

Technical and Vocational Education and Training:  
Issues, Concerns and Prospects 29

Sarojini Choy · Gun-Britt Wärvik  
Viveca Lindberg *Editors*

# Integration of Vocational Education and Training Experiences

Purposes, Practices and Principles



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# Technical and Vocational Education and Training: Issues, Concerns and Prospects

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## Volume 29

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*We dedicate this book to Professor Stephen Billett whose research has generated a growing body of knowledge and understandings about integration of learning across different settings. His work has significantly inspired us. We are appreciative of his guidance and support throughout the preparation of this book.*

# Series Editors Introduction

Work is a major feature of most people's lives. Not only does it provide them with the means to meet basic needs, such as food, clothing and shelter, but also the type of work undertaken by individuals and groups has a major impact on their self-identity, social status and standard of living. Technical and vocational education and training (TVET) is concerned with 'applied learning', with the acquisition of knowledge and skills for the world of work to increase opportunities for productive work, sustainable livelihoods, personal empowerment and socio-economic development.

This Springer book series on TVET seeks to provide comprehensive information about many cutting edge aspects of TVET. The series showcases best and innovative approaches to skills development for employability and seeks to create an effective bridge between research, policy and practice. It is an on-going project which commenced in 2005, the publications in this Springer book series providing a comprehensive picture of current issues, concerns and prospects in TVET, worldwide.

This book *Integration of Vocational Education and Training Experiences: Purposes, Practices and Principles*, edited by Sarojni Choy, Gun-Britt Warvik and Viveca Lindberg, is the latest volume to be published in the long-standing Springer Book Series **Technical and Vocational Education and Training: Issues, Concerns and Prospects**, this volume being the 29th volume published to date.

As the authors note, the book examines the growing interest that exists regarding the effective integration of students' learning experiences across vocational education institutions and workplace settings. It assesses the ways in which different systems and institutions secure integration through reconciliation of students and apprenticeships experiences and how these inform strategies and processes to facilitate their learning across site. The book probes how integration has been studied from different theoretical and conceptual perspectives, and the contributions and perspectives of various stakeholders such as teachers, workplace trainers and students, in different national contexts, and how these add to new understandings about the nature of the integration of students' learning experiences.

This comprehensive book of 18 chapters has contributions from 29 eminent researchers working on this important topic. The book is divided into three sections.

The first section provides a general discussion of integration across educational and workplace settings; the second draws on 12 empirical studies from eight countries, which report on different aspects and practices of integration; whilst the third and concluding section brings together key matters which enhance our understanding of the integration of students' learning experiences across vocational education institutions and workplace settings.

There is no doubt in my mind that this is an important, cutting edge volume on a topic that is of great interest to many researchers, policymakers and practitioners throughout the world. I have no doubt that this book will be widely read and that it has the potential to have an important impact on policy and practice, and further research, in this area.

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Rupert Maclean



# Preface

The key interest of this edited book is in integration of students' learning experiences across vocational education institutions and workplace settings. This is nowadays a central aspect of vocational education within universities, technical and vocational institutes, upper secondary schools and enterprise-based training environments. Such educational goals came about, and have been driven by transnational organisations and governmental decisions, in response to a changing world of work, unemployment, global workforce mobility and a new economy – all acknowledging risks and uncertainties (Organisation for Economic Co-operation and Development, 2009; 2010). Taken together, these are aspects that are raising the demands on the provision of vocational education, including both a quest for high quality workers as an outcome of education and training whilst avoiding educational blind alleys, as well as inclusion of young people who are reluctant to fully participate in education. Increasingly, major interest groups at different levels are looking to workplace-based experiences to be part of vocational educational provisions as a means to develop the kinds of knowing required to be productive in work, inform students about their preferred occupations, make judgements about suitability for a vocation of their interest and also develop the kinds of capacities that they will require to be productive in their chosen occupations. Hence, contemporary vocational education has to adapt to new groups of learners and employers to meet societal challenges and at the same time currency of VET programmes through regular appraisals.

However, societal problems of a global nature do not fully address curricular arrangements for integration of students' experiences designed for national contexts. Indeed, transnational education imperatives materialise in different forms across different nation states, depending on a range of factors including traditions influenced by historical conventions in developing of skills for particular industries. Therefore, an argument of this book is that it is important to take national VET systems as a point of departure to understand VET in all its complexities. Even if challenges facing VET are recognised as global, the educational contexts are national

(c.f. Steiner Khamsi, 2004). For instance, new kinds of workforce mobilities often make educational appraisals of individuals necessary for them to be accepted as part of the workforce. Language is here sometimes an issue, but the meetings between different national educational *and* workplace learning traditions for the integration of students' experiences across the two settings can be rather complicated. Global policies have emphasised and enhanced the need for various international exchange programmes and work-based learning experiences. But people migrate also for other reasons such as wars and natural catastrophies. Both types of newcomers need policies that integrate education and work, albeit for different purposes. The provision of experiences in work settings needs to be appropriately designed and afforded for learners who are either positioned as students or already employed. Much of the learning arrangements for students are predominantly located outside the circumstances of work, whereas learning for existing workers is embedded within routine work activities and interactions. Hence, student placements in workplaces for short periods of work experiences represent quite distinct opportunities compared to what they learn in educational settings alone. Yet, it is this combination of experiences that has become the most common feature of contemporary curriculum offered by vocational and higher education sectors.

Further to this, ways in which different systems and institutions secure integration through reconciliation of students/apprenticeships' experiences inform strategies and processes to facilitate their learning across sites. Thus, it is important to understand the different national systems and their particular purposes for providing experiences beyond those provisions afforded by educational institutions. This is because practices to support sequencing and organising learning experiences in multiple sites have to be developed and implemented within specific national and local contexts. The chapters in Part II illustrate examples that contribute to a rich understanding of arrangements for integration in different national contexts.

The contributions and positions of stakeholders like teachers, workplace trainers and students in different national contexts add to new understandings about the phenomenon of integration of students' learning experiences. For instance, students as workers (as in German, Swiss and Australian apprenticeships) engage in experiences where workplaces play a foundational and structured role. Workplaces, however, have a purposeful influence on the content and pedagogy, largely governed by imperatives that underpin production and specific professional/vocational outcomes. On the other hand, programmes offered by educational institutions have a decisive influence on the nature of experiences (e.g. classroom or practice-based) and focus on defined proficiencies suited for general preparation for a vocational field. Therefore, the purposes and level of commitment from different stakeholders in supporting these arrangements will have implications for the kinds of experiences that are enacted and provided to students, and how students engage with those provisions. The cases in Part II of this book provide examples of how different stakeholders support integration.

In this publication, the idea of integration has been studied from different theoretical and conceptual perspectives, hence bring to attention different phenomena. In an everyday language, integration may refer to different bits of learning that are melded together to form a whole. For instance, integration can refer to amalgamation of what is learnt in school and what is learnt in the workplace into a whole for the benefit of the students, the employing organisations and society as a whole. A problem is though that in the language of policy this merging – or integration – is more or less ‘black-boxed’ and needs to be unpacked. A point of departure for this book is the different sites in which students experience vocational education. As mentioned above, these sites, in whatever ways they are arranged, lay down certain conditions for what is possible to learn. Thus, if we for instance argue – as we often do – that the work of teachers, workplace supervisors and students have to be connected or coordinated, it is important to recognise that the different sites have their multitude of institutional and material manifestations with different historical roots. Indeed, integration in this instance appeals for recognition of the distinct differences between the settings. So, the planning and implementation of provisions for integration demands not only appropriate policy directions, stakeholders agreeing to and exercising their roles, but also an appreciation of the nuances in arrangements and operations within particular sites. The chapters in Part II of this book highlight these very points.

This edited book comprises three parts: (I) Provision and integration of work experiences within vocational education; (II) Integrating work experiences within vocational education: empirical examples; and (III) Educational practice supporting the use and integration of work experiences in vocational education. We briefly introduce the chapters in the next section.

## **Provision and Integration of Work Experiences Within Vocational Education**

This first section offers a general discussion on the understanding of integration across educational and workplace settings. The section sets out a case for preparing students for integration. It also stresses the importance of acknowledging national and industry traditions and their institutional arrangement.

The first chapter by Sarojni Choy, Gun-Britt Wärvik and Viveca Lindberg, ‘Integration Between School and Work: Developments, Conceptions and Applications’, summarises some of the historical intentions and progression on integration of learning between school and work as evidenced in the curriculum design and delivery of vocational education and training (VET). The VET curriculum has evolved into one that better prepares individuals as skilful and productive workers and at the same time aims to fulfil their vocational aspirations. The authors summarise the conceptualisations and progressive development of processes to outline transitions in their manifestations, purposes and practices of VET systems.

In the second chapter, ‘Student Readiness and the Integration of Experiences in Practice and Education Settings’, Stephen Billett takes the concept of students’ readiness as a starting point for a discussion on students’ adaptation for educational goals and their ability to integrate and reconcile experiences in education and work through teacherly interventions before and after students’ experiences in work settings. His explanatory basis to understand and appraise the notion of readiness comprises the students’ zone of potential development, that is, the zone within which students can mediate their own learning, and the movement towards the zone of proximal development. He thus points to the necessity of guidance and teacherly interventions before, during and after work placement, and the reciprocity that arises between the students’ current experiences and the teachers’ efforts as mediational means, for the fulfilment of educational goals.

David Guile’s chapter, ‘Work Experience and VET: Insights from the Connective Typology and the Recontextualisation Model’, compares the connective typology of work experience with the recontextualisation model of knowledge and goes on to discuss the implications for work experiences. He shows how the latter model addresses limitations of the former and offers a way to distinguish the difference in learning outcomes. Both models accept the mediated relationship between school and work; however, Guile highlights a major difference. The first model focuses on the learners’ movements – boundary crossing – between education and work. Here the reasoning is based on an application of Weber’s concept of ideal types of work experience. The latter model is influenced by activity theory and the interplay between manifestations of knowledge in education and work, as well as the learners’ movements within and across contexts. A point of departure is the cultural tools – meaning forms of knowledge – and how these tools are influenced by the purpose served by the tools. Guile concludes his chapter by illustrating his thesis with an example of employing digital technologies for mobile learning and ways to reconsider how learners could be supported for integration.

Philipp Grollmann, in his chapter ‘Varieties of “Duality”’: Workbased Learning and Vocational Education in International Comparative Research’, takes a different point of departure, discussing the dual nature of vocational education in different national contexts. He explains that this duality can be shaped very differently, even in vocational systems that are classified as dual. According to Grollmann, vocational education systems are most often dual even if not explicitly classified as such. There are degrees of dualities that can serve as a starting point for comparative education, between as well as within national systems. His concern is thus that the main policy focus on work-based learning and apprenticeships, for the purpose of labour market outcomes, tends to overlook the curricular aspects. He argues that the term work-based learning is too broad and can be associated with a range of arrangements. There is however a lack of emphasis on the integration of learning experiences in schools and workplaces.

## **Integrating Work Experiences Within Vocational Education: Empirical Examples**

This section draws on 12 empirical studies from eight countries, each reporting on different aspects and practices of integration. The chapters outline the purposes for providing experiences outside educational institutions; the kinds and extent of those experiences; and efforts enacted to secure integration of students' experiences across sites. The studies concern various vocational areas and the authors take their national vocational education system as a point of departure, thus recognising the contextual aspect of curricular means for integration of students' experiences across settings. The intention in this section is not to compare the different cases, but to acknowledge the complexities surrounding the formation of vocational education. Thus, the focus is not on the various educational systems per se, rather the conditions and approaches that enable or constrain integration.

The chapters are ordered alphabetically by country name.

The first chapter of Part II by Sarojni Choy, 'Integration of Learning in Educational Institutions and Workplaces: An Australian Case Study', concerns Australian vocational education and training students, teachers and managers/coordinators' conceptions on how learners' make connections between what is learnt in educational institutions and workplaces. She identifies four dominant conceptions of connectivity with structural and referential variations that illustrate a progression of learning *for* work, to learning *through* work. The first is fully matched with an intended curriculum whilst the latter shows that students are full participants in work contexts. The chapter summarises important roles of all stakeholders in creating couplings between the two contexts for successful integration to happen.

Ray Smiths' chapter 'Learner Agency and the Negotiation of Practice' is also from Australia. It concentrates on learning at work as a transformational practice where workers contribute to work practices. His point of departure is learner agency as enacted intention, a capacity to act – and with the assumption that it is impossible not to act in a workplace. Such a capacity is seen as personal, though mediated by circumstances of which an individual is a part of (e. g. people, places and practices), hence calls for negotiations specifically for learning. Through three examples (fruit and vegetable packers; firefighters; and a restaurant owner, manager and staff) Smith illustrates how socio-personal agency and transformative practices develop over time during vocational training.

In 'Integration for Holistic Development of Apprentices' Competences in Finland', Laura Pylväs, Heta Rintala and Petri Nokelainen focus on integration of apprentices in their work environment and the development of occupational (theoretical and practical) and personal competences into holistic vocational expertise in the context of apprenticeship training. Their study found that boundary crossing and collaboration between workplaces and education providers is rather limited in the context of Finnish apprenticeship training. The authors argue that to support holistic development of vocational expertise and to avoid drop outs in apprenticeship training, workplaces need to acknowledge not only the significance of apprentices

developing vocation-specific competences, but also the role of social competences and self-regulation when operating in between vocational institutions, and simultaneously functioning as an accountable employee in a workplace.

In her chapter, 'Variations in Implementing the Dual VET System: Perspectives of Students, Teachers and Trainers in the Certified Trades in Iceland', Elsa Eiríksdóttir analyses the curricula of 34 certified trades in Iceland. She noted a lack of central governance and that the dual system models differed in terms of the duration of the work-based learning period and the sequencing of the periods at the workplace and in school. She then selected four trades for a closer examination to understand the variations. The main factors that led to variations were conflicting goals and important trade-offs between different models.

The chapter by Selena Chan, Bronwyn Beatty, Dominic Chilvers, Lorna Davies, Adam Hollingworth and Isabel Jamieson, 'Work-Integrated Learning in Aotearoa/New Zealand: Diversity, Biculturalism and Industry-Led', concerns graduate studies in five vocational areas: broadcasting, business management, midwifery, nursing and social work, that all embrace work-integrated learning. The authors discuss the socio-cultural-historical origins of the programme approaches. The concept of work readiness is central in their analysis of work-integrated learning, including knowledge-related issues, as well as inter-relational and citizen features in a distinct bi-cultural context of New Zealand. All students are exposed to the diverse ethnic work environment characterising Aotearoa/New Zealand. The authors noted inconsistent structures across the programmes, yet each demonstrated successful work integrated learning.

The second chapter from New Zealand, 'Even Better than the Real Thing: Practice-Based Learning and Vocational Thresholds at Work', by Karen Vaughan draws on research on general practice (GP) registrars, carpentry apprentices, engineering technician cadets and their workplace teachers and mentors. She explores 'vocational threshold', described as 'experiences that act as a portal to new levels of practice capability' (p. 189). Vaughan notices differences in demands for capability development between the vocations and argues that crossing the vocational thresholds in field specific contexts helps develop disposition attributes for the vocations. Importantly, she also points out that just providing students with workplace-based learning is not enough – learning is dependent on the quality of workplace affordances. Accordingly, Vaughan contends that workplace imperatives should not be compromised at the expense of rich learning opportunities that students need.

The chapter by Torgeir Nyen and Anna Hagen Tønder, 'Development of Vocational Skills Through Integration of Practical Training Periods in School-Based Vocational Education in Norway', discusses how vocational skills, identity and motivation for learning are influenced by different ways of integrating practical training periods in vocational education and training programmes. The study is based on the Norwegian model of an initial phase of school-based education followed by a work-based phase (2 + 2 years). The authors propose that it can be beneficial for students to be shielded from real work situations during the first part of VET. They go on to explain that without basic skills, students may find work situations rather restrictive since they are only allowed to carry out very simple tasks.

However, later in the study programme, when they become more knowledgeable about the vocations they train for, work-based experiences can have positive impacts on students' learning.

The second chapter from Norway, 'ePortfolios as Hybrid Learning Arenas in Vocational Education and Training (VET)', by Leif Ch. Lahn and Hæge Nore is about the use of ePortfolios as an integrating element of vocational education and training. The context is the Norwegian apprenticeship training offices, approved as training companies, but owned by a community of companies. The training offices are however not trade-specific. Their role is to recruit apprentices and training enterprises, organise networks between enterprises, schools and branch organisations, secure and follow-up training in companies, and deliver courses. The training offices are also responsible for the establishment of a quality system of which ePortfolios are a part. The authors conceptualise ePortfolios as *hybrid learning-arenas* and regard the ePortfolio systems as an integrating link between apprentices, training offices, schools and companies. Their study shows that ePortfolios are used very differently across the vocations, including the ability of the system to integrate between the different institutions. The authors suggest ways to improve the use of ePortfolios for integration of learning in different sites.

The next chapter is from Singapore, 'Spaces and Spaces "in Between" – Relations Through Pedagogical Tools and Learning,' authored by Helen Bound, Arthur Chia and Lee Wee Chee. The authors outline recent changes in Singapore's continuing education and training sector. They discuss two case studies to analyse affordances: one is about employees in a retail outlet and the other is about cadet fire fighters. They highlight the difficulties experienced by enterprises if employees need to leave the worksite to attend training. Employers prefer workers to learn at and during work. Bound and her team identify "spaces in-between" where workers can use integrative devices to engage in collaborative learning and information sharing.

Swedish upper secondary school apprenticeship and integration through so-called tripartite conversations is the focus of the chapter by Ingela Andersson, 'Workplace Learning for School Based Apprenticeships: Tripartite Conversations as a Boundary Crossing Tool'. Tripartite conversations are held between the teacher, the student and the workplace supervisor. These conversations are regarded as tools intended to support integration. Her study focuses on a school-based apprenticeship where the apprentices are not employed by the companies, but remain as upper secondary school students. She concludes that the conversations can be useful for preventing situations where the students become the only brokers between school and work. She also points out that continuous appraisal of arrangements is necessary for collaborative planning. Thus, Andersson argues that even if an intended curriculum is situated within a framework of tripartite conversation, how this will work in practical terms is not always predictable.

The second Swedish chapter by Gun-Britt Wärvik and Viveca Lindberg is titled 'Integration Between School and Work: Changes and Challenges in Swedish VET 1970–2011'. The analysis in this chapter concerns how integration between schools and workplaces is distributed and organised to accomplish the goals of three Swedish national upper secondary school curricula reforms of 1970, 1994 and 2011.

The focus is on health care and textile industries that over the decades have been subjected to major changes. The authors note that in health care and textile, teachers have played important roles in integration. However, earlier traditions in the two industries have influenced how integration of learning was organised. The authors argue that the ideal for integration must be understood in its cultural and historical contexts.

The last chapter in Part II is from Switzerland. In the research reported in this chapter titled ‘Success Factors for Fostering the Connection Between Learning in School and at the Workplace: The Voice of Swiss VET Actors’, Viviana Sappa, Carmela Aprea and Barbara Vogt studied teachers, in-company trainers and apprentices’ perceptions of important features of support provided to apprentices with connecting learning at school and work. Swiss students attend intercompany courses which can be considered as a third space for their learning. However, schools and workplaces still remain the primary locations for education. The authors identify connecting factors at both meso (communication, curriculum development) and micro levels (instructional factors). They describe the multidimensional nature of connecting.

## **Educational Practice Supporting the Use and Integration of Work Experiences in Vocational Education**

This concluding section draws together key considerations for understanding integration of students’ learning experiences across vocational education institutions and workplace settings. It contains two chapters.

The first concluding chapter in Part III is ‘Concepts, Purposes and Practices of Integration Across National Curriculum’, by Stephen Billett, Gun-Britt Wärvik and Sarojni Choy. It summarises different concepts, purposes and practices of integration as developed in the chapters of this book. A point of departure for the conceptualisations is that integrating two sets of experiences implies a duality and the involvement of two or more physically and socially separated settings. The reconciliation of the learner includes mutuality, therefore demands more than students’ agency. Other stakeholders with interest in realising the goals for vocational education also need to contribute to provisions and processes for effective integration of learning in different sites.

