of learning, learning by watching and seeing, complements well the practical nature of the occupation.

Professional associations also offer seminars and meetings, and the ACPT in the main organizes its meetings around CPD events and holds what the ACPT chair described as, “Saturday craft practical weekends,” where manufacturers run workshops on their products and latest decorating techniques. The applied sciences teacher also described evening talks he had attended through his professional association:

That [showing leaflet] is an evening ‘do’ which is promoted by [. . . the] Association and it will be an hour’s talk and we can go down there to the Royal Society of Medicine and we give up an evening to learn about topics

He also described “peer review” events where a group of practitioners would come together to discuss a specific area that they had difficulties with. These were self-selecting and self-organized events that would happen as a one-off or a small series.

## Improving Pedagogic Practice

The key driver for ensuring that vocational expertise is continued to be developed is that vocational teachers consider that it improves their own pedagogic practice and it makes them better teachers. One reason centers on their concerns about their credibility as professionals, within an occupational or subject area. The early years teacher said:

[. . .] because with the teaching, you have got to get it right, because especially at level three and foundation degree, they’ll all go away and say ‘actually I think you’ll find you are wrong’ the law says this or something, so, probably that is a personal challenge as a teacher to get it right.

The applied sciences teacher explained the importance of keeping up-to-date for his teaching. He began by saying that he could, if he wished to, sit back and produce the same materials for his students every year. For him however, it links to his interest in the occupational area. He said, “If you are interested and enthusiastic, you have to take a few opinions on board and you have to inform your students.”

His concern was with being topical and au fait with current industry practices and said:

Because if you don’t know what is going on in industry then you are out of date and if you are out of date, then that is less relevant to your students who you need to pass information on to.

The construction teacher was concerned with how best he could ensure that his students were better prepared for, “the real world” of the construction industry. He could identify very clear links between his ability to do this and him keeping abreast of current trends and new technologies within the occupation. He then linked this to curriculum design and ways of stretching his students’ occupational knowledge and said:

I'm thinking ahead [...] in the second year when they have all the work done, to perhaps do something different, whether it's a bit of veneer work, whether its curved work where you know, we use vacuum bags, or some steam bending [a technique he had recently learnt on a course]

Occupational CPD opportunities also enrich conversations that vocational teachers have with students. The graphic design teacher explained this as, "You can just talk about this nature or that nature of the work." Similarly, the applied science teacher stressed the importance of working within the occupational area and that it enabled more informed discussions with his students. He said, "And it's good to be able to turn round to students and say 'when I was in practice the other day, I saw blah'..." Likewise, the construction teacher could also identify how, through conversations based on his recent CPD experiences, he could improve the experiences of his students. For him, this meant sharing his experiences with the students and entering into professional dialogs by discussing his recent experiences and asking such questions as, "What do you think?"

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## Discussion: The Pedagogy of Vocational Teachers

This section draws on the findings presented above and explores the defining characteristics of effective vocational teachers' pedagogy, as employed by teachers, to maintain and develop occupational expertise. It is acknowledged here that this is a complicated and complex process because much of what teachers need to access is shared and developed in contexts distant from the contexts they inhabit as teachers. Compounding this for those researching this phenomenon is that their activities are also largely hidden. However, the study presented here has made the practices of vocational teachers as they strive to maintain their expertise visible. In this section, the three elements of effective teacher pedagogy are discussed and examined: (a) teacher agency, (b) relational networks, and (c) hidden pedagogical practices.

### Agency of Vocational Teachers

The findings show that vocational teachers act with agency in identifying opportunities to maintain and refresh their occupational expertise and in shaping the pedagogical approaches to activities. They self-determine these activities based on what opportunities are afford them and those they find value in. They find value in activities that bring them closer to and enable them to engage more fully and firsthand with their original occupation. Returning to understandings of the development of expertise and professional learning, these teachers are adopting and preferring pedagogical approaches that favor active participation and involvement in learning processes. This approach to professional learning is suggested by Boud and Hager (2011: 26) as more potentially useful and argue for, "a shift from use of acquisition and transfer to metaphors, such as participation, construction

and becoming, that imply [...] active involvement...” and link this to concepts of teacher professional agency. They highlight that dominant metaphors of learning, of acquisition, and of transfer turn the focus of professional development from outputs, the benefits, to inputs, the activity. This in turn leads to professional autonomy and agency being somewhat diminished and undermined. Congruent with this, the findings here show that vocational teachers find more benefit in participatory activities, rather than acquisition and sedentary approaches provided for them by employing organizations. They describe these as “fluffy” and not particularly relevant to the own pedagogic practice with their students.

These debates suggest a structure/agency dichotomy in teacher professional pedagogy. The debate, however, is not solely concerned with structure/agency dichotomies but also concerned with networks. Mulcahy and Perillo (2010) remind that agency is distributed across various entities. Vocational teachers are influenced by the networks where vocational knowledge and skills are enacted into being, where they network with the tools, ideas, and mores of the vocational area, and it is to these particular networks that we now turn.

## Relational Networks

In contrast to the pedagogical approaches of organizations in the planning and execution of vocational teachers’ professional development, they find the most benefit in activities that enable them to cross boundaries and to network with their original occupation in authentic and practical ways. The pathways that vocational teachers follow and the networks that they use are multiplicitous and heterogeneous. They vary from teacher to teacher, shaped by the opportunities presented and by their particular development needs. Some of these professional development networks are bounded by the organization with teachers working alongside both students and colleagues to develop expertise. Much of what is shared within organizations is manufacturer knowledge. Within the literature, the use of manufacturer provided opportunities is known, and Lloyd and Payne (2012) report that for hairdressing teachers, manufacturers provide ample opportunities for teachers’ development. The research here shows that teachers also take advantage of opportunities provided by manufacturers for their students. In addition, they also share learning with colleagues when one has attended a manufacturer training event. They network to manufacturers which enables them to connect to new product knowledge and keep abreast of the latest techniques, materials, and tools. On occasion, these manufacturer opportunities take them outwith the organization, to seminars and courses provided by manufacturers and experts.

By far the most important form of networking for maintaining and refreshing occupational expertise is that provided by professional associations. They enable teachers to come together with other teachers, with practitioners, and with experts in the occupational area. Orr (2013: 378), drawing on the work of Wenger, explains that mutual engagement in shared learning ventures enables the sharing of, “shared routines, words, tools, ways of doing things, stories, gestures, symbols, genres,

actions and concepts.” Through this, they are able to take part in the processes of new knowledge production, which, it is contended here, is developed through shared practice, and, to capture this, recontextualizing it for use within their own classrooms and learning sites. They can be seen to be part of a vocational teachers’ extended community of practice. These communities of practice are “. . . in part systems of relations among persons” (Lave and Wenger 1991: 53).

The importance of networking into the original industry has been highlighted by Smith and Rahimi (2011) who report that teachers involved in student competitions state this as one of the key benefits of involvement. These networks mediate between new knowledge and skills and classrooms with the teacher acting as a bridge between the two, bringing them together through their own learning of this new knowledge. This sets up a network of relations that extend beyond the teacher and connects powerfully with the learning and development of their students.

### Issues of Hidden Pedagogy

Emerging from the findings is that teachers perceive that their professional development activities enhance the learning of their students. This happens because these activities develop their pedagogic practice by refreshing the knowledge, skills, and ideas they are able to share with their students. It gives them credibility with students; it helps to maintain their enthusiasm and thus maintains their confidence as vocational experts. Their professional development activities enable them to engage students in discussions about practice which in turn brings them closer to the occupational area they are studying. Through this process, teachers recontextualize vocational knowledge, turning it from a productive to a learning function (Moodie and Wheelahan 2012). This process of recontextualization is a process with inherent complexity and is not a straightforward knowledge transfer from one context to another. Evans et al. (2010) describe the recontextualization process as chains forged by practitioners and as multifaceted pedagogic practice. According to Wheelahan (2007), part of this process of recontextualization is that of selection, and vocational teachers select the knowledge that they carry to vocational learning contexts.

Despite this complexity, the way in which vocational teachers’ professional development is currently conceptualized and understood means that there is a lack of focus by employing organizations on both the development of occupational expertise for teachers and the benefits it presents to vocational students’ learning. This issue however is not constrained to vocational teachers in England. Köpsén and Andersson (2017: 80) found in a study of Swedish vocational teachers’ engagement with vocationally focused CPD that they also faced institution’s barriers to engagement such as “managements’ lack of interest or financial support.” Due to what appear to be insurmountable difficulties, a generic approach tends to be adopted within organizations, with CPD workshops designed to meet a range of pedagogic needs. A potential concern with a generic approach to the development of pedagogic skills is highlighted by Fisher and Webb (2006: 342) who argue that current self-conceptions of teachers are not as “subject” specialists but as “. . . a Jack/Jill of all

trades.” The reason for this is that the activities that teachers engage with to develop their occupational expertise are largely hidden from others. They go about this largely in their own time. They join in with colleagues after teaching has finished. They learn alongside students through collaboratively engaging with manufacturers. They join others outside of the organization and come together through professional associations in self-determined and self-selected communities of practice, sharing new knowledge and skills away from the organization. Nerland and Karseth (2013) in their study of professional associations use the concept of “knowledge work” as a way of describing and understanding how professional associations manage and standardize knowledge in their field. However, the findings presented here strongly suggest that vocational knowledge resists standardization and that the role it serves for vocational teachers is to enable them to access, share, and develop knowledge.

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## Concluding Remarks

Through exploring how vocational teachers, through their self-determined and self-selecting pedagogical approaches to the maintenance of their vocational expertise, this chapter sheds light on how they manage the in motion and circulatory nature of vocational knowledge. New technologies and new approaches and techniques are continually developed in and through workplace practices. In order to ensure high-quality learning experiences for their students, vocational teachers need to keep abreast of these changes. The chapter began by conceptualizing vocational knowledge, which teachers attempt to capture through their CPD activities, and expertise and professional learning. This illuminated the complexity of vocational knowledge and thus the challenges that teachers face in maintaining their expertise in boundary crossing across geographical contexts and in recontextualizing knowledge from a learning to a productive function.

The findings presented here captured the pedagogical practices of vocational teachers and illuminate the main characteristics of effective pedagogy that are (a) teacher agency, (b) relational networks, and (c) hidden pedagogical practices. Through this, the chapter sets out to inform ways of thinking in relation to how teachers can best be supported in their endeavors to both maintain their vocational expertise and in using this to enhance the learning experiences of their students. It is argued here that those tasked with organizing and supporting the CPD of vocational teachers appreciate the complexity and heterogeneity of practice highlighted here. It is also suggested that the ways in which teachers maintain their expertise, predicated by the theoretical concepts presented here, through the sharing of practice with others, be taken account of when designing learning opportunities for vocational teachers.

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# VET Practitioner Education in Australia: Issues and Approaches

# 97

Hugh Guthrie and Roger Harris

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## Abstract

Appropriate qualifications and professional development opportunities for vocational education and training (VET) teachers, trainers, and assessors are key to the future success of VET in meeting industry and individual needs. This chapter, based on qualitative analysis of research on the development of

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teacher capability and the authors' lived professional experiences, examines the main issues and approaches in the training and development of VET practitioners in Australia. It describes the VET system in Australia and the nature of the VET teaching workforce, documents the history of VET teacher preparation and development, highlights key dilemmas confronting VET teacher education and professional development, draws conclusions, and provides potential ways forward.