The second concluding chapter ‘Considerations for the Integration of Students’ Experiences’, by Sarojni Choy, Gun-Britt Wärvik and Viveca Lindberg, outlines processes, procedures and arrangements for the integration of vocational education that take place in schools and in workplaces. The chapter draws on the cases presented in Part II to propose broad considerations for integration around four imperatives: social-cultural arrangements; negotiated curriculum; the roles of stakeholders; and learner preparedness. These imperatives and implications for students’ learning are discussed.



The review of literature in each chapter of this book highlights a strong focus on integration connected to educational policy agendas that emanate from transnational organisations like the European Union and the Organisation for Economic Co-operation and Development (OECD). Individualisation implies a level of responsibility for engaging in vocational education and training, for becoming flexible and employable individuals who can contribute to society. Policy agendas are variously adopted in national contexts. This is also evident in the strong connections between education, economy and labour market that we see today. From another perspective, individualisation can also refer to learning support to meet individual educational needs. We maintain that the quest for integration of learning in schools and workplaces requires mutual engagement from all three actors: the school, the workplace and the student. The school needs to be engaged in local policies and arrangements as well as in interventions and support by teachers or other staff. Workplaces and supervisors need to be engaged in arrangements for a workplace curriculum that opens up for both repetitive and challenging work tasks as well as possibly collaborating with other companies if the experiences that students can get seem restricted. The students have a responsibility for engagement and commitment to learning to become competent workers. This engagement is meant to be relational to the school and the workplace.

A conclusion from this book is that integration of students' experiences across settings is limited in the absence of pedagogical interventions. Integration needs to be problematised in a reflective way to understand the challenges with arranging rich learning opportunities for students. Teacherly interventions before, during and after students' work placements are important processes to maintain effective integration because very few workplaces have the capacity to appropriate the learning curriculum designed by educational policymakers. The main business of work sites is the production of goods and services, hence learning becomes a secondary function. Furthermore, not all work tasks are educationally rich to serve students' curricular goals. Hence, effective integration necessitates collaborations between workplaces and educational institutions to organise arrangements that allow for appropriate enactment and engagement of the VET curriculum.

Collectively, the contents of this book advances the field by extending the work of Stenström and Tynjälä (2008). The challenge of integration across the different experiences learners encounter in vocational education and training is of major importance in all countries. Integration is interpreted variously and practised in diverse ways to accommodate different national contexts. Hence, there is a range of perspectives and practices. The breadth of perspectives and national examples add to the assemblage of empirical case studies spanning across education levels (e.g. upper secondary schools, vocational education and university sectors) as well as use of theoretical and methodological lenses to illustrate and understand integration. That is, the originality in this book transpires through contributions in chapters in the form of theoretical and methodological perspectives, empirical case studies that include upper secondary to higher education levels, and international coverage. It is this aspect that highlights the originality of this book as a single comprehensive source on purposes, practices and principles of integration for vocational education

and training. The compendium of these different perspectives forms a single compilation unlike any other book in the field and thus complements previous books (e.g. by Stenström and Tynjälä, 2009), where the different chapters analyse issues of connectivity between and transformations on three levels: system, organisational and individual, both for and between education and labour market. The examples are mainly Finnish, but these are complemented and thus expanded by examples from Germany, Netherlands, Spain and Estonia. The examples in this book develop the ideas of connecting education and work further, but also through empirical examples showing new possibilities as well as problems related to multidimensional societal motives on the one hand and national and local traditions that create tension when implementing new actions on the other.

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## References

- Organisation for Economic Co-operation and Development. (2009). *Jobs for all: Initial report*. Paris: OECD.
- Organisation for Economic Co-operation and Development. (2010). *Learning for jobs*. Paris: OECD.
- Steiner-Khamsi, G. (Ed.). (2004). *The global politics of educational borrowing and lending*. New York: Teachers College Press.
- Stenström, M., & Tynjälä, P. (2009). *Towards integration of work and learning. Strategies for connectivity and transformation*. Dordrecht: Springer Netherlands.

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**Part I**  
**Provision and Integration of Work**  
**Experiences Within Vocational Education**

# Chapter 1

## Integration Between School and Work: Developments, Conceptions and Applications



Sarojini Choy, Gun-Britt Wärvik, and Viveca Lindberg

**Abstract** Integration of students' experiences in and between education institutions (as in schools, vocational colleges and universities) and workplaces, to develop vocational competence, is a central tenet of contemporary educational systems and provisions. Educational institutions and workplaces are no longer seen in isolation for pre-employment preparations as well as continuing development of the workforce. However, researchers (e.g. Onstenk J, Blokhuis F, *Education + Training*, 49(6):489–499, 2007; Billett S, *Integrating practice-based experiences into higher education*. Springer, Dordrecht, 2015) argue that the concept of 'integration' remains underdeveloped, both theoretically and conceptually. In this chapter we summarise some of the more general developments and complexities around integration of students' learning experiences in schools and work sites. We discuss the historical intentions and progression of pedagogical means into curriculum design and delivery of vocational education to better prepare individuals as skilful and productive workers. The account here outlines conceptualisations and development of processes of integration as vocational education systems transformed in their manifestations, purposes and practices. Examples of different types of integration and typologies and their theoretical bases are summarised. We then outline examples of common applications, i.e. pedagogies and arrangements suited for integration. Three main units of analysis (individual, context and cultural and historical) are also introduced. While integration often has been an issue for two parties, school and workplace, students' agency is also considered and given a foregrounded position here. An identified challenge in researching integration is to recognise agency intertwined with structure. The concluding section contends that the main aim of integration is to jointly interpret knowledge and knowing in the social cultural

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contexts of different settings and achieve a ‘common sense of mutuality’ (Edwards A, *Revealing relational work*. In Edwards (ed) *Working relationally in and across practices. A cultural-historical approach to collaboration*. Cambridge University Press, New York, 2017, p. 2). We recommend more research to further illuminate this complex phenomenon of integration.

**Keywords** Integration · Vocational education and training · Connectivity · Pedagogies for integration · Workplace learning

## Developments Towards Integration

Historically learning a vocation has always involved practice settings and participation in ongoing work. The major impetus in vocational education, its aims and purposes commenced during the post-war period when reconstruction for economic revival through development of skilled workers became a priority. The advent of industrialisation also pressed forward the collapse of home and local workshops as sites of skill development and gave impetus to vocational education through traditional schooling systems. Transformations in vocational education systems across nations have been driven by national imperatives, albeit realised through government-sponsored vocational education institutions. Regardless of the national agendas around vocational education, the goal of vocational preparation globally has always been to combine education and work experiences. This is manifested through apprenticeships, cadetships and traineeships typical in trade courses. Such a goal is manifested through, for example, article clerk ships within law<sup>1</sup> and extended periods of practice in hospital settings for nurses and doctors.

A range of terms are used to describe the combination of learning: work-integrated learning, work-based learning, workplace learning, career and technical education, internships, experiential education, experiential learning, vocational education and training, fieldwork education, service learning, project- and problem-based learning, practicums and work placements (Bartkus and Higgs 2011, p. 73). Many of these terms are used interchangeably and tend to have more commonalities than differences in interpretations. However, work-integrated learning remains a common umbrella term that captures various intentions of experiential learning in different sites aimed at developing vocational and occupational capacities of individuals. Accordingly, work-integrated learning has become a common feature of the landscapes for vocational preparation of the workforce across nations. Although a central feature of the vocational curriculum, the concept of ‘integration’ remains underdeveloped, both theoretically and conceptually (Onstenk and Blockhuis 2007; Billett 2015).

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<sup>1</sup>The terms and their meaning may vary between occupational sectors and nations – still the kind of phenomenon they are related to are common in many countries.

During the early days of vocational education, little scientific attention was paid to the concept of integration or approaches to augment the benefits of learning in different sites. In contemporary vocational education programmes for pre-employment training as well as continuing education and training of workers, integration of workplace experiences is central. That is, integration of learning is a key consideration for the benefit of learners, vocational education practitioners, employers, other stakeholders and nations. Given that ultimately all learning leads to the preparation of citizens for work and society, it is pointless to separate education and work. Equally important is the acknowledgement that learning extends beyond just educational pursuits because individuals need to engage in lifelong learning and constantly respond to changes in work requirements (Jensen et al. 2015). So, learning to make and remake new knowledge will likely extend beyond the education-work classification. Nonetheless, individuals need to be skilful in integrating learning from diverse sources and sites.

A growing interest and response to integration is driven mainly by factors that include rapid societal changes, new economies, workforce mobility, rising unemployment and recent societal tensions such as migration with new streams of refugees preparing for employment in their host countries. These dynamics manifest in transformation of national educational systems, driving a policy quest for vocational education that teaches students and workers ways to cope with uncertain futures. Such an imperative is further intensified by contemporary debates on lifelong learning (Cedefop 2009), stimulating educational demands, embracing discourses of individualisation and employability that anticipate the making of ‘entrepreneurial’ individuals who are always ready to change and adapt to new working life circumstances – or accept short-term project-based employment instead of permanent employment (see, e.g., Billett et al. 2013; Cort 2010; Lawn 2011). Not surprisingly, integration as a principle within vocationally oriented curriculum has gained precedence in a growing body of research (see Billett 2001a, b, 2002, 2004, 2006, 2009; Coll and Zegwaard 2001; Collin 2006; Eraut 2004; Fuller and Unwin 2004; Virtanen et al. 2009). Several studies highlight distinct yet complementary contributions of learning in education institutions and work settings. More importantly, the tradition of learning primarily *for* work now extends to an interest in learning that takes place *in* the workplace (Billett 2009). However, integration is not just about connecting the content but rather includes the dualities as learner *and* worker. This is because the learning episodes also expect demonstration of competency that results in productive work outcomes.

In the main, integration remains a benchmark for contemporary vocational education and a significant feature of its curriculum. While workplaces have long been considered as useful learning sites, it was industrialisation and mass education that gave legitimacy to the formation of vocational education practices. The impact of industrialisation on vocational education is summarised in the next section to foreshadow developments that called attention to integration.

## Industrialisation as the Activator for Vocational Education

Vocational education has played an important part in the making of societies where workers sustain employment and well-being. Its origins can be traced to the start of industrialisation in Europe. Thenceforth the connection between the nation States and educational systems has remained tight. The influence of industrialisation on vocational education in Europe can be traced to the end of the eighteenth century, originating in countries like Britain, France, Germany and Switzerland and spreading quite rapidly. Training offered by the guilds, and at family business operations at home, was no longer considered relevant for emerging societal needs. Instead, a more formalised vocational education system was deemed necessary. This was premised on the grounds that societal development and scientific achievements effected economic development (Benavot 1983). In the beginning, vocational education became a precondition for work in agriculture, forestry, health care, trade and commerce and other emerging sectors. Manufacturing of goods took a more modernised route – from small-scale handicraft work in homes to use of machines in new factories designed for mass production. This was also a period characterised by profound and extensive societal changes, embracing the economy, political systems, new technology, development of mass education and many people's ways of living as they moved from rural areas to the cities.

Vocational learning took place when individuals worked and learnt under management control. Taylor (1911) perceived this as applying 'scientific methods' to train workers. Precise and detailed work tasks were broken down into small segments allocated to groups of workers to perform and be controlled by management (Taylor 1911). A limitation in Taylor's model was that workers would only have knowledge and skills for a very small segment of the production process and they would remain isolated from the rest of the workers to avoid any influence of other work groups because that, in his view, would risk management control over the production process. For the most part, vocational training under 'Taylorism' was restrictively instrumental – that is, implied a narrow set of skills, conforming to subordination and doing what was demanded by the system. A similar view on vocational training is evident under 'Fordism', though here knowledge of production workers was literally built into the machine (for details see Wood 1988).

It was a debate in 1914 between John Dewey and David Snedden (republished in 1977), about general and vocational education, that brought to light institutional contexts of vocational education as a contested field during a period of growth in mass-producing industries (Labaree 2010). Snedden advocated vocational education for ordinary people, to prepare them for the more common tasks in society. He proposed a separation of liberal and vocational education, claiming that:

vocational education and liberal education cannot be effectively carried on ... in a way which permits of a considerable blending of the unlike types of instruction. To attempt this is to defeat the aims both of liberal and of vocational training (Snedden 1977, p. 43).

His point was that school systems already met the training needs of professions, but not for other vocational callings such as carpentry, cooking, farming, etc. Snedden went on to argue that specialised schools would contribute to competent workers, which in turn would result in higher income and, more broadly, a solid societal economy. His proposal was to model vocational education around arrangements for professional education of lawyers and medical doctors, for example. However, even at that early stage, he pondered how experiences in general and liberal education as a basis for vocational schooling would need to be connected. Dewey (1916), on the other hand, argued against a narrow school-based vocational education. The exchange between Snedden and Dewey stimulated advocacy for a shift in the role of schools with its genesis set on liberal education to become *the* place for preparing students for specific vocations and a democratic means for preparing young people for a changing working life (Dewey and Dewey 1915). During the early phase of vocational education, there was little mention of ‘integration’ to connect learning for occupational purposes.

Still, there were a few early local examples of integration between educational institutions and workplaces evident in mainstream national systems for vocational education. In Sweden, for instance, at the turn of the nineteenth century and long before school-based upper secondary vocational education became mainstream, the cotton industry responded to low levels of work literacy in workers trained at the local public schools. The industry went on to establish its own schools for workers. The curriculum in these factory-based schools was designed to develop literacy for the industry (i.e. vocational literacy) as well as work in general (literacy for employability). This local example was not unique in Sweden – similar schools were established for trade (Kristmansson 2016) and technical industries and craft (Larsson 2001).

Later, during post-war reconstruction for economic revival, industrialisation and consequential demands for labour completely altered vocational education policies and practices – albeit with national variations. In the ‘dual-corporate model’ (as in Germany), for example, vocational training is clearly separated from the general education system. In this model, students, as contracted employees, are educated by a company while also attending a public vocational school – supposedly facilitating and enabling integration of what is learnt in the two sites.

These days three main modes of vocational education in practice are common: (1) based primarily in educational institutions (e.g. in Sweden and Finland), (2) based primarily at workplaces (e.g. through apprenticeships as in Germany and Denmark) and (3) a blend of vocational education in colleges and workplaces (e.g. in Switzerland, Austria, Holland and Australia). Each of these is designed to include practice-based learning that need to be connected and integrated. We argue that it is the practices and processes for *integration* that underpin connections between learning in different sites to develop appropriate capacities for work. In the next section we discuss concepts that underpin integration between the two sites.

## Conceptions of Integration

Integration is central to vocational education policies and practices, yet the fundamentals of integrating *students' experiences* easily become neglected when viewed as a theory – practice divide. Similarly, learning is described as formal or informal where learning in educational settings is regarded as formal and that in workplaces as informal (as if it is not worthwhile). Learning in both sites and in in-between spaces outside the work site (Edwards 2017) comprises the curriculum for developing skilled workers – to sustain work-life learning. All the same, it is the theoretical positions and how integration is conceptualised that underpin those constructs that influence ways in which the outcomes are realised.

### *Theoretical Positions*

The origins of studies on integration can be traced back to the seminal work of Jean Piaget and Lev Vygotsky on learning theories. To explain the work-education experiences, Dewey (1938) and Kolb (1984) took this further to develop experiential learning theory. Experiential learning is defined as the ‘process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience’ (Kolb 1984, p. 41). While Kolb’s experiential learning theory continues to be used widely, other theories such as activity theory (Vygotsky 1926; Leont’ev 1978), reciprocal-reflective theory (Schön 1987), workplace learning theories (e.g. Billett 2001a, b), cognitive motivational theory (see Johari and Bradshaw 2008) and impression management theory (see Sung-Chan and Yuen-Tsang 2008) have also been used to understand education-work experiences. Likewise, integration is ordinarily perceived and discussed in terms of learning at educational institutions and workplaces – understood as complementary sites that make distinct types of contributions. Svensson et al. (2004) elaborate the notion of integration as the ‘intellectualisation of work associated with modern, integrated production systems’ (p. 479), implying that not just theoretical knowledge but also intellectual skills are necessary. This implies there is a set of processes that lead to integration. Based on Piaget’s (1985) qualitative typologies of learning (assimilation, accommodation and reflective abstraction), Baartman and de Bruijn (2011) propose three types of integration processes relating to what is demanded of the students during their placement in work sites. The first is *low-road integration* which concentrates on practice towards automation, fluency and making knowledge implicit (*assimilation*). Learning in this case tends to be surface in nature – without necessarily understanding the rationale. New knowledge is connected to existing mental models that are compatible – not in conflict. The focus is on learning the ‘what’ and ‘how’, but in actuality knowing ‘what’ and ‘how’ does not necessarily translate into ‘doing’.

The second process is labelled as *high-road integration* when knowledge and skills are connected through conscious reflection (*accommodation*). Baartman and Bruijn (2011) explain that conscious reflection takes place within the frame of reference of an individual, who internalises societal norms and values and is focused on (implicit) assumptions about how to solve a problem. When time to think is available, processes are more deliberative or analytic, depending on reflection, review of the situation and discussion with others. Here, activities are planned actions which are periodically reviewed and consciously monitored (p. 129).

Of importance here is that reflection extends beyond just in and on action per se. Baartman and Bruijn draw on Gibbs' (1988) six stages of conscious reflection: (1) detailed description of the event that individuals reflect on, (2) feelings and thoughts during the event, (3) evaluation of the event, (4) analysis of the event, (5) conclusion and synthesis and (6) formulation of actions for future events. Coll and Taylor (2008) recommend that these six stages be aligned to formative or summative assessment to ascertain the level of integration. These actions formed the basis for Johnston's (2011) strong recommendation that reflection should be central to all experiential learning.

The third type of integration proposed by Baartman and de Bruijn (2011) is *transformative integration* where 'one's own presuppositions and premises are the object of reflection, opening the possibility for perspective change. Existing mental models are changed and not "just" enriched as in high-road integration' (p. 130). This happens because individual's thinking is challenged, thus causing a disorientation that contradicts their normative thinking. Transformative integration (*reflective abstraction*) requires the individual to withstand and justify his/her current standpoint. So, the theoretical reasonings learnt in school-based curriculum may not apply in the context of problems encountered in the workplace where problems are more complex, dynamic and situation specific, according to Boshuizen (2003). Furthermore, comprehensive sets of new information may also be introduced. The individual goes through a cognitive threshold that leads to transformative integration.

Fuller and Unwin (2004) propose a similar typology, but based on Ellström's (2001) elaboration of Vygotsky's (1926) and Leont'ev's (1978) theories. They articulated it as *restricted* versus *expansive participation* – representing a continuum rather than a dichotomy. These are based on what is dominant in the learning curriculum, the provisions made available for learners and what is expected of learners. Restrictive participation concentrates on routine tasks that may be narrowly scoped in knowledge and restricted to particular locations only. Expansive participation challenges learners' knowing and aims at development of the individual learner and the organisation and hence has potentiation of mutual transformation.

Another concept associated with integration is boundary crossing, proposed by Akkerman and Bakker (2011). They explain that integration takes place when transitioning across boundaries of different sites to negotiate learning in collaboration with teachers, other workers and workplace supervisors. They describe integration as 'finding productive ways of relating intersecting dissimilar practices' (p. 155). This introduces a perspective that is a spiral (not linear) progression involving



transformative conceptualisation and re-conceptualisation that translate into cognitive as well as behavioural changes for development of vocational knowing and becoming. That is, it anticipates behavioural and visible (explicit) as well as cognitive (implicit) outcomes such as new understandings.

One other conceptualisation of integration concerns ‘connectivity’, with a focus on mediating connections between different situations to meet exigencies arising from school-based knowledge and everyday knowledge of the workplace. Here *mediating* is the operative term, described by Guile and Griffith (2001) as ‘the process of mediation that provides learners with a basis for connecting their context-specific learning with ideas or practices which may have originated outside those contexts’ (p. 124). This demands cognitive skills.

The different conceptions informed by a range of theoretical lenses enrich our understandings about integration, but it is the application of appropriate pedagogies that facilitate integration of learning in different sites.