The chapter contends that, while the Australian VET system is highly regarded, most of the issues relating to VET teacher development since the 1970s have been exacerbated by sectoral change and remain unresolved. Important and consistent messages from past reports continue to be ignored or not actioned. Yet the lesson learned is that "one size can't fit all" and that, given the diversity and complexity of the VET sector, dual status of its practitioners, and nature of their employment, only a wide variety of well-supported preparation and ongoing development approaches can be the way forward.

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**Keywords**

VET teacher education · Teaching qualifications · Professional development · Vocational currency · Practitioner capabilities · Australia

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## Introduction

This chapter explores teacher education and professional development in the vocational education and training (VET) sector in Australia. It:

- Describes the vocational education system in Australia and the nature of VET teaching workforce.
- Documents the history of VET teacher preparation and development.
- Highlights key issues and dilemmas which confront VET teacher education and professional development at present.
- Draws conclusions and provides some potential ways forward.

The VET sector is seen by governments, society, and industry bodies alike as being important to help sustain, develop, and grow the Australian economy. It provides training to a wide range of industries and occupations at the sub-professional level. VET:

is vital in both preparing Australians to enter the workforce and upskilling them to transition between industries to exploit new employment opportunities (ACCI 2016, p. 4)

and the VET workforce plays "a critical role in helping Australia increase workforce participation, productivity, skills and social inclusion" (Wheelahan and Moodie 2011, p. 14).

VET helps provide people with the skills, knowledge, and personal attributes they need to enter the workforce for the first time, to reenter the workforce, to train or

retrain for a new job, or to broaden or upgrade their skills. It provides opportunities for the development of second-chance education as well as postsecondary initial training and further skills development for those well established in their careers. VET's charter in Australia is wider than in many other countries, with its roles encompassing workforce training and development on the one hand and the promotion of access, social justice, and equality on the other.

Arguably, the quality of vocational education to fulfill this broad "mission" is strongly dependent on the quality and capabilities of its teaching workforce: its practitioners. These capabilities are manifested in two major ways: capabilities in teaching, learning, and assessment as well as vocational currency and a connectedness to their often rapidly changing vocations. Thus, VET practitioners are seen as "dual professionals." Skills Australia (2011, p. 91) has argued for a national VET workforce development strategy, as "the front line of excellence in teaching and learning outcomes is a professional and well-supported VET workforce."

This and similar state and territory- or industry-specific proposals have been supported by others (Smith et al. 2009; Training and Skills Commission 2010; Northern Territory Government 2014; Rasmussen 2016), but not all (Productivity Commission 2011). However, the Australian vocational education sector is complex, with a large number of students and providers, diverse purposes, and a great many sites of delivery. Providing comprehensive initial practitioner education and ongoing professional development is therefore extremely challenging.

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## The VET System in Australia

Vocational education in Australia includes the formal, nonformal, and informal learning to prepare people for the world of work. The VET sector occupies the territory between compulsory schooling and professional education and has been called the "middle child" of Australian education (CEDA 2016).

Australia's VET sector is made up of public, private, enterprise, community, school, and other providers that deliver formal training programs based on the Australian Qualifications Framework (AQF). The National Centre for Vocational Education Research (NCVER 2017) in Australia estimated that the total VET market in 2016 comprised nearly 4,300 training providers delivering training to approximately 4.2 million learners, both older and young. The great majority of VET providers are private, and small providers predominate. There are also 42 large public (government-owned and operated) providers called Technical and Further Education (TAFE) institutions. In addition to these large public providers, there are six dual-sector institutions nationally, being both a public VET provider and a university. However, a total of 15 universities offer VET programs (NCVER 2017). Put simply, TAFEs are the "department stores" of Australian VET being large and having a wide range of offerings; private VET providers are the "boutique stores" being generally smaller and tending to concentrate in a particular training niche (Guthrie and Clayton 2010).

The basis for vocational training is a series of endorsed Training Packages, overseen by Industry Reference Committees and supported by Skills Service Organisations.

These committees provide the formal channels for considering industry skills requirements for package development and review. Thus, it is said that the sector is “industry-led” and based on a series of endorsed competency standards and qualifications, including those related to formal VET practitioner education.

Vocational education institutions are predominantly regulated by the Australian Skills Quality Authority (ASQA) which quality assures the sector by implementing the Standards for Registered Training Organisations (RTOs). As will be shown later, these VET standards address issues of the initial teaching and learning qualification held and ongoing professional development, including the development of their delivery and assessment skills and the maintenance of vocational currency. However, the requirements of being a “dual professional” are at once complementary and potentially conflicting, and getting the balance right between these two requirements can be problematic.

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## **VET Practitioner Workforce**

### **Scope and Size**

The phrase “teachers, trainers, and assessors” encompasses the terms VET practitioners, teaching professionals, enterprise trainers and assessors, industry experts, and other vocational education and training professionals (Productivity Commission 2011). Wheelahan and Moodie (2011, p. 4) noted that such terms included those who develop courses and modules and learning and assessment materials and any other term that may be used to describe those engaged in assessing, validating, moderating, training, instructing, and teaching and learning. The key feature which is the core of a practitioner’s role is direct engagement with learners in the development, delivery, and assessment processes associated with vocational education and training (NSSC 2013). However, as Tyler and Dymock (2017) note, the demarcation between those who “teach” and those who “administer and lead” has become increasingly problematic as roles have expanded and practitioners undertake a wider range of roles.

There are few reliable data on the size and nature of the VET practitioner workforce despite calls for more information about it (Skills Australia 2011; Productivity Commission 2011; Guthrie and Every 2013). The most recent estimates put numbers at about 73,400 Technical and Further Education (TAFE) employees and another 150,000 workers who are involved in VET delivery by non-TAFE providers (Productivity Commission 2011), but higher numbers have been suggested by others (e.g., Mlotkowski and Guthrie 2010).