## **Applications: Pedagogies for Integration**

Typically, integration is curriculum-driven and intertwined with social, political and economic interests that enable and sometimes constrain the delivery of vocational education. Cooper and his colleagues (2010) assert that integration needs ‘careful intentional curriculum planning, well-prepared students and authentic, constructive and mutually beneficial alliances’ (p. 6) with stakeholders. They suggest that work-integrated learning has seven dimensions: ‘purpose; context; nature of integration; curriculum issues; the learning; partnerships; and support to students’ (p. 37). A well-designed curriculum aside, it is widely accepted that integration is not organic just because students are immersed in work sites. Billet (2015) argues that providing practice experiences in workplace settings is not sufficient. ‘... there is a need to enrich those experiences through preparation, engagement and opportunities to share and reconcile what has been contributed by these experiences to their overall education programs and objectives’ (p. 17). Furthermore, integration demands sets of complementary pedagogies to supplement and extend learning beyond classroom settings, thereby acknowledging differences in the role and value of knowledge, the intended curriculum and its origin, how the content is disseminated and the level and type of instruction and assessment tasks (Chin et al. 2000). According to Billett and Choy (2014), what is educationally worth is universally aligned to the learning outcomes. These include learning about task performance, gaining awareness and understanding, experiencing personal development, engaging in team work, participating through role performance, acquiring academic knowledge and skills, learning about distinct ways of decision-making, problem solving, making judgements, preparing for the ‘real world’, realising personal achievements and networking at work. While achievement of these outcomes may sound easy and optimistic, not all aspects of work are well defined or explicit or even inherently organised for educationally purposeful learning to meet specified learning outcomes in the formal

curriculum of educational institutions. Ellström (2001) contends that individuals need to ‘define and evaluate the tasks, methods and results’ (p. 423) through two complementary types of learning approaches – adaptive and developmental – to generate reproductive as well as creative learning. He suggests five considerations for integrations:

1. ‘the learning potential of the task;
2. opportunities for feedback, evaluation, and reflection on the outcomes of work actions;
3. the formalisation of work processes;
4. employee participation in handling problems and developing work processes; and
5. learning resources’. (p. 425)

Still, the intentions of integration need to extend beyond imperatives of the accredited curriculum characteristically bound by regulations and compliance. This is because personal epistemologies and agency play a significant role in how much individuals can achieve from integration (Billett and Choy 2014). It is their agency that drives critical and transformative perspectives to learning through integration – to extend beyond just canonical occupational knowledge. So, aside to acquiring the technical, cognitive and relational skills, integration within the sociocultural environment of the workplace insists on students to be contributors and co-constructors of knowledge in the workplace. Higgs (2012) proposed a set of pedagogies for practice-based education for purposes of integration. These are supervised workplace learning, independent workplace learning and experience, simulated workplaces, simulated practice-based learning, distance and flexible practice-based learning, peer learning, independent learning and blended learning.

Billet (2002) suggests different dimensions of workplace pedagogies arising from the kinds of activities in which individuals engage (e.g. daily work practices, questioning, observing and listening), their interactions with other more experienced workers (e.g. coaching, modelling) and reference to documented procedures. These form helpful tools to engage in negotiating, mediating and reconciling existing knowledge, to understand the distinct practice architectures of worksites. It involves conscious efforts to analyse and engage in dialogue and reflection to transform declarative knowledge acquired in educational institutions into functional knowledge (Biggs 1999) that can be translated into productive work outcomes. So, it is not enough to know the substantive disciplinary and functional knowledge, rather to know it in terms of pedagogic activities to be able to appropriately integrate knowledge in different settings and situations (Shulman 1986). Because particular tasks have specific meanings in different practice contexts, it is important that the process of integration or connecting the workplace curriculum is made explicit, is aligned with the educational institution curriculum and is appropriately designed to be realised through specific workplace pedagogies. Essentially, a curriculum necessitates appropriate arrangements for integration. Tennant (2000) contends that a different set of skills are essential for integration of learning in the workplace. That is, individuals need to be able to analyse organisational cultures

and particular work tasks – some well-defined and others indeterminate. Students need to function with incomplete information at times or seek assistance from others. This means that they need skills to compose multiple courses of action and justify the most appropriate action, often within short timelines. Furthermore, they need to recognise and access a range of learning opportunities and resources – these too may be contested. These skills enable the individuals to appropriately ‘situate’ themselves in the sociocultural context of the work site because neither the modes nor opportunities for learning are neatly organised as in educational institutions. Yet, through their agency individuals can engage in intentional and unintentional integration to develop occupational capacities.

How well students integrate learning at educational sites with that in the workplace is influenced and shaped by what Kemmis et al. (2012) describe as practice ‘architectures’. Moreover, integration requires technical, cognitive and relational skills, albeit needing teacherly acts to enrich the learning experiences. The arrangements that make up the practice architectures are complex and sometimes unpredictable; therefore integration cannot be left to a simple process of organic fusion. It requires deliberate cognitive and psychosocial processes, appropriate sequencing of content and assistive pedagogical arrangements as well as a range of opportune arrangements for productive learning. As such it is pertinent to clarify what is expected of students, what these expectations look like in real work contexts and the types of competencies and capacities that are to be developed during work-integrated learning. Cooper et al. (2010) report that ‘In workplaces, the critical challenge for students is to notice what is important in a complex context and to make choices regarding interpretation, intervention and justification that comply with workplace culture and tacit procedural rules’ (p. 77). This means individuals also need to understand what is valued for and by work (as in by employer) and what is valued at a personal level. Value of learning has long been promoted through Kolb’s (1984) theory of experiential learning which promoted meaningful learning experiences that contribute to productivity at work. Billett and Choy (2014) quote Dewey (1933/1989) to argue that ‘it is action (not theory) that is the starting point for learning because individuals engage and interact with the elements within the work environment to construct meanings, perform tasks, make assertions, solve problems and cooperate with others – all within the rules, values, attitudes and expectations of the contexts of the workplace’ (p. 493). Hence personal epistemologies should be a priority when considering learning experiences to facilitate integration.

We now summarise some of the more common arrangements that present opportunities for integration. We commence with Groenewald, Drysdale, Chiupka and Johnston’s (2011) contextualised taxonomy of work-integrated learning that suggests four main categories of practices. These are ‘Required professional practice (e.g. apprenticeship, internship, professional practicum, cooperative education); Community/service (e.g. Service learning, cooperative education, community-based learning); Field and industry based learning (e.g. Intercalated, sandwich, cooperative education); and Other opportunities (e.g. Teaching/assistantships, work study, work exchanges, research assistantship, select leadership and peer programs)’ (Groenewald et al. 2011, p. 19). The case examples in Section II of this book focus

more on the required professional practice aspect of work-integrated learning. Professional practice requirements are to be met by students to complete their qualifications – making integration specifically intentional.

When referring to work-integrated learning, terms such as collaboration, coordination and cooperation are often used interchangeably (Persaud 2017). *Collaboration* implies a formal and long-term relationship. It involves comprehensive planning, with well-defined communication processes aimed at a common goal. *Coordination* is a formal relationship to achieve missions of mutual interest. *Cooperation* is characterised by informal relationships to achieve co-constructed outcomes to be achieved through agreed processes. *Apprenticeship training* exemplifies both, coordination and collaboration for dual outcomes, that is, vocational qualification for apprentices and productivity in the workplace (Stenström and Virolainen 2014). *Practicums* are common in professional fields such as teaching and medicine. Experiential learning here involves an extended period of attachment in a particular work site to engage in unpaid work activities and learn the vocation. The arrangement here is sometimes described as a *placement*. This normally follows a period of theoretical training in classrooms but may also be concurrent with practice-based learning where a student is rotated between different sections of a particular workplace. Experienced professionals in the work sites supervise students who are expected to develop skills and competencies in defined areas of the curriculum. For certain vocations, practicums are a compulsory element of the curriculum and a requirement for graduation, as well as to gain professional membership. *Internships* have similar arrangements as for practicums but are normally scheduled at the end of the programme – as in legal studies. It can be paid or unpaid engagement. *Fieldwork* includes short periods of engagement in work settings for students to gain experience by observing and engaging in peripheral activities. Students are not paid for fieldwork.

A more popular arrangement for vocational education is the *apprenticeship* – an indentured arrangement where the employer supports an apprentice’s training for the duration of an agreed contract. The apprentice in turn agrees to follow instructions and attend training on the job as well as off the job. Apprentices are generally paid an agreed nominal rate for their work. Similar to an apprenticeship is the *traineeship* arrangement. The main difference lies in the level of commitment by the employer and the trainee. Normally trainees are not paid, but in some countries (e.g. Sweden) trainees receive a nominal rate of pay. Similar in nature to apprenticeship and traineeship, a *cadetship* includes a contract of employment with paid award wage; however, there is no training contract. Another type of arrangement that presents opportunities for integration is *community-based learning* and *service learning*. These involve students engaged in learning projects designed to respond to a particular problem. Students learn as they explore a problem, find solutions and implement change. The project is undertaken in collaboration with a team from the host enterprise and is supervised by teachers. Students are not paid for their services.

These are examples of common arrangements, albeit with national variations in terminologies, types of contracts, duration of learning periods in the workplace,

arrangements and payment to learners. Because each of these arrangements has slightly different orientations, intentions, durations and sequencing, there are variations in the purposes and levels of integration that transpires.

The notion of integration can also be traced to three main units of analysis: individual, context and cultural and historical. Where the focus is on the individual, the main interest relates to how students transfer knowledge between different sites. That is, integration is seen as an individual mental process. An extended unit of analysis includes the context – the practice an individual engages in for learning. This comprises the work task assignments, tools and distinct situated communication. A broader unit of analysis pertains to cultural and historical aspects. [For further elaboration on early categorisations of the unit of analysis, see, e.g., Nardi (1996) or Engeström and Miettinen (1999).] While there is some consensus about the goals of integration (i.e. development of vocational expertise), Billett (2015) proposes three conceptualisations that offer a more comprehensive view of integration – which bridges between the individual and the social. These are (1) *situated view* of the contributions made by the two sites and how these may be amalgamated, (2) *personal constructivist* view arising from engagement and reconciliation and (3) *socio-personal* view intimating that personal and situational factors as well as relationships influence the nature and quality of connections. A point of departure is that each site makes distinct types of contributions to students' learning in complementary ways, and these benefit the students, the employing organisations and society as a whole.

## Summary

In this chapter, we have discussed developments of integration between school and work, its conceptions and applications. The historical accounts show that integration of learning in schools and workplaces has evolved as a result of emerging societal and industrial pressures and subsequently gained importance in vocational preparation of a skilled workforce. There are variations in how integration is interpreted and practiced in different nations. Given a rather loose framing of the concept, there is likely some slippage in how integration is practised and the subsequent outcomes. On the whole integration is the intentional and effortful 'ecologising' of vocational knowledge, skills and dispositions, to become workers who can appropriately recreate or innovate practices that characterise work in different contexts and settings. We use the term 'ecologise' to symbolise connectivity within the social cultural contexts of practices in different learning/work settings – fittingly – such that knowledge and knowing are jointly interpreted, neatly intact and valued by the culture of the site. In this way workers achieve a 'common sense of mutuality' (Edwards 2017, p. 2). The degree of integration is circumscribed by the idiosyncrasies of particular vocational practices. This makes integration purpose driven – therefore intentional – because students are required to complete defined sets of learning goals. It is effortful in that affordances are made available, specific

arrangements are put in place, and the process is driven by agencies of learners and others who support their earning in the two sites. Integration results in the enmeshment of vocational knowledge and appropriation of skills and dispositions for particular occupations. Hence there is a definite rationale for integration. It involves valuing and utilising students' experiences from within as well as external to the formal curriculum (Boud 2012). The learner is therefore expected to learn and develop 'scientific eyes' to be able to correctly 'read the landscape', know how concepts are used and refashioned and then act accordingly and appropriately – as do experts or other workers in the site. These bases for integration call for different aspects of recontextualisations. Evans and Guile (2012) propose four that underpin integration: (1) content recontextualisation, putting knowledge to work in the programme design [curriculum]; (2) pedagogic recontextualisation, putting knowledge to work in the teaching and facilitating environment; (3) workplace recontextualisation, putting knowledge to work in the workplace environment; and (4) learner recontextualisation, what learners make of these processes (p. 117). Their notion of recontextualisation transcends knowledge from the curriculum, into pedagogic processes for engagement and enactment of what is to be learnt.

The chapters in Section II of this book provide accounts of current arrangements and practices. The authors present theoretically sound models that offer opportunities for rich learning. Some authors use theoretical perspectives that focus mainly on the individual learners, whereas others use a broader unit of analysis which include social and situated conditions that determine what is made available to the individuals for learning. Both contribute to different understandings about integration, giving a more comprehensive view of a complex and emerging phenomenon.

What has been presented in this book synthesises and adds to a growing body of research and understandings about integration. We see this as forming the foundations for more empirical research to further illuminate this complex phenomenon of integration.

## References

- Akkerman, S. F., & Bakker, A. (2011). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning*, 5, 153–173. <https://doi.org/10.1007/s12186-011-9073-6>.
- Baartman, L. K. J., & de Bruijn, E. (2011). Integrating knowledge, skills and attitudes: Conceptualising learning processes towards vocational competence. *Educational Research Review*, 6, 125–134.
- Bartkus, K., & Higgs, J. (2011). Research in cooperative and work-integrated education. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative & work-integrated education* (2nd ed., pp. 73–84). Boston: World Association for Cooperative Education.
- Benavot, A. (1983). The rise and decline of vocational education. *Sociology of Education*, 56(2), 63–76.
- Biggs, J. (1999). *Teaching for quality learning at university*. Buckingham: Society for Research into Higher Education and Open University Press.
- Billett, S. (2001a). *Learning in the workplace: Strategies for effective practice*. Crows Nest: Allen & Unwin.

- Billett, S. (2001b). Knowing in practice: Re-conceptualising vocational expertise. *Learning and Instruction, 11*, 431–452.
- Billett, S. (2002). Workplace pedagogical practices: Co-participation and learning. *British Journal of Educational Studies, 50*(4), 457–481.
- Billett, S. (2004). Learning through work. Workplace participatory practices. In H. I. Rainbird, A. Fuller, & A. Munroe (Eds.), *Workplace learning in context* (pp. 109–125). London: Routledge.
- Billett, S. (2006). Constituting the workplace curriculum. *Journal of Curriculum Studies, 38*(1), 31–48.
- Billett, S. (2009). Realising the educational worth of integrating work experiences in higher education. *Studies in Higher Education, 34*(7), 827–843.
- Billett, S. (2015). *Integrating practice-based experiences into higher education*. Dordrecht: Springer.
- Billett, S., & Choy, S. (2014). Integrating professional learning experiences across university and practice settings. In S. Billett, C. Harteis, & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 485–512). Dordrecht: Springer.
- Billett, S., Henderson, A., Choy, S., Dymock, D., Beven, F., Kelly, A., James, I., Lewis, J., & Smith, R. (2013). *Refining models and approaches in continuing education and training*. Adelaide: National Centre for Vocational Education Research.
- Boshuizen, H. P. A. (2003). *Expertise development: The transition between school and work*. Heerlen: Open Universiteit Nederland.
- Boud, D. (2012). Problematising practice-based education. In Higgs, Barnett, Billett, Hutchings, & Franziska (Eds.), *Practice-based education. Perspectives and strategies* (pp. 55–68). Rotterdam: Sense Publishers.
- Cedefop. (2009). *The shift to learning outcomes: Policies and practices in Europe* (Cedefop reference series; 72). Luxembourg: Office for Official Publications of the European Communities.
- Chin, P., Munby, H., & Hutchinson, N. (2000). Workplace learning from a curriculum perspective. In C. Symes (Ed.), *Working knowledge: Conference proceedings*. Sydney: The University of Technology.
- Coll, R. K., & Taylor, N. (2008). Science education in context: an overview and some observations. In R. K. Coll & N. Taylor (Eds.), *Science education in context: An international examination of the influence of context on science curricula development and implementation* (pp. ix–xiv). Rotterdam: Sense Publications.
- Coll, R. K., & Zegwaard, K. E. (2001). The integration of knowledge in cooperative and work-integrated education programs. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative & work-integrated education* (2nd ed., pp. 297–304). Boston: World Association for Cooperative Education.
- Collin, K. (2006). Connecting work and learning: Design engineers' learning at work. *Journal of Workplace Learning, 18*(7/8), 403–413.
- Cooper, L., Orrell, J., & Bowden, M. (2010). *Work integrated learning. A guide to effective practice*. London: Routledge.
- Cort, P. (2010). Stating the obvious: The European qualifications framework is not a neutral evidence-based policy tool. *European Educational Research Journal, 9*(3), 304–316.
- Dewey, J. (1916). *Democracy and education*. New York: The Free Press.
- Dewey, J. (1938). *Experience and education*. New York: Macmillan.
- Dewey, J., & Dewey, E. (1915/2015). *Schools of to-morrow*. Retrieved March 2017 <http://www.gutenberg.org/ebooks/48906#>
- Edwards, A. (2017). Revealing relational work. In Edwards (Ed.), *Working relationally in and across practices. A cultural-historical approach to collaboration* (pp. 1–21). New York: Cambridge University Press.
- Ellström, P. (2001). Integrating learning and work: Problems and prospects. *Human Resource Development Quarterly, Winter, 12*(4), 421–435.

- Engeström, Y., & Miettinen, R. (1999). Introduction. In Y. Engeström, R. Miettinen, & R. L. Punamäki (Eds.), *Perspectives on Activity Theory* (pp. 1–16). Cambridge: Cambridge University Press.
- Eraut, M. (2004). Transfer of learning between education and workplace settings. In A. F. Rainbird & H. Munro (Eds.), *Workplace learning in context* (pp. 201–221). London: Routledge.
- Evans, K., & Guile, D. (2012). Putting different forms of knowledge to work in practice. In Higgs, Barnett, Billett, Hutchings, & Franziska (Eds.), *Practice-based education. Perspectives and strategies* (pp. 113–130). Rotterdam: Sense Publishers.
- Fuller, A., & Unwin, L. (2004). Expansive learning at work: Integrating organisational and personal development. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 126–144). London: Routledge.
- Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods*. Oxford: Further Education Unit, Oxford Polytechnic.
- Groenewald, T., Drysdale, M., Chiupka, C., & Johnston, N. (2011). Towards a definition and models of practice for cooperative and work-integrated education. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative & work-integrated education* (2nd ed., pp. 17–24). Boston: World Association for Cooperative Education.
- Guile, D., & Griffith, T. (2001). Learning through work experience. *Journal of Education and Work*, 14(1), 113–131.
- Higgs, J. (2012). Practice-based education pedagogy: Situated, capability-development, relationship practice(s). In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede (Eds.), *Practice-based education: Perspectives and strategies* (pp. 71–80). Rotterdam: Sense.
- Jensen, K., Nerland, M., & Enqvist-Jensen, C. (2015). *Higher Education*, 70, 867. <https://doi.org/10.1007/s10734-015-9872-z>.
- Johari, A., & Bradshaw, A. (2008). Project-based learning in an internship program: A qualitative study of related roles and their motivational attributes. *Educational Technology Research & Development*, 56(3), 329–359.
- Johnston, N. (2011). Curriculum and curricular orientations in cooperative and work-integrated education. In R. K. Coll & Zegwaard (Eds.), *International handbook for cooperative & work-integrated education* (2nd ed., pp. 305–311). Boston: World Association for Cooperative Education.
- Kemmis, S., Edwards-Groves, C., Wilkinson, J., & Hardy, I. (2012). Ecologies of practices. In P. Hager, A. Lee, & A. Reich (Eds.), *Practice, learning and change: Practice-theory perspectives on professional learning* (pp. 33–49). Dordrecht: Springer.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: Prentice Hall.
- Kristmansson, P. (2016). *Gymnasial lärlingsutbildning på Handels- och administrationsprogrammet: en studie av lärlingsutbildningens förutsättningar och utvecklingen av yrkeskunnande*. [Upper secondary apprenticeship education in the business and administration programme – A study of preconditions of upper secondary apprenticeship education and development of professional skills]. Umeå: Umeå universitet.
- Labaree, D. F. (2010). How Dewey lost: The victory of David Snedden and social efficiency in the reform of American education. In D. Tröhler, T. Schlag, & F. Osterwalder (Eds.), *Pragmatism and modernities* (pp. 163–188). Leiden: Sense Publishers.
- Larsson. (2001). *Industri- och hantverksutbildning under två sekel. Årsböcker i svensk undervisningshistoria* [Education for industry and craft during two centuries], 194. Uppsala: Föreningen för svensk undervisningshistoria.
- Lawn, M. (2011). Standardizing the European education policy space. *European Educational Research Journal*, 10(2), 259–272.
- Leont'ev, A. N. (1978). *Activity, consciousness and personality*. Englewood Cliffs: Prentice-Hall.
- Onstenk, J., & Blokhuis, F. (2007). Apprenticeship in the Netherlands: Connecting school- and work-based learning. *Education + Training*, 49(6), 489–499. <https://doi.org/10.1108/00400910710819136>.