### **Nature of Employment and the Changing Nature of Their Work**

VET teachers, trainers, and assessors are employed under a variety of arrangements and are thus variously “attached” to the sector (Guthrie and Clayton 2010; Guthrie and Every 2013). They are characterized as being older and having high rates of

nonpermanent employment when compared with the general workforce. They may hold multiple jobs within or outside the VET sector.

VET practitioners generally come to the sector in a second or subsequent career as they are normally required to demonstrate industry experience of at least 5 years on hiring. Many nonpermanent VET practitioners would also see their primary employment as outside the sector in industry. Thus, Simons et al. (2009) found that careers in the VET sector are notable for their diversity with “progression” often being measured by promotion or changing modes of employment from hourly paid to contract work to a permanent appointment. Indeed, their career paths are significantly more diverse than those of school teachers or university academics (Tyler and Dymock 2017).

The nature of their work has also changed, expanded, and diversified (NCVER 2004). However, the balance between their roles is context dependent and constantly changing. For example, they may be required to work in an increasing range of contexts – institutions, schools, workplaces, online, and community settings – develop a wide range of relationships with industry, use skills in providing work placements and career advice, and perform a broad range of resource development and administrative and management functions. They may act as consultants to enterprises and help develop customized approaches to training for them (Harris and Simons 2006).

## **Expected Capabilities**

At least three capability frameworks for VET practitioners have been developed in Australia and can be used to assist practitioners to reflect on the capabilities that apply to their particular work role, how they have demonstrated these capabilities, and the evidence that supports the quality of their work. This information can then be used to help plan their professional development and may also be used in performance reviews. The first, by Innovation and Business Skills Australia (IBSA 2013), contains four domains of work concerned with teaching, assessment, industry and community collaboration, and systems and compliance, each of which is broken down into a series of capabilities and six skill areas or ways of working with three distinct levels reflective of experience and expertise. It is the only national capability framework for VET practitioners in Australia. The two others are state-based and were developed, respectively, by the Queensland College of Teachers for the Queensland Government and the LH Martin Institute for the Victorian Government. They are more focused than IBSA’s on the quality of teaching, learning, and assessment.

The capabilities of VET practitioners are developed using three principal forms of learning: formal, nonformal, and informal. Formal learning involves the attainment of a formal qualification or award, while nonformal learning takes place through programs which do not lead to a formal qualification or award but which might be recognized as legitimate forms of learning. Such programs include substantive in-house and other professional development programs, mentoring, project work, and established communities of practice. Informal learning is an important but often

forgotten form of professional education that involves predominantly individual developmental activities and a process of personal and/or group reflections on daily work-related activities (Guthrie and Every 2013).

The issue of what makes a good VET teacher was investigated by Smith and Yasukawa (2017) who reported on the views of VET teachers and students. Their paper forms part of a wider study which aims to find out whether and how higher-level qualifications for VET teachers would improve quality in the Australian VET system. The preliminary findings suggest that not only are expected aspects such as professionalism, disciplinary, and pedagogical knowledge important but also are their relationships with and attitudes toward their students. This suggests that many of the key aspects of a good VET teacher are balanced between their intrinsic personal attributes and those derived from their professional qualifications and experiences. It is therefore likely that any set of capabilities will be a useful but inadequate description of what really makes for effective VET practice.

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## **Brief History of VET Practitioner Education and Professional Development**

The complexity involved in determining what is appropriate VET teacher education was recognized as far back as 1972 in one of the first comprehensive books on Australian vocational education, *Trade and Technician Education: Principles and Issues*. Hermann et al. (1972, p. 117) wrote that it had “not proved easy” and there were not “likely to be simple solutions to the problems that such courses raise.” Over the nearly five decades since then, VET teacher education has turned full circle – from optimistic beginnings following the Kangan Report in 1974, when programs moved from being mainly in-house within State education departments into higher education. Recent years have witnessed the closure of many degree programs (AQF level 7) in universities and the settling on the default position of a Certificate IV (AQF level 4) as the de facto qualification for all VET practitioners, though there are now indications that this restrictive mandate is opening up from being only the Certificate IV, predominantly offered within the VET system itself, to include also a diploma or higher-level qualification in adult education as alternative qualifications (ASQA 2017a). However, as will be shown later, the quality of delivery continues to be perceived as problematic.

In 1974 the Kangan Report (ACOTAFE 1974) changed the face of vocational education in Australia. It bestowed a new image, status, and clear definition as to its charter and philosophy. Of relevance to this chapter, it found no common pattern of initial technical teacher education in Australia’s states, concluding that “the issue is of great importance to the quality of TAFE” (p. 88). This recommendation led to the Fleming Report (1978), which was the first systemic effort at improving the quality and standing of TAFE teachers. Fleming’s report was notable for recommending a move away from model of teacher education based on that used for schools, arguing that TAFE teachers’ and their students’ needs were different. It was a powerful catalyst for a much-needed boost to TAFE teacher education, which to that time had

been piecemeal and variable. At the end of the 1970s, there were five higher education institutions offering accredited teacher education courses for beginning TAFE teachers.

A series of national conferences on TAFE teacher education reached agreement that the most appropriate level was a 3-year higher education qualification. However, through the 1990s the opening up of the training market, increasing casualization, diversification of the VET practitioner workforce and provider types, and disillusionment with university preparation courses led to the Certificate IV qualification becoming the mandated minimum qualification in 2001.

In 2011, the Productivity Commission (2011) conducted an inquiry into the VET workforce. This report, like the Fleming report, acknowledged that still little was known about the size and characteristics of the VET workforce, this lack being seen as an obstacle to effective VET policy-making and workforce planning. Despite this lack of information, or perhaps because of it, the Commission concluded that the Certificate IV current at that time provided an appropriate, entry-level qualification for VET practitioners but with two important caveats: that it was taught well and that it was seen as the foundation for further capability development. However, the Commission acknowledged that it did not always equip teachers with skills required to deliver VET effectively, it did not completely cover the diversity of roles in VET, its delivery required more supervised learning, and concerns about the quality of that delivery were “long standing, persistent and supported by recent audit evidence” (p. 247). As only a first-level and entry qualification, the Commission recognized that it was not fulfilling its potential as a basis for professional development and that clear options and pathways for study beyond the Certificate IV needed to be available to the sector.