- Persaud, A. (2017). Integrated planning for education and development. *European Journal of Education*, 52(4), 448–459.
- Piaget, J. (1985). *The equilibration of cognitive structures: The central problem of intellectual development*. Chicago: University of Chicago Press.
- Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco: Jossey-Bass.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14.
- Snedden, D. (1977). Fundamental Distinctions between Liberal and Vocational Education. *Curriculum Inquiry*, 7(1), 41–52. Original published in 1914.
- Stenström, M. -L., & Virolainen, M. (2014). The current state and challenges of vocational education and training in Finland. Roskilde: Nord-VET, Roskilde University. Retrieved from <http://www.voiced.edu.au/content/ngv%3A66853>
- Sung-Chan, P., & Yuen-Tsang, A. (2008). Bridging the theory-practice gap in social work education: A reflection on action research in China. *Social Work Education*, 27(1), 51–69.
- Svensson, L., Ellström, P., & Åberg, C. (2004). Integration formal and informal learning at work. *The Journal of Workplace Learning*, 16(8), 479–491.
- Taylor, F. W. (1911/1998). *The principles of scientific management*. Mineola/New York: Dover Publications.
- Tennant, M. (2000). Learning to work, working to learning: Theories of situational education. In C. Symes & J. McIntyre (Eds.), *Working knowledge: The new vocationalism and higher education*. Ballmoor: The Society for Research into Higher Education.
- Virtanen, A., Tynjälä, P., & Collin. (2009). Characteristics of workplace learning among Finnish vocational students. *Vocations and Learning*, 2(3), 153–175.
- Vygotsky, L. S. (1926/1997). Chap. 10. Psychological understanding of occupational education. In *Educational psychology*. Boca Raton: St. Lucie Press. (Original published in Russian 1926).
- Wood, S. (1988). From Fordism to flexibility? The case of the U.S. car industry. In R. Hyman & W. Streeck (Eds.), *Trade unions technology and industrial democracy* (pp. 101–127). Oxford: Basil Blackwell.

## Chapter 2

# Student Readiness and the Integration of Experiences in Practice and Education Settings



Stephen Billett

**Abstract** The ability of vocational education students to effectively utilise and integrate experiences in education and work settings is premised upon their readiness to engage with and reconcile those experiences. Consequently, preparing students to engage in workplace experiences (placements or practicums) and providing interventions after those experiences are likely to make these learning processes more effective. Proposed and discussed in this chapter is how the educational worth of integrating experiences in and across these two settings can be promoted through teacherly interventions before and after students' experiences in work settings. Central here is students' readiness to engage effectively in these experiences and interventions. That readiness comprises what the students know, can do and value that together mediate how they make sense of what they experience and then integrate those experiences in ways that will achieve robust (adaptable) learning. The explanatory basis advanced here is to understand and appraise the readiness comprising their zone of potential development. This zone is informed by Vygotskian precepts that acknowledge that the potential scope of individuals' learning is mediated by what they know, can do and value. Within that zone, vocational education students can largely mediate their own learning. However, taking students beyond that zone necessitates their engagement with others and guidance in promoting their learning (i.e. zone of proximal development) and in ways that are productively aligned with the kinds of educational outcomes to be achieved. For vocational education programmes, these outcomes are usually associated with students learning the knowledge required for occupations, including the ability to adapt it to the requirements of workplaces where students secure employment upon graduation. Consequently, both the students' individually mediated learning in the zone of potential development and that being provided by teacherly engagements (i.e. proximal development) might be directed towards those educational goals.

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**Keywords** Readiness · Integration of experiences · Zone of potential development · Zone of proximal development · Apprenticeships · Vocational education students · Apprenticeship as a model of education

## **Student Readiness and Integrating Experiences Across Practice and Education Settings**

In many countries, there have been long-standing traditions of providing students in vocational education programmes with experiences in workplace settings, provision which has served well the development of occupational capacities in those countries (Deissinger 2000; Greinert 2005). In recent times, this practice has become more widely adopted and focussed on providing and integrating those experiences into their educational programmes. In countries such as Sweden, the provision of school-based apprenticeships has come to include workplace experiences (Berglund and Loeb 2013), as have programmes in Denmark and Norway. However, whether referring to countries and vocational education systems that already provide these experiences or those now enacting them, it is understood that just organising and allocating students to work placements are not sufficient. Instead, it is important to utilise these experiences for the kinds of specific educational purposes they are well placed to achieve (Billett 2011). These purposes include assisting young people to come to experience their preferred occupation in practise, understand something about the variations of its enactment and develop the kinds of capacities required for the occupation through to gaining the mandated periods of work experience required for occupational certification (Billett 2015a). Regardless of the particular purpose, the provision and augmentation of these experiences extend to a consideration of how students can come to engage most productively in them.

The ability of vocational education students to utilise and integrate experiences in workplace and educational settings, however, is premised upon their readiness to engage with and reconcile those experiences. Consequently, preparing students to engage in workplace experiences and also intervening after those experiences are likely to be helpful in effectively utilising those experiences. Proposed and discussed here are ways in which the educational worth of integrating experiences in these two settings can be promoted through interventions before and after students' work experiences. Central to this is students' readiness to engage effectively with these experiences and reconcile them in ways that are directed towards the occupational knowledge they need to learn. That readiness comprises dimensions of what the students know, can do and value that together mediate how they make sense of what they experience and effectively integrate those experiences in and across both settings to achieve those educational outcomes.

The explanatory basis advanced here to understand that readiness is these students' zone of potential development. That basis can be used to organise and evaluate the kinds of experiences provided for students and to make judgements about

how teacherly interventions might be directed and enacted both prior to and after workplace experiences to promote their learning through these experiences. The concept of the zone of potential development draws upon Vygotskian precepts acknowledging that the potential scope of individuals' learning is mediated by what they already know, can do and value. Within that zone, students can guide their own learning (Pea 2004; Wertsch and Tulviste 1992), albeit in activities and interactions in educational institutions and workplaces. However, taking students beyond that zone necessitates engagement with others and guidance that can promote learning (i.e. zone of proximal development) (Wertsch and Tulviste 1992) and in ways that are aligned to secure the kinds of educational outcomes to be achieved. Within vocational education programmes, these outcomes are usually associated with students learning the knowledge required for occupations and applying and adapting it to the requirements of workplaces where they have secured employment. Consequently, both students' individually mediated learning in the zone of potential development and that being provided by teacherly engagements (i.e. zone of proximal development) will be required to achieve these educational goals.

In making its case, this chapter progresses as follows. Firstly, the concept of learner readiness is discussed as elaborating the role of both personally and socially mediated contributions to student learning of knowledge required for work. Following this, consideration is given to the concept of integration; consistent with these ideas of both personal and interpersonal mediation of knowledge, integration is seen here as being a socio-personal construct, that is, one requiring a consideration of both the experiences provided and also how individuals come to engage with them. Then, some suggestions are advanced about how students might be prepared for their work experiences and then come to be engaged after those experiences and as directed towards achieving the intended goals of the educational programme through both personal and socially mediated contributions.

## **Learner Readiness**

Readiness comprises what individuals currently know, can do and value (Billett 2015b). It is this readiness that shapes their ability to engage productively in activities and interactions, such as in work and education, and mediates what they learn from those experiences. Hence, vocational education students' existing kinds and levels of knowledge of what they need to learn about their occupations provide an approximation of what they can learn from what they experience through activities and interactions in workplace or educational settings. It is this knowledge that they bring to circumstances in which they experience both new and familiar events and interactions. Valsiner (2000) refers to the cognitive experience: how individuals come to experience that makes sense of what is experienced. For instance, without appropriate readiness, what might be intended as an explanation to assist understanding something they have not encountered before can lead to misunderstandings and/or confusion. Equally, without the required level of procedural knowledge

to carry out workplace tasks, students might find themselves unable to engage effectively in, and learn from, workplace activities. Moreover, without appropriate dispositions or values, inappropriate actions or interactions might occur, as students may simply lack an understanding of what is appropriate in a work context. It follows, therefore, that learners' readiness is important for engagement in and learning through the activities and interactions that comprise intentional educational experiences as well as through their work placements.

The concept of learner readiness has a well-established place within accounts of human learning and development. Within Piagetian theories of child development (Piaget 1976), it is proposed that children's cognitive abilities are premised upon a level of readiness associated with their particular developmental stages which is founded on and constrained by their biological maturity. These stages commence from those in which thinking and acting rely upon sensory processes alone, through to an ability to utilise what individuals are experiencing, and then engaging with and cleverly manipulating abstract concepts independent of having access to concrete instances as points of referral. In this account of readiness, cognitive abilities and the capacities to learn are predicated on children's stage of biological development that determines what they experience and what and how they learn from these experiences. Hence, presenting a child with a problem or having expectations of them performing a task beyond their stage of cognitive development (i.e. readiness) will be unhelpful for their learning and unrealistic for task completion.

This account of readiness has led to questions about whether, and in what ways, the scope of individuals' learning and development is constrained by maturation or whether engagements in social interactions and socially derived activities can promote learning and development in ways not constrained by biological maturation. For instance, drawing on the work of Leontyev (1981), Vygotskian-inspired socio-cultural constructivist accounts (Chaiklin and Lave 1993; Werstch 1981/1992) propose the kinds of activities and interactions individuals engage in shapes their learning and development. That is, rather than being premised on maturation or individuals' capacities alone, their readiness to learn is mediated by the kinds of activities in which they engage and from what they have learnt, as has been afforded by the social world. Hence, this conception of readiness is premised on the learning that has been derived from earlier or premediate experiences and from which individuals have developed capacities that subsequently mediate how and what they experience (Valsiner 2000).

Adopting the emphasis on this approach here because of its pertinence for late adolescents and adults who engage in vocational education, readiness, therefore, refers to individuals' abilities to engage with and learn effectively from what they have experienced. So, rather than being premised on maturation, the readiness comprising what adults know, can do and value shapes the scope of their learning potential (Valsiner 2000). This scope is an important concept for understanding the processes of learning within vocational education and for considerations of how students' learning is shaped by their existing knowledge and what they experience and how they experience it, which is mediated by their readiness. Also, whereas Piaget's developmental theories emphasised cognitive development, conceptual, procedural

and dispositional readiness are all important for learning occupational practices, including how individuals elect to engage with what they experience. So, the considerations of readiness here are more based around learning processes and individuals' mediation of those processes (i.e. experiences and experiencing).

## **Dimensions of Readiness: Conceptual, Procedural and Dispositional**

The knowledge individuals require to perform occupational activities can be categorised in terms of what they know (i.e. conceptual – factual, propositional) (Groen and Patel 1988), can do (i.e. procedural – capacities to achieve goals) (Sun et al. 2001) and value (i.e. dispositions, interests) (Perkins et al. 1993) associated with their selected occupations and what is practised in particular workplaces. This categorisation of knowledge supersedes earlier accounts and, most notably, those derived from Bloom's taxonomy of cognitive, psychomotor and affective categories of knowledge. Findings from two decades of research within cognitive psychology about human performance of goal-directed activities, such as paid work, have led to the categorisation of procedural capacities (i.e. how goals are achieved) to include cognitive processes such as planning, selecting and monitoring of activities (Glaser 1989) as well as physical actions. Moreover, just as it is important to acknowledge the non-observable aspects of procedural capacities that shape and direct thinking and acting (Ryle 1949), the elaboration of attitudes to include the values, interests and beliefs that motivate and guide those actions as dispositions (Perkins et al. 1993; Tobias 1994) also assisted the shift away from Bloom's taxonomy as a means for considering the requirements for work and how these might be learnt.

Not the least here, is that having clear categories of knowledge can be used to identify the kinds of experiences required for occupations (Lum 2003). For instance, the development of procedural capacities (i.e. skilfulness) arises from engaging in repeated episodes of practice, through which specific procedures are first approximated by learners from having observed them being performed or imagining them being performed and, progressively, generating increasingly mature approximations of the modelled or observed performance (Gott 1989). This development arises through practice, monitoring, refinements and honing that can also develop strategic procedures permitting the management of groups or sequences of activities (Gallese and Lakoff 2005). Similarly, conceptual development arises through engaging in diverse episodes of practice that assist learners to build causal links and associations amongst concepts (Vosniadou et al. 2002), which are central to problem-solving and advancing tasks most effectively (Groen and Patel 1988). Dispositions are likely to be shaped by individuals' prior experiences, observing others and making judgements about the worthiness of concepts and practices and how these can be reconciled with what they experience (Billett 1997; Perkins et al. 1993). It is these forms of knowledge pertaining to a particular occupation that are

attempted to be captured, represented as occupational standards and used to inform programmes that prepare individuals for those occupations.

However, although these three forms of knowledge are characterised and defined separately, when individuals engage in work activities, they are deployed interdependently. How workers value or view (i.e. their dispositions) particular ideas or practices (i.e. conceptual knowledge) shape how they respond to those particular tasks (i.e. procedural approach). Whether following safety protocols for lifting patients in an aged care facility is seen by care workers as an essential element of effective practice or as a workplace compliance requirement will likely shape the thoroughness of how those protocols are initially learnt and applied in the privacy of workers' practice. So, these three kinds of occupational domain-specific knowledge (related to the occupation) and the readiness they provide can be considered separately, but in fact are enacted interdependently, and hence the importance of engaging in authentic activities that engage and require the deployment of these three forms of knowledge interdependently.

Beyond canonical requirements of the occupation per se, readiness is also needed to respond to the manifestation of occupational practice as encountered in particular work situations where it is being utilised. The knowledge required to perform a particular occupational practice (e.g. aged care, hairdressing, building, etc.) is thereby also shaped by variations in the requirements of the particular practice (Billett 2001), such as how aged care is practised in facilities with different kinds and levels of care and in different kinds of residence. The point is that work performance and, therefore, readiness to engage, perform and learn, is based on situational factors, not just the possession of occupational specific knowledge.

In summary, the readiness associated with vocational education students' learning through activities is premised on their prior learnings. A consideration of conceptual, procedural and dispositional readiness is helpful for organising educationally appropriate and well-aligned experiences that are informed by and conducive to learners' readiness and scope for developing further these capacities. All of this emphasises that a principal consideration for educational provisions and their enactment is being aware of and responsive to students' readiness and what might need to be done to promote a level of readiness aligned with required learning. When considering how this ongoing learning and development might best progress, it is helpful to consider both the zone of their potential development as well as their proximal development.

The zone of potential development (Valsiner and van der Veer 2000) is the scope of individuals' learning that can arise based on their readiness and efforts alone, that is, the scope and depth of what they know, can do and value and the degree by which this can be used to mediate the kinds of learning they are required to undertake. Rather than this being a fixed zone, it is claimed that individuals' interests, agency and intentionality are what extends the potential scope of the learning beyond the restrictions of what they currently know, can do and value (Valsiner 2000). So, a combination of what they have learnt and experienced previously and their energies and interests shape individuals' zone of their potential development. However, existing knowledge and discovery efforts alone may be insufficient for learning

knowledge that is sourced in the social world and requires particular experiences for its development. Beyond the zone of potential development, therefore, learners will likely require assistance, guidance or input from others – the zone of proximal development (Cole 1985) – to extend the scope of their learning that they could not achieve independently. So, when discovery alone is insufficient for effective personally mediated learning, it is necessary to engage with and secure understandings, procedures and values that have arisen through the social world. Yet, even here, to be effective, others' assistance (e.g. teaching) should be aligned with learners' readiness. These factors are important when considering how vocational education students come to mediate experiences in both educational and work settings.

## **Integrating Vocational Students' Work Experiences**

The provision of vocational education students' learning experiences in work settings, as noted above, has well-served societal and personal needs for developing occupational skills and capacities over time (Deissinger 1997). There are also the now well-established provisions of these experiences in a range of forms of occupational preparation, perhaps most noteworthy in contemporary models of apprenticeship particularly those of the kind which are enacted in countries such as Germany, Switzerland, Austria, Norway and New Zealand and Australia. In these models, the apprentices are employees who alternate between having experiences in places of work and in vocational education institutions (Deissinger 1997). Moreover, the range of these arrangements is now being extended as countries such as Denmark, Norway (Nyen and Tønder 2015) and Sweden establish apprenticeship as models of education in which the apprentices are students who spend time in work settings (Berglund and Loeb 2013). With the provision of workplace experiences as elements of vocational education programmes becoming more widely adopted, the intentional integration of the two set of experiences becomes an important consideration (Deissinger 2000). Given the efforts and resources associated with providing these experiences, and for clear educational purposes, it becomes necessary to understand how the two sets of experiences can be integrated to promote the kinds of educational goals that those experiences are being directed to be learnt (Billett 2015a). Before progressing with a discussion about how these integrations might best be engaged with by students and promoted through educational practices, it is helpful to be clear about what constitutes such integrations.

### ***Constituting Integration***

There are diverse explanatory accounts of what constitutes the integration of experiences and how they might be best realised within vocational education programmes (Eames and Coll 2010; Tynjälä 2008). Such are the differences in emphases within



such accounts that it is difficult to identify the most appropriate curriculum considerations and teaching practices that should be enacted to secure the integration required for achieving particular educational purposes (Grollman and Tutschner 2006; Stenström et al. 2006). Here, it is proposed that accounts of what constitutes integration of experiences and learning across both settings arise from two distinct perspectives that need to be reconciled. Existing conceptions and theories of learning provide helpful insights and explanatory bases about what constitutes the integration of experiences across educational and practice settings. Well-used concepts such as “transfer” and “adaptability” provide some bases to explain the process of integration from a cognitive perspective, when it is seen as taking knowledge from one situation and applying it to another. Yet, this kind of transfer is often used to refer to novel experiences and held to occur infrequently given its demanding and problematic nature (Stevenson 1991). Indeed, the perceived lack of transfer of learning from experiences in educational institutions is one justification for providing practice-based learning experiences in educational programmes (Organisation for Economic Co-operation and Development 2010; Raizen 1989).

However, the process of integrating educational experiences arising from the two diverse physical and social settings is probably not best conceptualised as transfer, given the implications of transferring something from one place to another, as Lave (1991) critiqued. Instead, it is more closely associated with students’ learning arising from their negotiating and reconciling what they have experienced across two distinct kinds of physical and social settings (Billett 2013). These negotiations and reconciliations necessitate accounting for contributions to learning arising from engaging in distinct kinds of activities and interactions afforded in each setting and also how students are able to participate in and reconcile them.

A starting point for conceptualising the integration of learning experiences in vocational education is the premise that learning arises through students’ experiencing (Gardner 2004; Valsiner 2000). That experiencing leads to changes in what individuals know, can do and value (i.e. learning). Interactions between students and the social and physical world that they encounter and engage with (vocational college or school) lead to continual learning through moment-by-moment learning or micro-genesis. These experiences are constituted by what is suggested to students by the social world (Wertsch and Tulviste 1992), and how they come to construe those experiences, engage with and change as a result of that experiencing (Billett 2008). That learning can comprise the verification, reinforcement, refinement or further honing of what the students or apprentices already know, can do or believe, or it could lead to new understandings, capacities and values. This learning arises continually through students’ conscious engagement with the world beyond them through moment-by-moment learning that is familiar or routine for them (Lee and Roth 2005). Alternatively, by degree, these micro-genetic changes can comprise new understandings, beliefs and ways of doing things through engagement in experiences that are novel to individuals. In particular, these novel experiences can extend their knowledge in particular ways and through specific kinds of experiences that would not have occurred without those experiences and how they engaged in them in person-particular ways (Billett 2003).