Through the 1990s there had been many types of professional development programs (ANTA 1997). However, the Predl Report (VEETAC 1992) concluded that “much of the staff development [was] *ad hoc* and not necessarily in the best interests of employer and employee.” The National Staff Development Committee which had promoted and funded staff development throughout the VET sector was disbanded in 1996.

The Australian National Training Authority then instituted a national professional development program, “Framing the Future” (later, “Reframing the Future”), in 1997 to explain and facilitate the introduction of the new National Training Framework. But it too was disbanded in 2008, despite its extensive work in establishing 2,298 projects involving an estimated 65,673 participants (Reframing the Future 2008). Instead, governments resolved that responsibility for VET workforce development rested with the states and territories and with individual providers. Since that time, there has been no national and broad-based approach to VET workforce development. Still by 2011, the Productivity Commission was lamenting that “opportunities for professional development beyond the Certificate IV in Training and Assessment within the sector are not adequate” (2011, p. 247).

During this period, there had been an explosion in the number of providers of VET teacher preparation. From 5 institutions in the late 1970s, this number had expanded to 20 universities by 2008. By 2013, around 850 VET providers had



the Certificate IV on scope with nearly 40,000 enrolments. A total of 97 institutions had the Diploma of VET on scope, and enrolments in both these and higher education qualifications were substantially lower than for the Certificate IV: around 1,500 and 2,000 students, respectively (Guthrie and Every 2013). By 2016, however, there had been a notable decline in the numbers of higher education providers and students involved in VET teacher preparation, as universities tightened budgets and closed many of these programs and teaching departments. The reasons for this decline in university-based VET teacher education are many, with both internal and external factors playing their part (Harris 2017). However, two key factors stand out. The first is that university offerings in vocational teacher education have been increasingly perceived as not being as relevant as they had once been (VEETAC 1992, p. 14; Guthrie et al. 2011, p. 24). The second is that the Certificate IV, originally intended for trainers in industry, has increasingly been appropriated by *vocational educational* institutions and mandated by regulators as the de facto qualification for VET teachers. Its introduction and mandating and the increasing casualization of the practitioner workforce have been critical factors in lessening numbers proceeding to VET teacher education at university level. Unfortunately, the minimum often becomes the maximum.

Furthermore, providers of the Certificate IV had to reapply for their registration to deliver the latest version of that qualification because of perceived quality issues and an excessive number of RTOs with the qualification on their scope of registration. As at July 2018, only 83 institutions had the latest version of the certificate on their scope, of which 17 are TAFEs. Potentially, this restricts the availability of even the most basic VET practitioner qualification in the short term. However, the restrictions have involved significant vetting of potential providers in an attempt to assure and improve the quality of delivery.

Quality of VET teaching in this period emerged, not unsurprisingly, as a critical issue (Harris 2015). Around the time of the Productivity Commission's work, a number of research studies were undertaken, and, for a time, it appeared as though VET teacher education and professional development were about to return to their places in the sun following years of relative neglect. One was a review of the quality of VET teaching and teacher qualifications, which recommended establishing a national VET professional body, introducing standards for VET teaching and training and evaluating the quality of teaching through a national student satisfaction survey (Wheelahan and Moodie 2011). Another was the synthesizing work of Guthrie and colleagues fleshing out the background and advocating a range of qualifications to embrace the variety of roles within VET (Guthrie 2010a, b; Guthrie et al. 2011; Guthrie and Every 2013). As well, an Australian Research Council funded project examined whether and how higher-level qualifications for VET teachers could improve quality in the Australian VET system (Smith 2016; Smith and Yasukawa 2017).

Yet the delivery of consistent, high-quality training and assessment continues to be a fundamental concern for government, employers, and students (AWPA 2013; BCA 2017). Even the body that was, until recently, responsible for the Certificate IV, Innovation and Business Skills Australia, labeled quality of delivery as "one of the most enduring issues facing the VET sector" (IBSA 2014, p. 26).

The Australian Government continues to put its faith in regulation. Three sets of clauses in ASQA's User's Guide to its regulatory standards (ASQA 2017a) require that RTOs engage with industry and employers, employ skilled and vocationally current trainers and assessors, and, in the case of providers offering qualifications from the Training and Assessment Training Package, employ more highly qualified experts to teach trainers and assessors. Potentially and collectively, these clauses hold promise for a higher quality of delivery for the prescribed initial VET practitioner qualification and strongly promote the ongoing development of VET's "dual professionals." Nevertheless, there is no prescription in the standards about how, or how often, such maintenance and professional development must occur. However, the approaches used must be "sufficient" and demonstrably so through appropriate evidence. There are a number of other issues and dilemmas which affect the extent to which sound initial and ongoing education and professional development is possible. These are considered below.

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## Issues and Dilemmas in Australian VET Practitioner Education

### Funding for Professional Development

Some Australian states and territories have provided significant funding for professional development and set up agencies with that remit, including providing scholarships to acquire higher-level teacher/trainer qualifications. However, in most cases, the available funding is now relatively small, and professional development programs are necessarily limited to reactive activities centered on standards, accountability, and efficiency rather than being proactive and focused on developing the wider and deeper sorts of skills and characteristics required of an adaptive and modern VET workforce (Wheelahan and Moodie 2011; Tyler and Dymock 2017). Because the levels of public funding received by RTOs for delivering teaching and training services are often seen as "tight," there may be little surplus available to them to fund professional development and quality improvement after basic operational costs have been met. What professional development funding is available is mainly focused on the needs of higher-level or permanent staff. Thus, the needs of part-time and casual staff, the majority of the VET practitioner workforce, are generally not well supported. The level of practitioner participation in professional development and further education may also be affected by cost (which can be high), the incentives available to encourage participation or impediments that discourage it (e.g., the level of acquired debt from the Higher Education Loan Program for VET teacher education studies or the lack of available tax benefits for undertaking such further study), and thus the perceived level of tangible personal return on the investment of their time and money (Guthrie and Every 2013). This is especially so when practitioners do not identify strongly with their role as a teacher or trainer or when they work for a number of VET providers, and it is therefore unclear which, if any, of those providers should help support their development.

## **Role of Leaders and Managers and Organizational Culture in RTOs**

Leaders and managers of RTOs play a key role in how well professional and workforce development is supported in their institutions. Among other things this requires that they give attention to job design, the qualification profile of their staff, and their access to further and higher levels of vocational or teaching, training, and assessor qualifications. Therefore human resource management practices need to be developed that encourage planned approaches to professional and broader workforce development. This involves developing a workplace culture where teaching staff are challenged; exposed to new ideas; encouraged to learn and learn by doing; able to consolidate their learning by immersion in the professional development process and through active study, reflection, or research; and able to actively network both within and outside their organization. However, Smith and Hawke (2008) claimed that most providers are a long way from these ideals of practice. VET practitioners also see themselves as time-poor and adversely affected by continual and unrelenting processes of change (Simons and Harris 2014).

## **Pressures of Organizational Change**

Clayton et al. (2008) noted the extent and rapidity of changes in RTOs brought about by external pressures from government policies, training imperatives, and various stakeholders, including to be more competitive, businesslike, flexible, innovative, entrepreneurial, and client-focused in a climate that is market driven. In their study of ten public, private, and enterprise RTOs, Clayton and colleagues noted the significant upheavals these changes brought with the consequent difficulties of maintaining a shared and sustained vision coupled with significant levels of change fatigue. They suggested that RTOs, especially larger ones, are also multicultural organizations. Hence professional development needs and emphases may likewise vary considerably, but the importance of workforce development through effective and inclusive professional development, recruitment, induction, and empowerment and the development of the organization's leaders and managers at all levels are key to shaping an effective organizational culture and enabling change. This is done through formal programs as well as less formal approaches such as communities of practice, mentoring, coaching, and networking. However, as already reported, resources to enable professional development are often limited, and so immediate priorities are addressed at the expense of more sustained and effective development activities that are more likely to affect real changes in the quality of practice.

## **Quality of Basic VET Teacher and Trainer Education**

The capability of Australian VET practitioners continues to be the subject of intense debate. Hodge (2014) in his in-depth study of 30 VET practitioners concluded that the way they "understand and use competency standards is of fundamental importance to

the quality and integrity of the Australian VET system” (p. 3). Yet he found that VET practitioners felt ill-equipped to interpret competency standards when developing curriculum. The most extensively synthesized evidence on the quality of VET teaching has been undertaken by Wheelahan and Moodie (2011). They reported that VET is being required to teach a much wider range of learners than ever before and that therefore “Australia will have to . . . further professionalise VET teaching” (p. 14). Their report presented a range of options, models, and proposals on VET teacher preparation, qualifications, and continuing professional development and on ensuring and evaluating the quality of VET teaching and its impact on the VET student experience and outcomes. The Organisation for Economic Co-operation and Development (OECD 2011) also recommended that innovative strategies were necessary to sustain the numbers and skills of the teacher and trainer labor force in providers.

In relation to teacher qualifications, much research has shown (Simons et al. 2006; Clayton 2009; Clayton et al. 2010) that the quality of delivery of the Certificate IV has been highly variable over its various iterations, that VET practitioners themselves have little faith in the certificate (Hodge 2014), and that it remains a focus of scrutiny (NSSC 2013; DET 2016). The recent review of Tyler and Dymock (2017, p. 43) concludes that:

. . . the current process for producing capability and capacity in VET practitioners’ knowledge and skills is questionable. The ability of the Certificate IV in Training and Assessment (TAE) and its equivalents appears to be inadequate for meeting, over a sustained period of time, the articulated understandings relating to assessment, competency interpretation, learner and learning diversity and pedagogical theory and practice, as well as to the supervisory tasks of the position.

There have been ongoing calls for professional development and recognition of a variety of qualifications more appropriate for a range of VET teachers and trainers, rather than a “one-size-fits-all” approach. The Standards for RTOs currently require these providers to ensure that all trainers and assessors undertake professional development. However, what these standards do not specify is a definition for acceptable professional development or a minimum standard.

Regarding assessment, Gillis and Clayton (2013) stated that, despite systematic validation being an essential requirement within the National VET Regulator Standards for Registered Training Organisations, numerous key stakeholders have continued to raise concerns about the quality and consistency of assessment being undertaken by providers. Misko et al. (2014) highlighted concerns over quality and rigor of assessments in VET and suspicions that some providers are taking shortcuts to qualifications. This serves only to raise doubts about credibility of VET qualifications and competence of its graduates. As ASQA (2017b, p. 11) noted in its recent review of course durations:

The review has found the TAE40110 [the mandated VET teaching qualification] to be the Certificate IV qualification with the highest proportion of advertised course durations below 50 per cent of the AQF volume of learning minimum. This presents a significant risk to the entire VET system—as poor-quality delivery of the TAE has a compounding effect on the quality of delivery and assessment for all vocational training in Australia.

In 2016 the Australian Government's Department of Education and Training also highlighted concerns that some providers and their standard of assessment for competencies within particular industry Training Packages had been found to be inadequate. Its report (DET 2016) produced seven recommendations to improve the quality of assessment, four of which related specifically to strengthening the skills of trainers and assessors. Whether these will be sufficient remains to be seen.