So, vocational education students' experiencing and learning co-occur. In this conception of learning through experience, what is often referred to as transfer or adaptability arises both through what constitutes for individuals' routine experiences comprising "near" transfer (adapting what is known to something similar to what is known) and with nonroutine experiences comprising "far" transfer (adapting what is known to something which is quite dissimilar from what is known) (Voss 1987). All of these processes, albeit labelled "learning", "transfer", "adaptability" or "integration", have common qualities of students experiencing something, aligning and reconciling what has been experienced earlier (i.e. what they know) and with a legacy of change in their knowledge and ways of knowing (Billett 2013). These concepts are most commonly aligned to the human cognitive processes of perceiving, acting and introspection (Barsalou 2008). Importantly, such experiences and learning (i.e. experiencing) are shaped by the kinds of experiences students or apprentices have (Billett 2009) and how they engage in the processes of experiencing and learning, as shaped by the legacies of earlier or premediate experiences (Valsiner 2000). What for one vocational education student or apprentice will be a novel experience is a routine experience for another. For the former, the legacy can be the generation of new insights or capacities, whereas for the latter, it will be a reinforcement or refinement of what they already know.

Hence, the reconciliation of what is experienced in the two physical and social settings is shaped by the students or apprentices' ways of knowing and cognitive experience, albeit in person-dependent ways and dialogically (Akkerman and Bakker 2011; Matte and Cooren 2015; Smith and Billett 2006). Thus, across any cohort of students or apprentices, the linking of experiences in educational and practice settings is likely to be quite personally distinct. For instance, it is likely that vocational education students whose programmes are wholly based within educational institutions will have quite different levels of occupational readiness than apprentices who spend the majority of their time in workplaces engaged in authentic occupational activities. How each of these cohorts come to reconcile what they experience and learn in both settings is likely to be premised upon their distinct kinds of experiences. For instance, in Australia, apprentices spend 84% of their indenture in their workplaces and only 16% in educational settings. Consequently, across these two cohorts, there will likely be significant differences in their occupational readiness. Yet, even then, there will probably be variation within these cohorts dependent upon their apprenticeship experiences. Some apprentices will have very specific and specialised occupational activities, whereas others will engage more broadly in occupational activities. For instance, some motor mechanic apprentices might have worked in major dealerships doing scheduled maintenance on vehicles of one or two manufacturers, which are also fairly new vehicles. Other apprentices might have worked in garages that have an entire range of vehicles to be serviced and repaired, and the extent of that work goes well beyond routine servicing. Then, of the full-time student cohorts, there will be a range of different experiences that will have furnished greater or lesser understandings of their selected occupation and world of work.

It follows, therefore, that an explanatory account of what constitutes integrations needs to account for (a) the diversity of experiences afforded to students in different kinds of work or practice settings and educational programmes and (b) the person-dependent ways in which they construct what was experienced in and across these settings. Hence it is important to view the integration of experiences as comprising a duality (i.e. a set of relations between two entities) across both personal and social contributions. Importantly, to realise the educational worth of these two sets of experiences and reconciliation requires educational interventions to be enacted. Based on the findings of a national study into the integration of experiences with an Australian tertiary education, consideration is given in the following sections to how the integration of these experiences can be promoted within vocational education.

## **Promoting the Integration of Experiences: Learning and Remaking Occupational Practice**

The case made across this chapter is to emphasise the importance of learner readiness and active processes of students integrating their experiences in both educational and workplace settings. All of this suggests that educational interventions prior to vocational education students' engaging in work placements are important. Then, once they have completed those experiences, interventions to assist their integration into these students' nascent occupational understandings, procedures and values will also be valuable. To predict how best to promote integration of these experiences within vocational education, it is helpful to draw upon the findings of a large national study within tertiary education which intentionally sought to understand how best to integrate students' workplace experiences into their courses (Billett 2015a). Drawing on the findings of that project, consideration is given to what has been learnt about providing experiences before students participate in work placements and then after they have completed those placements, that is, pre- and post-placements. The salience of these educational interventions became evident in the findings and feedback from students' participation in programmes across 20 projects in a range of tertiary education programmes preparing them for employment in distinct occupations.

From the earlier considerations about readiness and integration and how these might be seen in terms of the zone of potential development and the zone of proximal development, in the following sections, consideration is given to (a) how to promote vocational education students' readiness to engage effectively in work placements prior to engaging in them and (b) using teacherly engagements to extend the scope of their learning through their placement experiences.

### ***Promoting Readiness: Before Students Engage in Work Placements***

Promoting vocational education students' readiness to engage effectively in and learn through work placements can potentially be realised through educational interventions prior to students having those placements. The evidence suggests that the mere provision of experiences in workplaces is insufficient as students may well struggle to engage effectively and optimise their learning through workplace experiences (Billett 2015a). The findings from the teaching project indicated that particular pedagogic practices, in different ways, could support students' readiness for effective engagement. In overview, these pedagogic practices are as follows.

Prior to their work placements, it is helpful to:

- Establish bases for experiences in practice settings, including developing or identifying capacities in practice settings (i.e. practice-based curriculum and interactions)
- Clarify expectations about purposes, support, responsibilities and so on (i.e. goals for learning)
- Inform about purposes, roles and expectations of different parties (e.g. advance organisers)
- Prepare students as agentic learners (i.e. develop their personal epistemologies) – including the importance of observations, interactions and activities through which they learn
- Develop the procedural capacities required for practice
- Prepare students for contestations (e.g. when being advised to forget everything learnt at university).

Processes supporting students to understand and rehearse occupational skills prior to engaging in work placements were reported as being valued by students. These experiences assisted raising awareness of the need to have both procedural and conceptual capacities to engage effectively in these placements. Some assistance with understanding the requirements for performance, particularly when they are unaware of or new to these requirements, were perceived by students to be very helpful. Procedural preparation (i.e. having the capacity to undertake occupational tasks) was also highly valued, when this preparation was directed at preparing them for practice requirements, for instance. Many students, perhaps not surprisingly, reported lacking confidence to engage effectively in work placements, and efforts to prepare them adequately for those experiences were welcomed. Some students mentioned that being judged on their ability to perform successfully in work settings was the source of considerable anxiety because the expectations were unknown, as was their ability to fulfil those expectations upon which they would be judged in ways quite different from the assessments within educational institutions.

Therefore, preparation that promotes understanding the occupational practice and the ability to perform aspects of that practice (i.e. specific procedural knowledge) is clearly welcomed when it has identified applicability to students' upcoming practice, as is evident in studies of nurse preparation (Benner 2004; Henderson et al. 2006). Other capacities may also need development before students engage in work placements. To build or support students' confidence, it may be necessary to support their procedural capacities to be effective, productive and competent in their workplace experiences. The demands and time pressure of practice settings were a concern for students who, amongst other things, wanted to appear competent in practice settings. Therefore, issues of confidence and productivity are likely to be important for vocational education students to engage effectively in such environments, and strategies to assist their readiness to practice will likely be engaged with enthusiastically by students facing such challenges.

It may also be necessary for students to be aware of the boundaries of what is reasonable and unreasonable for them to do in workplaces. This is of growing importance given the increasing numbers of students engaging in work placements across a greater number of workplaces, many of which have had little experience of such arrangements or effective supervision. Whereas, in those sectors with traditions of student engagement in workplaces, such as apprenticeships, there are probably clear guidelines about the extent of the tasks and levels of discretion and responsibilities afforded to students. That is, they can be tightly regulated. Yet, even in those circumstances, students could find themselves engaged in tasks which are beyond their level of competence (i.e. zone of potential development). Moreover, given the diversity of students' backgrounds and prior experiences of work and occupational practice prior to engaging in their work placements, simple assumptions about the readiness of a cohort of students (i.e. what first year students can be reasonably expected to do) may be erroneous. Conversely, students may be overly confident or hasty and avoid engaging in effective preparatory activities. Without such understandings, it may be more difficult for them to achieve the intended outcomes from their workplace experience and effectively manage themselves and their relationships in their host organisations.

Another kind of readiness that may be required of students in their work placements is to manage conflicting and confronting experiences they might encounter. Workplaces are often personally and professionally contested environments (Anker 2001; Baumgartner and Siefried 2014; Kincheloe 1995) and are often far from benign and welcoming environments for learners, primarily because the key focus of activities and interactions is upon production and service goals, and supporting students may be seen as an unwelcome distraction. Hence, students may encounter experiences that can be confronting and unpleasant, including direct contestations. These kinds of events cannot be anticipated and, in most instances, factors that lead to negative experiences are out of the control of those who teach in vocational education institutions. Therefore, prior to students engaging in work placements, it may be useful for them to be introduced to scenarios so they have bases for addressing belligerence, individuals being dismissive, or being treated inappropriately. Moreover, it is important that students are ready to make informed judgements

about whether what they are experiencing is helpful or whether they should carefully evaluate what they have been taught in both vocational education institutions and workplaces (Richards et al. 2013). Being prepared with concepts and strategies to address these situations can have longer term as well as short-term benefits. Previously, learning circles were used for social welfare students (Cartmel 2011) to prepare them for these kinds of contestations that can occur in that sector. In these interventions, the students met and discussed these matters before their placements and then took the opportunity to reflect on any such experiences as part of a supportive group during their period of practicum experiences.

Consequently, preparing students for such environments and experiences prior to their work experiences can be helpful. Firstly, some workplaces can be difficult to engage with and may not always have appropriate expertise, let alone capacity, to support productive experiences. Hence, students may need to be prepared to be active and enquiring and to identify how they should best engage in workplace activities and interactions. They will have to rely on their zone of potential development (Valsiner 2000), which may or may not be appropriate. The latter was evident in one project in which students from a public relations course were working with volunteers in not-for-profit organisations who had little understanding of public relations or how it might be used appropriately for their agencies. So, not only was there no expert guidance to support that learning, but the students lacked the skills to be effective in those placements, including working in teams.

Secondly, there can be conflicting demands or requirements between those of the workplace and vocational education institution, as was found when business students engaged in workplace-based projects. That is, the particular course requirements were not always well aligned to the kinds of activities in which the students were invited to participate in workplaces. In these circumstances, students may require applicable strategies, including being forewarned that such events might occur. This can be followed by engaging with them to consider the best ways of addressing and dealing with these issues, including how to respond appropriately.

Thirdly, students might be advised about how their experiencing of the work environment, including contestations, may play out in quite individual or personal ways. What is a productive and worthwhile work experience for one student may be quite unhelpful, confronting or even counterproductive for another, depending upon issues such as race, class, gender or ethnicity. Hence, how students make sense of and learn through these experiences will be shaped by their goals and purposes, as well as what they know, can do and value. All of this suggests that particular pedagogic practices may be required in different ways to support students and may even be redundant for some students, whilst essential for others. Other strategies suggested in the projects include using role plays, which was the case in the teacher education programme, and the use of explicit strategies to make links between what students have already learnt and the requirements for their work setting.

A related consideration for the exercise of pedagogic practices is how best to effectively engage “time-jealous” students to maximise their practice-based experiences. Across the projects in this study, it was found that, in many instances, students greatly valued their time, guarded it jealously, and only wanted to engage in

experiences that were immediately relevant to their current or forthcoming activities, including assessments. Therefore, identifying ways for students to see these experiences as being valuable and worthy of their time and effort is likely to be important for their engagement with them. From one subproject which encountered high levels of resistance by students, the following set of considerations was advanced for engaging these students more effectively in the prework placement preparation:

- Providing opportunities for students who have completed placements to talk to and advise students who have not
- Making the sessions interactive
- Using electronic means to provide the course content
- Having more opportunities for discussion
- Providing notes and materials that students could refer to later
- Explaining more clearly the purposes of the sessions and their practical applications

When implemented in ways that meet students' needs in terms of readiness to engage effectively in work placements, particular pedagogic practices can be helpful. Noteworthy here is that much of the feedback emphasises that the quality of these experiences goes beyond providing students with information, although this is most welcome when students want to know it, such as the requirements for their practice experiences. Instead, the students emphasised having the opportunity to discuss and consider various scenarios that may affect the quality of their learning experiences and how these are aligned with their educational goals. Moreover, experiences at this point in the process provide bases for shared and collaborative activities during and after experiences in practice settings.

In conclusion, promoting vocational education students' readiness for participation in work placements may well be augmented by engaging with students to:

- Orientate them to the requirements for effectively engaging in the workplace
- Establish bases for experiences in practice settings, including developing or identifying capacities required for practice settings (i.e. practice-based curriculum, interactions)
- Clarify expectations about purposes of, support in and responsibilities of parties in, practice settings (i.e. goals for learning, how to engage)
- Inform about purposes, roles and expectations of different parties (e.g. advance organisers)
- Inform about and prepare students to engage as agentic learners (i.e. develop their personal epistemologies), including the importance of their observations, engagement in the workplace interactions and activities through which they will learn
- Develop the procedural capacities required to be effective with tasks in the practice setting
- Prepare them for contestations that might arise in the practice setting (e.g. being advised to forget everything learnt at university) (Billett 2015a)

### ***Integrating Students' Experiences: Post-placement Interventions***

The evidence from the national teaching project indicated that, once students had engaged in work experiences, they were able to draw upon and utilise these experiences in productive ways (Billett 2015a). Having had these experiences, they could engage with peers and teachers to contrast and compare, critique and expand their understandings in ways that simply could not have occurred before they had those experiences. So, potentially, post-placement interventions appeared to offer a particularly pedagogically potent experience to support student learning, in particular about students' employability within their selected occupation. In a very recent survey of students about the purposes and processes of post-practicum interventions (Billett et al. 2016), there was a strong preference for these interventions to be guided by a teacher or workplace supervisor, as students wanted the appraisal of their experiences and discussions about them with other students to be moderated or mediated by a more expert partner and, in particular, to be provided with pertinent feedback about the performance and how this relates to their potential employability. From the initial project, it was found that the following were likely to be helpful to enrich students learning.

After practice-based experiences, it is helpful to:

- Facilitate the sharing and drawing out of experiences (articulating and comparing commonalities and distinctiveness, e.g. canonical and situational requirements for practice)
- Explicitly make links to what is taught (learnt) in the academy and what is experienced in practice settings
- Emphasise the agentic and selective qualities of learning through practice (i.e. personal epistemologies)
- Generate critical perspectives on work and learning processes in students (Billett 2015a)

Consequently, more than providing work placements and preparing students to participate in them, there is both the need for and the opportunity to enrich and augment these experiences after their completion. This augmentation includes finding ways of assisting students to understand, reconcile and engage in processes that variously reinforce, hone, extend or reshape what they have experienced and learnt through those experiences (Bailey et al. 2004). Through post-placement processes, at least four educational purposes can likely be achieved: (a) developing understanding and procedural capacities, (b) identifying what comprises robust knowledge, (c) reconciling students' experiences, and (d) using post-practicum experiences for transformational learning experiences.

First, these post-placement interventions can be used to assess the development of understanding and procedural capacities (Bailey et al. 2004). This is achieved through making explicit links between students' experiences and the learning and development that has arisen through them including their ability to extend what they have learnt to other circumstances. This purpose requires a reconciliation of



students' experiences and an explicit focus on their broader application, such as the canonical knowledge required to practise their preferred occupation across a range of work settings. Added here is the understanding that whilst there are canonical concepts and practices, what works in one situation may be quite ineffective in another. So, having understandings about what practices are broadly applicable, and variations of those practices and how they are aligned with different kinds of workplace needs, may be very important for students, particularly in seeking smooth transitions to work after graduation.

Secondly, identifying what comprises robust occupational knowledge is important. To enrich this kind of learning, the sharing of experiences and use of processes that seek to identify what is both common and distinct about what the students have experienced can help develop the students' robust (i.e. broadly adaptable) occupational knowledge. This point is particularly salient as coming to share and understand how the occupational practice is enacted across a range of settings from other students provides a strong basis for adaptability. That is, coming to understand that there are different ways of working, achieving particular purposes, and a range of factors that shape decision-making and responses that are often shaped by a set of situated or local factors (Goldman 2003; Greeno 1989) is important. These kinds of understandings and procedural variations are particularly helpful when students graduate and secure employment, because they provide access to a range of understandings, practices and values that might be relevant to their particular employment situations. Hence, if students' expectations and understandings about the occupational practice are based only on their direct experience, they will be more limited than when premised on accessing a wider range of instances of practice and others' perspectives of those experiences (Brown and Palinscar 1989). Therefore, engaging effectively with other students' experiences brings the potential of enriching what the students know, can do and value, in ways that are essentially not able to be achieved through their own experiences. Hence, both for effective educational purposes and also to optimise students' experiences in practice settings, it is important that their experiences be shared, compared and analysed in an active way. Most likely, it will be guided processes of learning that can best realise this effectively and direct those processes in student outcomes towards what is intended to be achieved in their courses (Rogoff 1995).

Thirdly, in reconciling their experiences, students likely will have had different kinds and qualities of experience in the workplace settings. Therefore, the opportunity for the sharing of experiences is helpful for vocational education students to reconcile in productive ways the problems they faced. From engaging with others whose experiences were different, they can come to understand more about the complexity of work and workplace requirements and what kind of experiences can arise. For instance, in one project, students had very different kinds of experiences in the same workplace, which led some to question their own competence. However, through sharing of experiences, it was found that there were workplace factors associated with gender that shaped the distribution of activities and interactions in which the students were invited to participate. Consequently, having means by which students can share and critically appraise their experiences and outcomes and then link

them to their educational programme can be very potent interventions (Cartmel 2011; Newton 2011). All of this is important educationally and is unlikely to be achieved unless particular kinds of interventions are organised so that students have the opportunity to come together, share and appraise in ways which are productive, and not unhelpfully confronting.

Fourthly, these post-placement interventions can be used for transformational learning, that is, as a means to engage students explicitly in appraising, extending and transforming what they currently know and in productive ways. In particular, these interventions can manage this process in ways which are productive rather than paralysing or potentially negative. Productive outcomes were evident in some projects where the students' experiences were personally or professionally confronting. Importantly, in these instances there was much that was student initiated. Yet, it was teacher-led processes that allowed important aspects of the occupational practice to be appraised and discussed, and understandings about it enriched and in ways which were productive and managed to avoid potentially negative outcomes and unhelpfully confronting experiences. It seems that to effectively align students' experiences, both collectively and individually, with the intended outcomes of their vocational education courses, some kind of intervention by teachers who have a clear understanding about what they are trying to achieve is both optimum and likely to be a useful investment of the teachers' and students' time.

Therefore, post-practicum interventions such as post-placement student forums, feedback sessions, learning circles or discussion groups can be used to share experiences and assist vocational education students' benefit from their experiences and those of others. This includes those experiences that might otherwise be seen as negative. Certainly, across a range of the projects, post-practicum initiated and engaged processes emerged as being effective, welcomed and desirable by students and also their teachers. At one level, they enabled students to locate their experiences and learning into a broader context of learning about the occupation. They also offered a means to explicitly connect the kinds of experiences students were having with what was being learnt through classroom- and text-based elements of their programmes. On another and practical level, these interventions enabled students to learn something about that particular placement that they had not been able to experience personally. Requiring students to deliberate on their experiences, and to detail them in a written form or articulate them to others, can provide students with an experience through which a richer understanding of their selected occupation could be obtained. As noted, these experiences also provided a platform to engage, yet also to manage, the extent of transformative learning that arose, which probably would not have otherwise occurred. Discussion groups were also shown to be an effective way of connecting the diversity of experiences a student had encountered.

These kinds of interventions and engagements also acknowledge the person-dependent nature of learning and that the sharing of those personal perspectives and developments can lead to greater shared understanding (i.e. intersubjectivity) across and within a student cohort. As workplace experiences are of different kinds and lead to person-distinct kinds of learning, it is important to have the opportunity to

share these experiences so that other students can benefit from the experiences of peers and promote commonly applicable understandings, as well as procedures that are well directed and values that are aligned with those required for the effective exercise of the students' targeted occupation. As students' personal backgrounds and histories are so different and may be quite remote from the circumstances in which they have practised, their need to reconcile experiences and their processes of doing so might be quite person dependent for them to become educationally worthwhile. The variability of experience is enhanced by the duality that comprises such experiencing. On the one hand, there are different kinds of experiences provided for students across placements; on the other hand, how students construe and engage in what is provided occurs in different ways, as was identified in the projects in the teaching grant.