## **Access to Higher-Level VET Qualifications and Professional Development**

Australia needs quality VET practitioners who, as well as their occupational expertise, can decipher and creatively interpret Training Packages; understand the psychology and sociology of learning, curriculum design, and evaluation, so as to develop meaningful curricula; know how to teach creatively and imaginatively so as to engage often disengaged learners put off by previous educational experiences; assess effectively; understand how the VET system in which they work is contextually constructed and managed; critically appraise what goes on around them; and so on. What has been, somewhat disparagingly, characterized as a weekend course (or something to be "RPL-ed" through), the Certificate IV, does not, and cannot, do all of these things, at least not to the depth required. That there is underemphasis on teaching and learning in it and it is at only certificate level would suggest that attaining these outcomes may well be beyond its reach.

There is clear need, therefore, for ongoing professional development and experience, both formal and informal, following the completion of the mandated Certificate IV (Harris 2015). However, with declining provision of university-based VET teacher education, continued neglect nationally of professional development, and continuing difficulties in implementing return-to-industry experiences because of such issues as insurance coverage and availability of placements, opportunities for accessing appropriate development remain meager, especially for those not in full-time, permanent employment. Tyler and Dymock's (2017) review of continuing professional development (CPD) has highlighted widespread agreement that CPD is vital for maintaining industry currency and pedagogical expertise, yet there is a lack of a national CPD strategy and the need for a long-term approach rather than one-off initiatives.

## **Maintenance of Vocational Currency**

RTOs are facing the challenge of keeping their VET practitioners vocationally current in an environment of constant change. Thus, vocational currency, or the lack of it, is a critical issue for the sector (Clayton et al. 2013), as providers and practitioners alike seek to maintain, upgrade, or even widen their industry skills and knowledge to ensure that their delivery of training is up-to-date, relevant, based on real-world examples, and tailored to industry needs. VET's learners, too, highly value and respect practitioners with vocational currency (Smith et al. 2009).

Toze and Tierney (2010, pp. 8–9) reported that RTOs and practitioners used a broad range of approaches to maintain currency. These include industry placements; staff exchanges; concurrent employment in industry and the RTO; industry and professional association membership; subscribing to professional journals and publications; talking to students about practices and job roles in their workplaces; networking; undertaking industry specialist visits, industry site visits, and study tours or specific training courses in new equipment or processes; and work shadowing. However, they also identified a range of barriers at the personal, RTO, and industry levels and stated that a balance needed to be struck between maintaining individual currency and that of the whole teaching team. Further, success in maintaining vocational currency requires a joint commitment from both the individual practitioner and the RTO as their employer, but, as Clayton et al. (2013) point out, employers in industry considered that it was not possible for trainers and assessors to keep abreast of every change and confirmed that they struggled to do so themselves.

Clayton et al. (2013) found that the views of ASQA auditors about how currency might be maintained did not align with the view of industry or RTOs. Potentially, this is problematic and can affect the relevance and quality of approaches used as RTOs may feel pressure to comply with perceived regulator views on maintaining vocational currency. The authors acknowledged, however, that auditors noted:

... some confusion in the standards relating to industry currency and competence. They were of the view that there needed to be clarification of the terms and greater consideration of what constituted appropriate evidence of industry currency. (p. 8)

## Effecting Change and Improving Practice

Clayton and Guthrie (2013) examined six reports produced over five decades into VET practitioner education and professional development. They concluded that little was known about the nature of the practitioner workforce and the range of work they do. In addition, there has been too great a focus on the form and content of the initial formal practitioner qualification, while too little attention has been paid to providing comprehensive support to beginning practitioners. This support includes structured training, observation and supervision, collegial support, mentoring, and professional networking. Rasmussen (2016) believes that more emphasis needs to be placed on working across policy borders and developing holistic and nationally based solutions to practitioner education and professional development.

An exacerbating factor is the lack of a national voice for VET practitioners, a professional association, to influence relevant VET policy and to act as a focus for practitioner training and development. Guthrie and Clayton (2012) examined the possibility of establishing a VET professional association (as suggested by Wheelahan and Moodie 2011). They found that there was support for a professional association but its exact nature and functions were more problematic given the high levels of casualization in the practitioner workforce and its “dual professional” nature. They suggested that there had to be a strong value proposition for individual practitioners to encourage comprehensive membership.

In sum, this has meant that practitioner education and professional development have not been properly addressed and recurring issues not resolved because no one body or group appears to have the power to make things happen or to enact comprehensive solutions. Rather, any attempted solutions have been piecemeal or have turned into battles between state/territory and federal governments or a variety of other interest groups over whom, precisely, has the responsibility (Guthrie and Clayton 2012).

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## Conclusions and Ways Forward

Vocational education and training in Australia have been held in high regard nationally and internationally. A wide range of countries have sent delegations to Australia to explore its approach to VET, seeing it as a world leader and a possible model for their approach, while Skills Australia (2009, p. 42) has stated that “Australia is much admired” for its VET system. The Organisation for Economic Co-operation and Development review concluded that “Australia has a very well developed VET system, which enjoys a high degree of confidence” (Hoeckel et al. 2008, p. 5). Official surveys show high rates of satisfaction among both employers and students with outcomes from VET (Australian Government 2017a, b).

Yet, paradoxically, there is also criticism. The Council of Australian Governments (COAG) highlighted in 2011 the need for “revitalising the National VET System,” with one of its four priorities being “improved quality” (p. 7), and Skills Australia (2011, p. 5) noted that:

The debate over quality is the issue that most troubles VET stakeholders. This review identified the need for a comprehensive package of reforms in the sector’s quality practices, especially in the delivery of teaching and assessment . . . [and including a] greater depth in the professional requirements for practitioners in the sector.