Without guidance and facilitation of more experienced partners (teachers, workplace supervisors, more experienced students), different and personally distinct understandings may arise from these experiences which could be counterproductive. Concerns about the development of what constitutes, for instance, canonical occupational knowledge and what students are needing to know, do and value to secure that knowledge likely need some teacherly interventions, as they might not be resolved through discovery alone. More than being just about individual perspectives, those interventions can be about assisting learners with different strengths, capacities and prior experiences (Billett and Ovens 2007). For instance, low-achieving vocational education students may be disadvantaged (e.g. denied access to, and not effectively engaging in, practice-based experiences which were reserved for high-performing students). Although second best, in situations where there is restricted access to particular kinds of work experiences providing opportunities for these experiences to be made available, albeit vicariously to other students, can potentially be enriching.

In sum, having teacherly interventions that permit students to share, compare and contrast their experiences is important educationally. Being selective about the kinds of activities required to maximise these processes and their outcomes is likely to be helpful in assisting students move smoothly into practice and exercise the kinds of capacities required to sustain their work and learning in their selected occupational practice.

## **Student Readiness and the Integration of Experiences in Practice and Education Settings**

In conclusion, it has been advanced here that the ability of vocational education students to effectively utilise and integrate experiences in education and work settings is educationally worthwhile and important for their employability. That ability is premised upon their readiness to engage with and reconcile those experiences. It follows that preparing students to engage in workplace experiences and providing

teacher-led interventions can optimise and augment those experiences. Central here is students' readiness to engage effectively in these experiences and interventions, premised on what they know, can do and value. These together mediate how they make sense of what they experience and then integrate those experiences to achieve effective learning outcomes. An explanatory basis advanced here is to understand and appraise that readiness as comprising their zone of potential development. That is, the potential scope of their learning is mediated by what they know, can do and value. Within that zone, vocational education students can largely mediate their own learning. However, taking students beyond that zone necessitates their engagement with others and guidance in promoting their learning (i.e. zone of proximal development) and in ways that are productively aligned with the kinds of educational outcomes to be achieved. Often for vocational education programmes, these outcomes are usually associated with students learning the knowledge required for occupations, including the ability to adapt it to the requirements of workplaces where students secure employment upon graduation. Consequently, both the students individually mediated learning in the zone of potential development and that being provided by teacherly engagements (i.e. proximal development) might be directed towards those educational goals. So, the students' potential for learning within and across these two settings can also be mediated by the actions and contributions of vocational educators.

## References

- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169.
- Anker, R. (2001). Theories of occupational segregation by sex: An overview. In M. F. Loutfi (Ed.), *Women, gender and work* (pp. 129–155). Geneva: International Labour Organisation.
- Bailey, T. R., Hughes, K. L., & Moore, D. T. (2004). *Working knowledge: Work-based learning and educational reform*. New York: Routledge/Falmer.
- Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology, 59*, 617–645.
- Baumgartner, A., & Siefried, J. (2014). Error climate and the individual dealing with errors in the workplace. In C. Harteis, A. Rausch, & J. Seifried (Eds.), *Discourses of professional learning: On the boundary between learning and work* (pp. 95–111). Dordrecht: Springer.
- Benner, P. (2004). Using the Dreyfus model of skill acquisition to describe and interpret skill acquisition and clinical judgment in nursing practice and education. *Bulletin of Science, Technology & Society, 24*(3), 188–199.
- Berglund, I., & Loeb, I. H. (2013). The renaissance or a backward step: Disparities and tensions in two new Swedish pathways in VET. *International Journal of Training and Research, 11*(2), 135–149. <https://doi.org/10.5172/ijtr.2013.11.2.135>.
- Billett, S. (1997). Dispositions, vocational knowledge and development: Sources and consequences. *Australian and New Zealand Journal of Vocational Education Research, 5*(1), 1–26.
- Billett, S. (2001). Knowing in practice: Re-conceptualising vocational expertise. *Learning and Instruction, 11*(6), 431–452.
- Billett, S. (2003). Sociogeneses, activity and ontogeny. *Culture and Psychology, 9*(2), 133–169.
- Billett, S. (2008). Learning throughout working life: A relational interdependence between social and individual agency. *British Journal of Education Studies, 55*(1), 39–58.

- Billett, S. (2009). Conceptualising learning experiences: Contributions and mediations of the social, personal and brute. *Mind, Culture and Activity*, 16(1), 32–47.
- Billett, S. (2011). *Vocational education: Purposes, traditions and prospects*. Dordrecht: Springer.
- Billett, S. (2013). Recasting transfer as a socio-personal process of adaptable learning. *Educational Research Review*, 8, 5–13.
- Billett, S. (2015a). *Integrating practice-based experiences into higher education*. Dordrecht: Springer.
- Billett, S. (2015b). Readiness and learning in healthcare education. *Clinical Teacher*, 12, 1–6.
- Billett, S., & Ovens, C. (2007). Learning about work, working life and post school options: Guiding students' reflecting on paid part-time work. *Journal of Education and Work*, 20(2), 75–90.
- Billett, S., Cain, M., & Le, L. (2016). Augmenting higher education students' work experiences: preferred purposes and processes. *Studies in Higher Education*, 1–16.
- Brown, A. L., & Palinscar, A. M. (1989). Guided, cooperative learning and individual knowledge acquisition. In L. B. Resnick (Ed.), *Knowing, learning and instruction: Essays in honour of Robert Glaser* (pp. 393–451). Hillsdale: Erlbaum & Associates.
- Cartmel, J. (2011). A considered curriculum for preparing human service practitioners: Structuring circles of learning and change. In S. Billett & A. Henderson (Eds.), *Developing learning professionals: Integrating experiences in university and practice settings* (pp. 101–118). Dordrecht: Springer.
- Chaiklin, S., & Lave, J. (Eds.). (1993). *Understanding practice: Perspectives on activity and context*. Cambridge: Cambridge University Press.
- Cole, M. (1985). The zone of proximal development where culture and cognition create each other. In J. V. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives* (pp. 146–161). Cambridge: Cambridge University Press.
- Deissinger, T. (1997). The German dual system – A model for Europe? *Education and Training*, 39(8), 297–302.
- Deissinger, T. (2000). The German 'philosophy' of linking academic and work-based learning in higher education: The case for vocational academies. *Journal of Vocational Education and Training*, 52(4), 605–625.
- Eames, C., & Coll, R. (2010). Cooperative education: Integrating classroom and workplace learning. In S. Billett (Ed.), *Learning through practice* (pp. 180–196). Dordrecht: Springer.
- Gallese, V., & Lakoff, G. (2005). The brain's concepts: The role of the sensory-motor system in conceptual knowledge. *Cognitive Neuropsychology*, 22(3–4), 455–479.
- Gardner, H. (2004). What we do & don't know about learning. *Daedalus*, 133(1), 5–12.
- Glaser, R. (1989). Expertise and learning: How do we think about instructional processes now that we have discovered knowledge structures? In D. Klahr & K. Kotovsky (Eds.), *Complex information processing: The impact of Herbert A. Simon* (pp. 289–317). Hillsdale: Erlbaum & Associates.
- Goldman, S. R. (2003). Learning in complex domains: When and why do multiple representations help? *Learning and Instruction*, 13, 239–244.
- Gott, S. (1989). Apprenticeship instruction for real-world tasks: The co-ordination of procedures, mental models, and strategies. *Review of Research in Education*, 15, 97–169.
- Greeno, J. G. (1989). Situations, mental models, and generative knowledge. In D. Klahr & K. Kotovsky (Eds.), *Complex information processing: The impact of Herbert A. Simon* (pp. 285–318). Hillsdale: Erlbaum & Associates.
- Greiner, W. D. (2005). *Vocational education and training in Europe: Classical models of the 19th-century and training in England, France and Germany during the first half of the 20th*. Luxembourg: Office for Official Publications of the European Communities.
- Groen, G. J., & Patel, P. (1988). The relationship between comprehension and reasoning in medical expertise. In M. T. H. Chi, R. Glaser, & R. Farr (Eds.), *The nature of expertise* (pp. 287–310). New York: Erlbaum.

- Grollman, P., & Tutschner, R. (2006). *Possible intended and unintended effects of European VET policies – The case of integrating work and learning*. Paper presented at the European Research Network in Vocational Education and Training Symposium, Geneva.
- Henderson, A., Twentyman, M., Heel, A., & Lloyd, B. (2006). Students' perception of the psychosocial clinical learning environment: An evaluation of placement models. *Nurse Education Today*, 26(7), 564–571.
- Kincheloe, J. L. (1995). *Toil and trouble: Good work, smart workers and the integration of academic and vocational education*. New York: Peter Lang.
- Lave, J. (1991). Situating learning in communities of practice. In L. B. Resnick, J. M. Levine, & S. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 63–82). Washington: American Psychological Association.
- Lee, Y. J., & Roth, W.-M. (2005). The (unlikely) trajectory of learning in a salmon hatchery. *Journal of Workplace Learning*, 17, 243–254.
- Leontyev, A. N. (1981). *Problems of the development of the mind*. Moscow: Progress Publishers.
- Lum, G. (2003). Towards a richer conception of vocational preparation. *Journal of Philosophy of Education*, 37(1), 1–15.
- Matte, F., & Cooren, F. (2015). Learning as dialogue: An 'on-the-go' approach to dealing with organizational tensions. In L. Filliettaz & S. Billett (Eds.), *Francophone perspectives of learning through work: Conceptions, traditions and practices* (pp. 169–187). Dordrecht: Springer.
- Newton, J. (2011). Reflective learning groups for students nurses. In S. Billett & A. Henderson (Eds.), *Developing learning professionals: Integrating experiences in university and practice settings* (pp. 119–130). Dordrecht: Springer.
- Nyen, T., & Tønder, A. H. (2015). Cooperation and reform in vocational education and training. In I. F. Engelstad & A. Hagelund (Eds.), *Cooperation and conflict the Nordic way* (pp. 201–218). Berlin: De Gruyter Open.
- Organisation for Economic Co-operation and Development. (2010). *Learning for jobs*. Paris: OECD.
- Pea, R. D. (2004). The social and technological dimensions of scaffolding and related theoretical concepts for learning, education and human activity. *The Journal of Learning Sciences*, 13(3), 423–451.
- Perkins, D., Jay, E., & Tishman, S. (1993). Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly*, 39(1), 1–21.
- Piaget, J. (1976). *Behaviour and evolution* (D. N. Smith, Trans.). New York: Pantheon Books.
- Raizen, S. A. (1989). *Reforming education for work: A cognitive science perspective*. Retrieved from Berkeley CA.
- Richards, J., Sweet, L., & Billett, S. (2013). Preparing medical students as agentic learners through enhancing student engagement in clinical education. *Asia-Pacific Journal of Cooperative Education*, 14(4), 251–263.
- Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, apprenticeship. In J. W. Wertsch, A. Alvarez, & P. del Rio (Eds.), *Sociocultural studies of mind* (pp. 139–164). Cambridge: Cambridge University Press.
- Ryle, G. (1949). *The concept of mind*. London: Hutchinson University Library.
- Smith, R., & Billett, S. (2006). Interdependencies at work: Constituting reflection, performance, dialogue and reward. *Journal of Adult and Continuing Education*, 12(2), 156–169.
- Stenström, M.-L., Grollman, P., Tutschner, R., Tynjälä, P., Nikkanen, P., & Loogma, K. (2006). *Integration of work and learning: Policies, strategies and practices*. Paper presented at the European Research Network in Vocational Education and Training Symposium, Geneva.
- Stevenson, J. C. (1991). Cognitive structures for the teaching of adaptability in vocational education. In G. Evans (Ed.), *Learning and teaching cognitive skills* (pp. 144–163). Hawthorn: ACER.
- Sun, R., Merrill, E., & Peterson, T. (2001). From implicit skills to explicit knowledge: A bottom-up model of skill development. *Cognitive Science*, 25, 203–244.

- Tobias, S. (1994). Interest, prior knowledge, and learning. *Review of Educational Research*, 64(1), 37–54.
- Tynjälä, P. (2008). Perspectives into learning in the workplace. *Education Research Review*, 3(2), 130–154.
- Valsiner, J. (2000). *Culture and human development*. London: Sage.
- Valsiner, J., & van der Veer, R. (2000). *The social mind: The construction of an idea*. Cambridge: Cambridge University Press.
- Vosniadou, S., Ioannides, C., Dimitrakopoulou, A., & Papademetriou, E. (2002). Designing learning environments to promote conceptual change in science. *Learning and Instruction*, 11(4–5), 381–419.
- Voss, J. F. (1987). Learning and transfer in subject matter learning: A problem-solving model. *International Journal of Educational Research*, 11(6), 607–622.
- Werstch, J. V. (Ed.). (1981/1992). *Concept of activity in Soviet psychology*. Ann Arbor: University Microfilms International.
- Wertsch, J., & Tulviste, P. (1992). L. S. Vygotsky and contemporary developmental psychology. *Developmental Psychology*, 28(4), 548–557.

# Chapter 3

## Work Experience and VET: Insights from the *Connective Typology* and the *Recontextualisation Model*



David Guile

**Abstract** The chapter compares two models of work experience – *connective typology of work experience* and *recontextualisation of knowledge model* – and uses the term work experience to refer to the way that young people enrolled in both school- and apprenticeship-based VET learn to relate their experience of education as represented by the acquisition of domain knowledge and their experience of work as represented by occupational values, skill and knowledge to one another. The common link between the two models is that they accept the existence of a *mediated* relationship between education and work. The former explores this relationship from a *boundary-crossing* perspective, focusing on learners’ movement between education and work, and identifies the outcomes associated with different models of work experience. The latter focuses on the interplay between the *manifestation* of knowledge in the contexts of education and work and learners’ *movement* within and between both contexts. It differs from the connective typology, because it takes account of the mediated nature of the contexts of education and work as well as the process of learning through work experience. The chapter concludes by using the concept of recontextualisation to highlight how digital and mobile technologies could serve as resources to facilitate learning through work experience in school- and apprenticeship-based VET.

**Keywords** Connectivity · Learner · Knowledge · Mediation · Recontextualisation · Work experience

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## Introduction

The aim of this chapter is to compare two models of work experience and, in the process, identify their implications for the design and delivery of vocational education and training (VET). The account of the first – the *connective typology of work experience* – is based on previously published work which was co-written with Toni Griffiths. This typology, which is based on the application of Weber's concept of ideal types to work experience, was constructed to (a) illustrate the way in which the assumptions made by educational institutions, employers and policymakers about the purpose of work experience influenced the design of each stage, phase and outcome of different models contained within the typology and (b) assist all parties involved with the planning and delivery of work experience to appreciate the significance of their role in facilitating learners to make connections between each of the different phases and stages. The term work experience was used in the typology to refer to the way that young people enrolled on both school- and apprenticeship-based VET learnt to relate their experience of education as represented by the acquisition of domain knowledge and their experience of work as represented by occupational values, skill and knowledge, to one another. It was acknowledged at the time however that the literature on apprenticeship tended to use the word 'work' rather than work experience when describing apprentices' learning in the workplace. However, to provide a consistent lexicon in the typology, the term work experience was used to refer to both school- and apprenticeship-based VET learners' experiences of the workplace. This lexicon has been maintained across the chapter to offer continuity with other contributors to this edited volume, though, the chapter explores in its conclusion why it is important to differentiate between work experience and work placement.

The second model – the *recontextualisation of knowledge model* – which is based on my recent work, is influenced by the Cultural-Historical Activity Theoretical argument presented in my book *The Learning Challenge of the Knowledge Economy* (Guile 2010) that all cultural tools, in this case, forms of knowledge, are influenced by the purpose to which the tools serve. The model offers a way therefore to consider the following issues. They are: (1) how forms of knowledge change as they are moved from their original context (discipline or workplace, etc.) to become a part of curricula in educational institutions or occupational practice in workplaces, and (2) workers' and learners' engagement with curricula and occupational practice can, in principle, facilitate their integration into either an occupational form of knowing and practice or an awareness of different forms of occupational knowing and practice.

The common link between the two models is therefore that they accept the existence of a *mediated* relationship between education and work. The connective typology of work experience explores this relationship from a *boundary-crossing* perspective; in other words, it focuses on learners' movement between education and work and identifies the outcomes associated with different models of work experience and, in doing so, took the contexts of education and work as a given. In

contrast, the recontextualisation model focuses on the interplay between the *manifestation* of knowledge in the contexts of education and work as well as learners' *movement* within and between both contexts. In doing so, it takes explicit account of the mediated nature of the contexts of education and work as well as the process of learning through work experience compared with the connective typology.

The chapter begins by firstly outlining the way in which the 'knowledge' (OECD 1996) and 'learning' (Sfard 1998) debates in research and policy from the late 1980s and early 1990s influenced the formulation of the connective typology of work experience, before describing the way in which the five models of work experience contained within the typology offer learners access to different resources to integrate their experiences of education and work with one another. It then moves on to highlight a number of limitations associated with the typology and showing how the recontextualisation model was formulated to explicitly address those limitations and, in doing so, both retained and advanced the knowledge and learning debates which had been a significant influence on the formulation of the connective typology. Next, the chapter outlines the implications of the recontextualisation model of knowledge for work experience by discussing four different expressions of that process – context, pedagogic, workplace and learner – recontextualisation in relation to school- and apprenticeship-based VET. Finally, the chapter concludes by anticipating the future by using recontextualisation to highlight how digital and mobile technologies could be used as resources to facilitate learning through work experience in school- and apprenticeship-based VET.

## **The Connective Model of Work Experience**

The 1990s was characterised by major debates in research and policy circles worldwide about (1) the new role of knowledge in the economy via the concept of the 'knowledge economy' and (2) the relative merits of 'cognitive' versus 'situative' theories of learning. Both of these debates were, as will be explained below, significant influences on the formulation of the connective typology of work experience.

### ***The Knowledge Economy Debate and Its Implications for Work Experience***

The initial interest in the relationship between economic and technological change and the increased role of knowledge in the economy originated in the sociological debates in the late 1960s and early 1970s about the transition from an industrial to a post-industrial society (Bell 1973; Touraine 1969) and culminated in the mid-1990s with the argument that information (Castells 1996) or knowledge (Stehr 1994) societies had superseded post-industrial societies. The common theme

linking these slightly different interpretations about the continuing pace of economic and technological change was that (1) scientific knowledge was now as central to all aspects of economic production, political regulation and most spheres of social and cultural life and (2) new sources of wealth were based upon the creative capacity of individuals and organisations to use scientific or theoretical knowledge innovatively. Thus, the sociological perspective on the knowledge economy took as axiomatic that codified knowledge had become central to the production of goods and services and was the primary condition for their further expansion as well as for the limits to economic growth.

This argument about the increased role of knowledge in the economy triggered throughout the 1990s a related debate about the contribution of knowledge to innovation. Innovation had traditionally been conceived of as an exogenous process driven by the application of highly abstract and codified forms of scientific knowledge developed outside the workplace (Stehr 1994). A new claim about innovation now surfaced in, amongst other fields, organisational science, centred around the idea that a new economic and organisational imperative had emerged which placed enterprises under increased pressure to use their intangible assets (the knowledge and skills of their workforce) to innovate and create value for shareholders and customers (Nonaka and Takeuchi 1995; Spender and Grant 1996). From this perspective, innovation was both an exogenous and an endogenous process. It can be spurred through the exploitation of knowledge or information available inside enterprises to offer superior value in their traditional businesses and markets (Kim and Mauborgne 1998) as much as through the application of scientific knowledge. As a consequence, the challenge for workplaces from the organisational studies' perspective was to build, combine and integrate the knowledge assets held by workplace communities to assist them to enhance their product and service delivery (Nonaka and Teece 2001).