The National Skills Standards Council (2013) also drew attention to the inconsistent quality of training and assessment of registered training organizations, which were undermining the integrity and value of vocational qualifications held by all individual learners and employees. A recent review (Braithwaite 2018) found that the sector has experienced “significant disruptions in recent years” (p. 5) and been “saddled with significant reputational damage” (p. 57) from some poor providers placing VET at risk. In particular, four key issues emerged as concerns for the sector’s future: training quality, teaching professionalism, provider ethics, and student protection and well-being (p. 58). Industry, too, is both a critic and a critical supporter. For example, a joint statement in 2016 by all three of Australia’s peak employer bodies (ACCI, AiG & BCA 2016) suggested that “in recent years employers and industry groups have become concerned that the VET system is deteriorating and that recent attempts at reform have failed to impact on some core issues.” On the other hand, at various times all three of these industry bodies have advocated the importance of, and need for, a strong and viable VET sector.



As this chapter has shown, a series of reports spanning nearly 50 years has raised issues about the nature and quality of practitioner preparation and subsequent development to maintain and build quality. Arguably too, satisfactory responses have still not been found to the issues and questions raised over this period. This chapter concludes that, despite the positive image of the sector, important and consistent messages about practitioner preparation and development from the past have not been comprehensively actioned or even been ignored. And yet there is sound advice in all the reports, and much of what has been recommended in them remains as valid today as it was originally. The following conclusions can therefore be drawn and ways forward proposed.

First, the quality of practitioners and their practice is key to VET success. In VET, trainers and assessors are “the most valuable asset and arguably least cared for resource,” and yet “the quality of the service provided to learners is entirely dependent on the quality and performance of the trainer” (Walker 2012, p. 1). Their job roles are diverse. Thus, there is not, nor should there be, a simple conception of who the sector’s practitioners are, nor should there be simple notions about what their work involves and the qualifications they should hold or the attributes and experiences they need to perform their work. More nuanced and wide-ranging approaches to education and development are required. There are clear moves in that direction from the regulator (ASQA 2017a), particularly in relation to the range of mandated teaching VET qualifications. These will come into force early in 2019.

Second, a wide range of drivers are changing the nature of their work, job roles, and developmental opportunities. Thus, the relevance and quality of initial and further practitioner qualifications and professional development opportunities are critical. The qualifications they can attain need to be of the highest standards possible. Yet the evidence is that the Certificate IV is deficient not only in terms of its content but particularly in the quality of its delivery. This deficiency must be comprehensively addressed, and there is evidence that this is occurring. Nevertheless, this chapter proposes that the answer does not lie in continuing to mandate a single qualification for Australia’s VET practitioners. What is needed is a range of high-quality and flexible awards at a variety of levels, coupled with appropriately balancing requirements for qualifications with the availability of soundly based and high-quality non- and informal professional development opportunities whose value also needs to be more tangibly recognized. At present, these latter are largely piecemeal and, by and large, focused on immediate issues which are most commonly related to compliance matters rather than activities that are more deeply and sustainably concerned with the quality and effectiveness to a practitioner’s delivery and assessment approaches.

Third, there is concern over the viability of a range of available higher education qualifications for VET practitioners. The authors conclude that new approaches to delivery and recognition need to be considered including micro credentials, mini degrees, skill sets, and certifications. There is also a need to debate moving away from an individual institution model of delivery to one that draws on the best available expertise in both the higher education and VET sectors and across a



range of institutions. Such approaches could include the development of learning approaches and programs that are focused on more immediate and practical needs but can be built on progressively to enable a qualification to be attained to increase their appeal to individual practitioners and their RTOs alike.

Fourth, any approach to improving the quality of practitioner education and development needs to be part of a wider and more holistic approach to the issue of quality. At present, there is no one authoritative entity which takes an interest in this area, nor is there a body acting on a mandate to address all the issues that directly and indirectly affect the quality and capabilities of the VET practitioner workforce. Two further matters need attention. Firstly, there is a lack even of the most fundamental data about the nature of the VET workforce nationally, including the qualifications they presently hold and despite a data standard having been developed to collect such data but not implemented. Secondly, there is no national VET workforce development strategy. The authors contend there is a strong case for one and one that is properly supported by all interested stakeholders and appropriately designed and funded. Such an initiative was attempted in 2008 by the (then) National Quality Council and again proposed by Skills Australia 3 years later but never taken up. In addition, mechanisms to support both institutional and personal investment in development of professional capabilities need to be developed and implemented.

Fifth, there is a need to establish the best balance between a casual and a more permanent and sustained workforce based on the business needs of individual RTOs. The issue this raises is the preparedness of institutions and individuals alike to invest in capability development when the perceived return on investment may be seen as questionable for both parties. Ways need to be found to improve the preparedness to invest, including tax benefits for individuals and improved regulatory support and relief for providers prepared to invest in their staff's development. This also raises the issue of the extent to which individual RTOs support the proper induction of new staff and the development of their casual and part-time practitioner staff. Often, such support is not available to such practitioners, even if they make up the predominant proportion of teaching and training staff.

Sixth, there needs to be a strong institutional culture at RTO level supporting professional development, including professional development planning at both the teaching team and individual levels. In addition, this culture needs to encourage and support the development of a sense of professionalism in staff, including the development of capabilities in reflective practice about teaching and assessment approaches and maintaining vocational currency.

Finally, despite much research and many reports over the decades, many of the issues related to improving the quality of VET practitioners' professional practice remain unresolved. None of these issues are easily resolved, and there are no simple solutions or "silver bullets." The Australian VET system has not resolved what the best forms and level of practitioner preparation are nor which forms of ongoing development are most appropriate as well as who should conduct them. What is known is that there is no "one-size-fits-all approach" and that a wide variety of approaches are needed, based on careful planning and underpinned by clear

strategies. There needs to be effective pathways into and through formal qualifications, but also ways by which valid, useful but less formal development, including high-quality mentoring and other support, can be given due credit and recognized for the value they bring to a practitioner's work. This may require the development and endorsement of professional standards, coupled to the development of a range of respected qualifications, credentials, pathways, and recognition frameworks for professional development in all its forms.

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