The idea that all forms of knowledge now represented the primary source of wealth and innovation became in the case of the European Union, famously, coupled with lifelong learning in the European Memorandum on Lifelong Learning, and presented as the rationale for purpose of education and training policies (EU 1999). One response to this development in EU member states and other countries was to strengthen existing initiatives to support the transition of young people from school to work and to enhance their future employability. Two of the most common measures were to encourage schools to increase the opportunities for post-16 students to undertake work experience and to fund new educational programmes which include a work experience component for unemployed or disaffected young people (Griffiths et al. 2001). These initiatives tended, however, to rely on traditional assumptions about the role of work experience facilitating young people's transition to employment, for example, that an *experience* of work was sufficient to prepare learners for employment, rather than explicitly considering the way in which all parties involved in the design and delivery of work experience might have to collaborate to support learners to move between education and work to relate or integrate formal and workplace learning to one another (Guile and Griffiths 2001).

### ***The Theories of Learning Debate and Its Implications for Work Experience***

The origins of, what became known as the ‘cognitive’ versus ‘situative’ (hereafter situated) debate in the learning sciences (see Sfard 1998 for a summary), lay firstly in Jean Lave’s book *Cognition in Practice* (Lave 1988) and secondly her jointly written book with Etienne Wenger (1991). She developed in the former a devastating critique of cognitive psychology for conceiving of (1) the human mind as an attribute of an individual in isolation from the world, (2) the learning as the mastery of abstract representations taught in educational institutions in discipline-based curricula in the form of propositional statements, and (3) the transfer of learning as the application of propositions to practice and in the latter a theory of learning based on the notion of “participation” in the routines and technologies of a “community of practice” via access to “learning curriculum,” in other words, a sequenced and controlled way for less experienced workers – sometimes referred to as novices – to move from undertaking routine to novel tasks in workplaces, as a way to explain the simultaneous development of occupational expertise and identity in workplaces.

Inspired by the publication of *Cognition in Practice* and *Situated Learning*, a number of writers globally began in the 1990s to use the idea of a social theory of learning to analyse the forms of learning that occurred between education and work (see inter alia Ainley and Rainbird 1999; Billett 2001; Evans et al. 2002). One notable development was Beach’s (1999) concept of ‘consequential transition’ (Beach 1999), which he explored empirically through reference to work experience (Beach and Vyas (1998)). The main idea behind Beach’s concept was that it stressed movement in relation to purpose and thus revealed how learners’ knowledge and skill and identity may change as they undertake work experience. Four different types of consequential transitions – lateral, collateral, encompassing and mediational – were identified by Beach. The first and second pair referred to learners moving between sets of activities that are changing slowly compared to the changes that learners’ experience as they move between them, for example, workplaces with well-established routines and learners who are feeling nervous, excited and challenged working in a new environment. The third and fourth pair referred to the rapid rate of change in an activity compared to the change that is required by the individual involved, for example, workplaces introducing new knowledge management practices which are as challenging for existing workers as they are for learners undertaking work experience.

To explain the relationship between movement and purpose in these different types of transition, Beach (1999) distinguished between the type of learning that occurred in education (‘vertical development’) and compared with the type of learning that occurs in workplaces (‘horizontal development’). The former referred to the way in which learners in schools engaged in the hierarchical acquisition of knowledge and skill through the apprehension of sets of concepts of ever greater abstraction or mastering higher levels of technical or craft-based skill. The latter referred to the way in which learners acquired forms of knowledge in curriculum contexts, and

this form of situated knowledge can take a variety of forms: it could be knowledge about how to participate in a community of practice, to change and vary work practices or to connect different fragments of codified knowledge to resolve work problems. It followed therefore from Beach's distinction, though he never pursued this issue, that for young people to benefit from work experience, it was important for them to learn how to relate their vertical and horizontal development and that both schools and workplaces had a pedagogic role in supporting this process.

### *Connective Typology of Work Experience*

To provide fresh thinking about the future design and delivery of work experience, a number of ideas, which had emerged from the debates about the new role of knowledge in the economy and the new social conception of learning, were used to formulate the criteria for a typology of work experience. The criteria were:

- (a) The purpose of work experience (i.e. the reason for providing it)
- (b) The assumptions about learning and development (i.e. the ideas about pedagogy and learning in workplaces)
- (c) The practice of work experience (i.e. the types of practice which facilitate learning through work experience)
- (d) The role of the education and training provider (i.e. the pedagogic strategies employed in vocational education to support students in learning)
- (e) The outcome of the work experience (i.e. the form of knowledge, skill or broader capabilities that students have developed)

The five criteria were constructed in the following ways. First, Beach's argument about the relationship between movement and purpose and the development of expertise and identity was extended to highlight the relationship between the purpose and outcome of work experience. Second, Lave and Wenger's argument that learning in workplaces entails participation in occupational practice, supported by access to learning curricula, was used to establish what was distinctive about the forms of learning that occurred in workplaces. The third combined insights from Beach and Lave and Wenger, for example, that learning is a back and forth movement between education and work which requires learners to vary their participation in both contexts by engaging dialogically with occupational practice, to draw attention to the pedagogic practices which facilitate the development of knowledge and skill through work experience. Fourth, Beach's distinction between vertical and horizontal learning was used to clarify the nature of the challenge that educational institutions and workplaces had to address if they were to support learners on academic and vocational programmes to integrate work experience with both forms of learning. Finally, the argument that all forms of knowledge (theoretical and practical) play a part in facilitating innovation in workplaces was used to affirm the aspirations of the EU Memorandum of Lifelong Learning that learners should be encouraged to identify knowledge and skills they had developed, irrespective of the

MODELOF WORK EXPERIENCE	Traditional Model 1	Experiential Model 2	Generic Model 3	Work Process Model 4	Connective Model 5
<b>A. Purpose of work experience</b>	'Launch' into work	'Co-development' between education and work	Key skill/competence assessment	'Attunement to work environment	'Reflexivity'
<b>B. Assumption about learning and development</b>	Adaption	Adaption and self-awareness	Self-management	Adjust and transfer	Vertical and horizontal development
<b>C. Practice of work experience</b>	Managing tasks and instructions	Managing contributions  PLUS - recording experiences	Managing action plan and learning outcomes  PLUS - managing situations	Managing work processes, relationships and customers  PLUS - adding value for employer - supporting employability	Developing the connective practices  PLUS 'entrepreneurialability'
<b>D. Management of work experience</b>	Supervision	Arms-length supervision	Facilitation	Coaching	Developing and resituating learning
<b>E. Outcome of work experience</b>	Skill acquisition Knowledge of 'work readiness'	Economic and industrial awareness	Assessed learning outcomes	System thinking	Polycontextual and connective skills
<b>F. Role of education and training provider</b>	<i>Provide:</i> formal preparation programme	<i>Facilitate:</i> briefing for and debriefing of work experience	<i>Build:</i> portfolio of achievements	<i>Support:</i> reflection-in and on-action	<i>Develop</i> partnerships with workplaces to create: environments for learning

**Fig. 3.1** A typology of work experience (extended version)

context where they were learnt. This was a direct engagement with the EU's new interest in the recognition of prior learning, that is, credit gained from study in a formal (i.e. educational institution) or non-formal (i.e. workplace training) context, or prior experiential learning, in other words, learning that occurred through participation in workplace or community activities. A typology of work experiences is summarised in Fig. 3.1.

All the models contained in the typology were analytical rather than descriptive; therefore no specific work experience programme necessarily fitted neatly into any of the models, and some programmes may contain elements of more than one model. Nevertheless, the typology offered researchers, policymakers and practitioners a way to, firstly, identify the contributions as well as the limitations of the first four models of work experience. This has been discussed widely in the apprenticeship- or school-based VET literature, as regard to the development of learners' knowledge and skill as well as how work experience could be used to integrate education and work, and by extending theory and practice. Secondly, consider the difference that a new model – the connective model – could make for school- and apprenticeship-based VET if it became an integral feature at local, and even system, level in European countries.

### ***Bridge to Work Model***

The model is based on the classic 'launch' (Kindermann and Skinner 1992) assumption about the relationship between people and their environment; in other words, prior learning determines the trajectory of later learning, with the workplace environmental influence being viewed as fairly minimal. That assumption tended to underpin (a) traditional apprenticeship-based work experience programmes which were supposed to mould and adapt students' skills in the workplace through

immersion in work practice, expressed colloquially as ‘sitting by Nellie’, though supported by the activities of a *Meister* (Vickers 1995; Stern and Wagner 1991), and (b) school-based work experience schemes which initially assumed that workplace knowledge, skills and attitudes were fairly transparent, rather than opaque, and that learners automatically assimilated them through observation and reproduction of routines and procedures (Watts 1983). This perspective therefore took the integration of theory and practice for granted.

### ***Experiential Model***

This model reflected the argument which had surfaced in many advanced industrial countries in the early 1990s that all stages and phases of education should be made relevant to learners through the introduction of either a problem-based approach or enquiry-based approach to teaching and learning (Prawat 1993). This led to the relation between work and education being seen as a process of ‘co-development’ (Kindermann and Skinner 1992) which was supported, in the case of apprenticeship, by encouraging apprentices to try to integrate their experience of work and educational study by reflecting on those experiences in discussions with their trainers (Griffiths et al. 1992). In contrast, school-based work experience programmes tended to engage with the idea of co-development by using Kolb’s (1984) ‘experiential learning cycle’ as a framework to support students to integrate their learning through work experience with their academic study (Jamieson et al. 1988; Miller et al. 1991). One outcome in the case of school-based VET was a recognition of the role played by intermediary agencies, such as education-business partnerships, in negotiating clear objectives for learners, workplaces and schools in advance of work experience (Griffiths et al. 1992). Another was the development of pedagogic practices to assist learners in identifying, possibly through the use of debriefing, the influence of work experience on personal and social development (Watts 1991). These pedagogic practices were seen therefore to serve an integrative function.

### ***Generic Model***

The third model was a response to a slightly later educational debate that surfaced in Europe in the mid- to late 1990s and which was concerned with promoting a greater sense of learner autonomy and self-discipline, particularly in low-attaining learners (Green et al. 1999). These developments led, in the UK in particular and, to a lesser extent, in other European countries, to the emergence of a generic perspective on learning, that is, the idea that a series of outcomes can be defined in the form

of ‘can do’ or ‘has learnt’ or ‘now understands’ statements and that the process that facilitated such outcomes does not need to be defined (Griffiths et al. 2001). This perspective resulted in a model of work experience that (a) attached prime importance to the outcome and did not prescribe the learning necessary in a workplace to achieve that outcome and (b) accepted that an agreed series of common outcomes could be identified for any apprenticeship- or school-based VET programme of study and, therefore, it was possible to assess the learning that has occurred through study and work experience in the form of a key qualification (Kämäräinen and Streumer 1998).

This integration of education and work was taken forward through the introduction of personal action plan which served as a contract between the individual, the workplace and the educational institution by stipulating which skills were to be learnt, thus facilitating student self-assessment and external verification of key skill development in the form of learning outcomes within a workplace (Miller 1996; Oates and Fettes 1997).

### ***Work Process Model***

This model emerged initially from within the German VET apprenticeship tradition but, as a result of a large-scale EU-funded research programme, became a feature of apprenticeship in other EU countries (Boreham and Fischer 2002). The concept of work process knowledge (*Arbeitsprozesswissen*) – understanding the labour process in terms of product-related, labour organisational, social ecological and system-related dimensions – was introduced to assist apprentices, workplace trainers and VET teachers to overcome the dilemma of inert knowledge, that is, knowledge which has been taught, but is not immediately useful for occupational practice. From this perspective, the prime purpose of work experience is to help apprentices ‘attune’ (Kindermann and Skinner 1992) themselves to occupationally specific knowledge and skill, for example, technical knowledge and knowledge of sector- or firm-specific systems and routines, and organisationally general knowledge and skill, such as product and service strategies. This model acknowledged that the development of work process knowledge had to be mediated through the introduction of subject knowledge which may occur within the workplace and company training centres. The aim was to assist apprentices to integrate subject knowledge to current occupational practice by demonstrating the relevance of the former to the latter and to position apprentices to engage with new organisational forms of production and thereby to move into alternative work environments more easily (Fischer and Stuber 1998).



## ***Connective Model***

This was an explicit attempt to construct a model of work experience based on an explicit articulation of the relationship between the different types of learning that occur in the context of education and work through shared pedagogic strategies. The model therefore acknowledged that for vertical and horizontal development to be integrated, learners had to be supported to boundary cross, that is, move back and forth between education and work, and this involved pedagogic challenges for educational institutions and workplaces. The term ‘connective specialisation’, that is, using the specialist knowledge and skill acquired in formal education in conjunction with their experience of work was invoked to encapsulate what was involved if learners were to integrate horizontal and vertical development. The challenge associated with connective specialisation for (1) educational institutions was defined as assisting learners to grasp the relationship between the theoretical concepts, which constitute the content of the educational programme they may be studying, and occupationally specific and organisationally general work practices and routines by explicitly probing their understanding of this relationship during de-brief sessions post-work experience, and (2) workplaces was defined as ensuring that staff supervising learners on work placements provided time for learners to ask them questions about their participation in occupational practices and routines. The common challenge for educational institutions and workplaces was defined as agreeing on a mechanism whereby their feedback about their respective experiences to supporting work experience could be shared with one another, to support a process of the continuous improvement of work experience. The connective model therefore drew attention to the joint processes of learners’ mulling over and deliberating and experienced others (teachers, trainers, etc.) facilitating that process of development through asking questions and offering additional commentary about work practice or the implications of theoretical concepts for practice and vice versa. In doing so, the model broadened the lexicon of integration. A line of thinking about the role of educational institutions and workplaces in supporting work experience has subsequently been elaborated and extended by Akkerman and Bakker (2011, 2012) in their work on boundary crossing.

## **The Recontextualisation Model of Work Experience**

### ***Background to the Model***

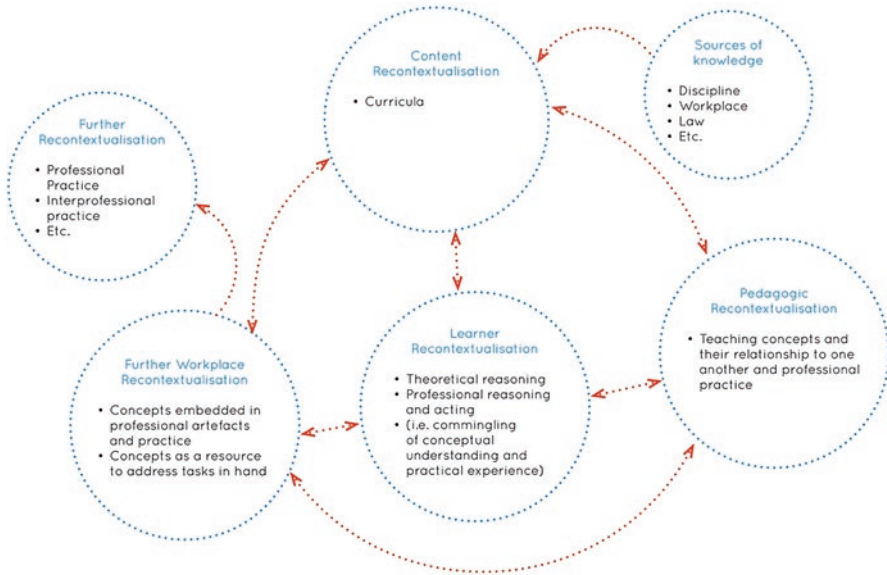
In the course of undertaking research on work experience in a variety of different settings, for example, apprenticeship (work- and college-based) and upper secondary education, and in different countries, for example, Denmark, Germany, Sweden and the UK (Griffiths and Guile 1999), it became apparent that a number of the

assumptions which underpinned the typology of work experience blurred the difference between apprentice- and school-based VET and between nature of knowledge in the curriculum and knowledge in practice.

Firstly, by conceiving of school-based and apprenticeship-based VET as identical because both had an educational and workplace component, the typology of work experience inadvertently treated work experience as a generic process to assist learners to grasp the theory-practice relationship. In doing so, it conflated learners who have educational as opposed to occupational goal when undertaking work experience into a single category of learner. This overlooked that work experience for the former is primarily an opportunity to *learn about* an occupational area and, in addition, appreciate the relationship between knowledge learnt in a classroom and its practical application in a workplace, whereas work experience for the latter is an opportunity to *learn occupationally specific* knowledge and skill by grasping the manifestations of the theory-practice relationship through participation in occupational routines and procedures. Secondly, by leaving curriculum as an unexamined element within apprenticeship- and school-based VET, the typology implied that the concepts learners were taught in their curricula were coterminous with their manifestations in workplaces. In doing so the model overlooked that knowledge in workplaces is promiscuous; it runs across levels and areas and is embedded invisibly in workplace artefacts and routines. As a consequence, it is likely to be difficult for learners on either type of programme to understand the relationship between theory and practice when they were undertaking work experience, unless the pedagogic support they were offered explicitly recognised the promiscuity of knowledge.

The different outcomes from school- as opposed to apprenticeship-based work experience, coupled with preparing both types of learners to engage with the way in which knowledge is embedded in artefacts and routines, suggested that it would be more productive to focus afresh on the relationship between purpose, process and context, rather than redesign the typology to take better account of the above issues.

The recontextualisation model was therefore formulated to address the different manifestations of knowledge in educational institutions and workplaces and the implications of this difference for learning, rather than as a model of work experience per se. For this reason, the starting point was to identify how knowledge (a) becomes (a) an embedded part of educational curricula and workplace practice and (b) embodied in a worker as much as a learner through participation in educational and workplace pedagogic practices. The model is nevertheless informed by the same situated premise about knowledge and learning which informed the typology of work experience, in other words, that every type of human activity, for example, education, engineering, medicine, sport, etc., is constructed and learnt contextually. The recontextualisation model differs from the typology because it draws on the argument about the constitution of, and continual development of, contexts which was presented in the book *The Learning Challenge of the Knowledge Economy* (Guile 2010). That argument can be summarised as follows: contexts are constituted and continually revised culturally and historically through specialist forms of human



**Fig. 3.2** The continuous recontextualisation of knowledge and professional practice

activity, for example, education, engineering and pharmacy, and are therefore recognisable features of economic and social life; and those features of economic and social life gain their unique character as individuals and groups work with and transform their normative conventions, routines and artefacts. The mediated relationship between the established and changing character of human activity was encapsulated in the concept of recontextualisation. The concept was subsequently elaborated and extended to distinguish between the different types of recontextualisation – content, pedagogy, workplace and learner – which are associated with the relationship between education and work as presented in Fig. 3.2 above.

By distinguishing between these expressions of recontextualisation in the above model, it was possible to identify how, firstly, the purpose of knowledge changes as it is moved from one context to another and, secondly, workers moving from one context to another learn to engage with and re-embodiment the changing manifestations of the forms of knowledge they have already learnt (Guile 2014a, b). The implications of the different expressions of recontextualisation for understanding how people learn to engage with knowledge in educational institutions and workplaces have been explored empirically in studies of work experience in Pharmacy (Guile 2014a, b; Guile and Ahamed 2010), Internship in the Creative and Finance sectors (Lahiff and Guile 2016) and Engineering and Media Production (Guile (a) (b), forthcoming). The sections below therefore use issues raised in those studies to illustrate aspects of the model.

### ***The Object of Activity and Recontextualisation***

The way in which forms of knowledge become part of curricula in education and routines and artefacts in work contexts was established in the book and articles referred to above through reference to Leont'ev's (1978) concept of the 'object of activity'. The idea that the object or purpose of an activity has a significant bearing on the way in which (a) any activity is organised and (b) the parties involved in deploy resources – conceptual (i.e. forms of knowledge), material (i.e. technologies) and social (i.e. people) – to accomplish that activity, was used initially to distinguish between the roles that forms of knowledge play in education and work. For example, it is generally agreed that the role of domain knowledge in educational curricula is to introduce learners to disciplinary modes of thinking and the role of the domain knowledge in the professional education is to prepare learners for the transition to occupational practice, whereas the role of workplace knowledge is to facilitate the development of occupational practice (Lave and Wenger 1991), product and service development (Nonaka and Takeuchi 1995) and organisational and market strategy (Spender and Grant 1996). The same domain knowledge could therefore, from time to time, be serving a different purpose. In light of this, the above model makes a distinction between *content* and *workplace* recontextualisation, that is, the way in which the same domain knowledge becomes a resource for education or work through being embedded in curricula or workplace artefacts and practice.

The first term (content) refers to the way in which the parties involved in curriculum planning, such as universities, professional associations, etc., formulate criteria to determine the different forms of knowledge, such as disciplinary, professional/legal and work-based, which should be included and sequenced in curricula. The process and outcome of content recontextualisation are, however, rather different in academic compared with vocational curricula. The purpose of academic curricula is to immerse learners into specific disciplines and disciplinary ways of reasoning, whereas the purpose of vocational curricula is to support the formation of occupational expertise and identity. Thus it follows that, to borrow Bernstein's (2000) terminology, concepts are 'classified', 'framed' and 'sequenced' in academic curricula to support learners to ascend through disciplinary 'knowledge structures' and to develop disciplinary modes of reasoning. In contrast, the purpose of vocational curricula is to prepare learners for a vocation or an occupation by assisting them to see the relationship between disciplinary concepts and their practical application in workplaces by developing learners' occupational mode of reasoning (this is often referred to as practical reasoning). Expressed differently, the same concepts serve different purposes in academic and vocational curricula.

The above issue can be illustrated by, for example, comparing the reason for including the concept of 'genre' in an academic subject, such as English, with its inclusion in a vocational programme of study, such as media production (Lahiff and Guile 2016). The purpose of the concept of genre varies in these contexts. The purpose is to assist, in the case of the former, an academic learner to understand

debates in literary theory about, for instance, the development of different types of novels, and, in the case of the latter, a vocational learner, for example, an apprentice, to understand the difference between types of television and radio programs and the way in which the production teamwork collaboratively creates the appropriate mood, including the language, music, and lighting, for each type of program.

The pedagogic challenge of content recontextualisation can be illustrated, as Guile and Ahamed (2010) have observed, through reference to the different role that knowledge domains play in an academic compared to vocational curricula. Using the example of Pharmacy, Guile and Ahamed focus on the role of Organic Chemistry and Molecular Biology in a Pharmacy degree, in comparison to their role in a Chemistry or Biology degree (Guile and Ahamed 2010). The reason for the inclusion of Organic Chemistry and Molecular Biology, in the case of the former, is to assist aspiring pharmacists to understand all aspects of Pharmacology, whereas, in the case of the latter, it is to support learners to understand the development of the respective discipline as well as to prepare them to specialise in the fields of Organic Chemistry and Molecular Biology. The critical issue is therefore to devise a pedagogy to support learners to understand Organic Chemistry and Molecular Biology in ways that are consistent with the degree they are a part of.

Workplace recontextualisation refers to the way in which professionals working in organisations have embedded and continue to embed different forms of knowledge in workplace routines and artefacts as well as to their engagement with, and embodiment of, those forms of knowledge. One way to illustrate this issue is through reference to the role of semiconductors in an Electrical Engineering degree. To understand the way in which a semiconductor functions, learners will typically be taught, amongst other issues, about the way in which Electron Construction Bands (ECBs) flow through different materials. Electron Construction Bands are however ubiquitous in workplaces, almost to the point where they disappear because they are an embedded feature of, for example, IT systems. Professional electrical engineers are, inevitably, aware that IT systems could not operate without ECBs but merely take them for granted as part of the workplace environment and when monitoring or repairing an IT system operate with an embodied rather than explicit understanding of ECBs. Workplace recontextualisation of engineering concepts, such as ECBs, masks, therefore, the way in which that concept is contributing to the effective operation of IT systems.

This poses a problem for a student electrical engineer or a student who is studying physics at an advanced level, prior to choosing which degree they may undertake at university, when they undertake work experience. Either type of student would struggle to establish any visual or tactile relationship between the theory of ECBs they had been taught and the practical manifestation of that theory in a workplace artefact such as an IT system. Furthermore, they would not necessarily find listening to professional electrical engineers' everyday conversations with one another helpful in illuminating the operation of ECBs in IT systems, because they are probably rarely, if ever, explicitly referred to. As a consequence, a learner undertaking a work placement is more likely to focus on the visible nature of engineering work because it affords them a way to participate in workplace conversations.

Making the forms of knowledge, such as ECBs that are embedded in workplace artefacts and practices, explicit involves that learner acting agentially by either inferring for themselves the role of ECBs in IT systems or asking professional electrical engineers to explain the way in which they support the effective performance of an IT system.

The common pedagogic link therefore between academic and vocational pedagogy is that learners are supported to develop a capability to infer what follows from either their study or their study and work experience.

### ***The Role of Giving and Asking for Reasons (Inferring) and Recontextualisation***

The implications of the embeddedness of knowledge in educational curricula and workplaces was explored in *The Learning Challenge of the Knowledge Economy* and the articles referred to earlier through reference to Brandom's (2000) concept of learning as an inferential social practice based on the giving and asking for reasons. This concept of learning is, as was explained in the above book, consistent with the CHAT assumption that what is distinctive about human activity is that we are susceptible to reasons and act in accordance with those reasons; in other words, we develop the capability to recognise the normativity of life. For example, when we hear a command, such as 'get out of the way', we understand its potential implications that we could be about to be knocked over or to become involved in an argument with someone if we respond aggressively to that command. From this perspective, we develop the capability to understand what different types of oral or textual communication may refer to as we learn to give reasons for our beliefs or actions, ask others for the reasons for their beliefs or actions and infer what follows from the different reasons that are given in different contexts. The model therefore invoked the term *pedagogic* recontextualisation to refer to the way in which people grasp and relate reasons between educational and workplace contexts.

One way to highlight this different outcome is to contrast pedagogic recontextualisation in the study of, the practice of being, a pharmacist and the use of work experience for a student considering studying Pharmacy at university. The purpose of pedagogy is, in the case of the former, to support Pharmacy students studying in a university to develop a disciplinary mode of reasoning but when they are undertaking work experience an occupationally specific mode of reasoning, in other words the capability to discriminate things that follow and things that do not and what would count as evidence and what would not, in both contexts. The former involves, at a minimum, the capability to (a) understand the conceptual structure of a discipline, (b) locate a concept in its subfield within the discipline, (c) infer relationship from that concept to other concepts and (d) express that disciplinary form of reasoning in written form. In contrast, the latter involves, at a minimum, the capability to (a) understand the way in which different forms of knowledge are

embedded in the work process and workplace artefacts; (b) use that understanding to work with other professionals to produce products and services; and (c) draw on resources external to the workplace, when necessary, to resolve problems.

The process of pedagogic recontextualisation is predicated on lecturers supporting learners to grasp the relationship between theory and practice by assisting them to infer (1) relationships between concepts they are studying as part of their university course, in other words, their links to one another, and (2) what follows between concepts and professional practice, in other words, how they mutually inform one another.

The implications of this observation can be highlighted by considering systemic pharmacology, that is, the action of drugs on physiological systems, which is one of the subareas in Pharmacy that would be taught to Pharmacy students to help them to develop both discipline-based and occupationally specific reasoning. By being encouraged to understand the pharmacological basis of medicines and the way in which drugs affect biological systems, Pharmacy students are positioned to undertake a work placement where they are likely to have to assess the benefits for patients that arise from one drug compared with another one as well as anticipate typical patterns of adverse drug reactions (ADRs) or idiosyncratic reactions that may occur in patients.

When undertaking work experience as part of their Pharmacy degree, student pharmacists will however encounter patients who frequently have multiple conditions and complex medical histories. Determining the likelihood of an ADR in a patient is therefore a complex and challenging process for a student pharmacist, even though they will be supported by an experienced pharmacist, because they have to, firstly, recontextualise their knowledge of Systemic Pharmacology and patterns of ADRs in relation to (1) a patient's description of their particular condition and any previous ADRs they may have experienced, (2) the available medicines which may be appropriate for the patient's condition and (3) the advice an experienced pharmacist is offering them about likely ADRs in relation to the patient's medical history, in order to decide which medicine to recommend to the patient. The outcome of this workplace pedagogic recontextualisation is the gradual development of a student pharmacist's occupational mode of reasoning based on their capability to form judgements by inferring what follows in relation to a patient's context-specific circumstances. In contrast, students undertaking a work placement in a pharmacy to help them to decide whether to study Pharmacy at university are still interested in reasons, but a different set of reasons. They will focus on why the pharmacists chose this career and why it is professionally rewarding or challenging. They are also engaged in a process of workplace recontextualisation but where the purpose is to facilitate a career decision rather than the development of occupationally specific expertise.

The three forms of recontextualisation – content, pedagogic and workplace – described above all contribute to, but do not, as the model presented earlier indicated, determine the formation of learners' expertise and identity. This process is completed as learners simultaneously exercise their agency to engage with the opportunities provided in educational institutions and workplaces as well as to create opportunities for themselves, to develop their capability to reason in disciplinary

and occupationally specific ways. In doing so, learners commingle their own object of activity, that is, their reason for undertaking the work experience with their workplace experiences to identify or choose an alternative career direction.

The outcome of the process of *learner* recontextualisation varies according to whether a learner is enrolled on an academic or vocational programme of study, even though they both provide access to work experience, and in relation to the different forms of assessment they are subject to. Learners are expected, in the case of the former, to express their understanding in written and oral forms in accordance with disciplinary conventions, warrants and modes of assessment and to use work experience as a way to learn about an occupation or a sector or to help them to make a career choice. In contrast, vocational learners are expected to express their understanding in written and oral forms in accordance with similar conventions and modes of assessment but to also use their work experience to commingle disciplinary and practical understanding and experience to develop an occupational form of knowing. Returning to the example of Systemic Pharmacy, a student pharmacist is expected to develop both types of reasoning: their class of degree will be judged by their ability to reason in accordance with discipline-specific assessment criteria, while their performance in pharmacy practice will be judged by their capability to reason and act in occupationally specific ways.

### ***Facilitating Recontextualisation Through Digital and Mobile Technologies***

This chapter had one main aim – to compare the connective typology of work experience with the recontextualisation model of knowledge and its implication for work experience by showing how the latter addresses the limitations of the former and, in the process, offers researchers, policymakers and practitioners ways to distinguish, rather than conflate, the different learning outcomes associated with school- as opposed to apprenticeship-based VET. It concludes by pursuing this issue through a discussion of the role of digital and mobile technologies in work experience for both types of VET.

There is widespread acceptance that the expansion of digital technologies provides learners with opportunities to access and undertake learning activities in a range of other settings, including home, college and workplace environments, public libraries and youth centres (see, for an up-to-date overview). Devices such as computers, laptops, mobile phones and notebooks have contributed to the development of the virtual learning space where learning might not be associated with a specific site or specific time, but there has been less discussion of how the above technologies and forms of mobile learning offer educational institutions and workplaces new ways to enhance work experience in school- and apprenticeship-based VET.



To illustrate their potential, the chapter firstly draws on Wishard and Green's (2001) notion of 'mobile scenarios' for the future to identify a number of ways in which learners could use digital and mobile technologies to facilitate boundary crossing between education and work. It then uses the recontextualisation model to consider the implications of each scenario for school- and apprenticeship-based VET. Wishard and Green's scenarios are:

- **Scenario 1.** *Recording experiential learning in a vocational area in preparation for a placement* – colleges could ensure that learners create their own portfolios, which could be accessed by mobile phones, for instance, in an Internet café, etc., while learners are studying with them. This resource would have both a private and public space: the latter would contain learners' photographs, videos and video diary reflections of occupationally specific learning, while the former would contain their course materials, assignments and assessments, via a virtual learning environment and so forth.

The creation of online portfolios would enable learners, at a later date, to use aspects of their experiential learning for peer discussions, a resource for assignments, and for inclusion as part of their shared professional portfolio in public networks such as LinkedIn.

- **Scenario 2.** *Working and learning together on placements* (i.e. work experience) – handheld or mobile laptops could be used by learners to share their experiences and reflections with their peers and tutors, while they are on placement.

Learners could use handheld devices to work on the same or similar problems to liaise with one another and discuss how they were tackling the same problem, and tutors could organise Skype discussions between themselves and learners on placements to discuss converging and diverging experiences.

- **Scenario 3.** *Connecting services and resources* – colleges, in conjunction with their libraries, can arrange for learners to have remote access to books, periodicals, databases, etc. which can be accessed while studying away from colleges or on work placement.

Ubiquitous connectivity would enable learners to revisit course content while on placement and use it as a resource to help them to address the workplace *embeddedness* of knowledge, and/or to post questions that other learners on a work placement or their tutor could answer.

From the recontextualisation perspective presented in this chapter, the purpose of VET programmes will influence the way in which learners both engage with digital and mobile technologies and the type of knowledge and skill they will develop. For example, learners on school-based VET will use the digital and mobile technology possibilities described above to share their experience of their work experience with one another to (1) reveal the diversity of work in an occupational area, (2) generate discussions about the problem of the embeddedness of knowledge, (3) involve other learners and their tutor in a discussion about the range of tasks they have been given to attune them to working in a specific occupational area and (4) develop a LinkedIn

portfolio to promote themselves to a potential employer. In contrast, learners on apprenticeship-based VET will share their experiences of work with one another to (1) discuss the extent to which they are or are struggling to develop occupational expertise, (2) generate discussions about how to resolve the problem of the embeddedness of knowledge, (3) involve other learners and their tutor in a discussion about the way in which curricula content and workplace practice might be aligned more closely and (4) create a LinkedIn portfolio to identify the range of occupationally specific knowledge and skill they have acquired for their current and, potentially, future employer.

The purpose of mobile learning is therefore, from the recontextualisation perspective, about the processes of coming to know and being able to operate successfully in and across new and ever-changing contexts, learning spaces and boundaries, rather than delivering content to mobile devices. The brief sketch provided at the end of this chapter will hopefully offer researchers and practitioners a way to reconsider how to support learners to use work placements to boundary cross within as well as between educational curricula and work practice.

## References

- Ainley, P., & Rainbird, H. (Eds.). (1999). *Apprenticeship: Towards a new paradigm of learning*. London: Kogan Page.
- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132–169.
- Akkerman, S. F., & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning*, 5(2), 153–173.
- Beach, K. (1999). Consequential transitions: A sociocultural expedition beyond transfer in education. *Review of Research in Education*, 24, 101–139.
- Beach, K., & Vyas, S. (1998). *Light pickles and heavy mustard: Horizontal development among students negotiating how to learn in a production activity*. Paper presented at the Fourth Conference of the International Society for Cultural research and Activity Theory, University of Aarhus, Denmark.
- Bell, D. (1973). *The coming of the post industrial society*. New York: Basic Books.
- Bernstein, B. (2000). *Pedagogy, symbolic control and identity: Theory, research and critique* (Rev. ed.). Lanham: Rowman and Littlefield.
- Billett, S. (2001). *Learning in the workplace*. Sydney: Allen and Unwin.
- Boreham, N., & Fischer, M. (2002). *Work process knowledge*. London: Routledge.
- Brandom, R. (2000). *Articulating reasons: An introduction to inferentialism*. Cambridge: Harvard University Press.
- Castells, M. (1996). The rise of the network society. The information age: Economy. In *Society and Culture*. London: MacMillan.
- European Union. (1999). *Lifelong learning memorandum*. Brussels: EU.
- Evans, K., Hodgkinson, P., Rainbid, H., & Unwin, L. (2002). *Improving Learning at Work*. London: Routledge.
- Fischer, M., & Stuber, F. (1998). Work process knowledge and school-to-work transition. In E. Scherer (Ed.), *Shop floor control: A systems perspective*. Berlin: Springer.
- Green, A., Leney, T., & Wolf. (1999). *Convergence and divergence in European education and training systems*. London: Bedford Way Papers, Institute of Education, University of London.

- Griffiths, T., & Guile, D. (1999). Pedagogy in work-based contexts. In P. Mortimore (Ed.), *Understanding pedagogy and its impact on learning*. London: Sage.
- Griffiths, T., Miller, A., & Peffers, J. (Eds.). (1992). *European work experience: Principles and practice*. Centre for Education and Industry: University of Warwick.
- Griffiths, T., et al. (2001). *Work experience as an education and training strategy: New approaches for the 21st century*. Final report of an EU Fourth Framework (Targeted Socio-Economic Research) project to the European Commission.
- Guile, D. (2010). *The learning challenge of the knowledge economy*. Rotterdam: Sense.
- Guile, D. (2014a). Professional knowledge and professional practice as continuous recontextualisation: A social practice perspective. In J. Muller & M. Young (Eds.), *Knowledge, expertise and the professions* (pp. 78–92). London: Routledge.
- Guile, D. (2014b). Professional knowledge and professional practice as continuous recontextualisation: a social practice perspective. In T. Fenwick & M. Nerland (Eds.), *Rethinking professional learning*. London: Routledge.
- Guile, D., & Ahamed, F. (2010). *Modernising the undergraduate pharmacy curriculum*. LLAKES Research Paper 26. ESRC Research Centre Learning and Life Chances in Knowledge Economies and Societies, Institute of Education, University of London.
- Guile, D., & Griffiths, T. (2001). Learning through work experience. *Journal of Education and Work*, 14(1), 113–131.
- Jamieson, I., Miller, A., & Watts, A. G. (1988). *Mirrors of work*. Brighton: Falmer Press.
- Kämäräinen, P., & Streumer, J. (1998). Curriculum development, new learning environments, and transfer of innovations in Europe. In *Vocational education and training – The European research field* (Background Report 1998, Vol. II). Thessaloniki: Cedefop.
- Kindermann, T., & Skinner, E. A. (1992). Modeling environmental development: Individual and contextual trajectories. In J. B. Asendorpf & J. Valsiner (Eds.), *Stability and change in development*. London: Sage.
- Kim, W., & Mauborgne, R. (1998). Strategy, value innovation and the knowledge. *Economy Sloan Management Review*, 10(4), 41–54.
- Kolb, D. (1984). *Experiential learning*. Prentice Hall: Englewood Cliffs.
- Lahiff, A., & Guile, D. (2016). “It’s not like it’s normal 9 to 5”: The learning journeys of media production apprentices in distributed working conditions. *Journal of Vocational Education and Training*, 68, 302–319.
- Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. Cambridge: Cambridge University Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Leont’ev, A. N. (1978). *Activity, consciousness and personality*. Englewood Cliffs: Prentice-Hall.
- Miller, A. (1996). To boldly go ... work experience but not as we know it? In A. Miller & G. Forrest (Eds.), *Work experience for the 21st century*. CEI: University of Warwick.
- Miller, A., Watts, A. G., & Jamieson, I. (Eds.). (1991). *Rethinking work experience*. Brighton: Falmer Press.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company*. New York: Oxford University Press.
- Nonaka, I., & Teece, D. (2001). *Managing industrial knowledge*. London: Sage.
- Oates, T., & Fettes, T. (1997). Work experience and key skills. In G. Forrest (Ed.), *Work experience for the 21st century: Changing priorities, changing practice*. CEI: University of Warwick.
- OECD. (1996). *The knowledge-based economy: From the economics of knowledge to the learning economy*. Paris: OECD.
- Prawat, R. (1993). The value of ideas. *Educational Researcher*, 22, 5–16.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4–13.
- Spender, J. C., & Grant, R. M. (1996). Knowledge and the firm: Overview. *Strategic Management Journal*, 17(S2), 5–9.

- Stehr, N. (1994). *Knowledge societies*. London: Routledge.
- Stern, D., & Wagner, D. A. (Eds.). (1991). *International perspectives on school-to-work transition*. Cresskill: Hampton Press.
- Touraine, A. (1969). *Post industrial society*. New York: Random House.
- Vickers, M. (1995). Employer participation in school-to-work Programmes: The changing situation in Europe. In T. Bailey (Ed.), *Learning to work: Employer participation in school-to-work programmes*. Washington: Brookings Institute.
- Watts, A. G. (1983). *Work experience and schools*. London: Heinemann.
- Watts, A. G. (1991). The concept of work experience. In A. Miller, A. G. Watts, & I. Jamieson (Eds.), *Rethinking work experience*. Brighton: Falmer Press.
- Wishard, J., & Green, D. (2011). Future scenarios for workplace-based mobile learning. In N. Pachler, C. Pimmer, & J. Seipold (Eds.), *Work-based mobile learning*. Berlin: Peter Lang.

# Chapter 4

## Varieties of “Duality”: Work-Based Learning and Vocational Education in International Comparative Research



Philipp Grollmann

**Abstract** This contribution argues that vocational learning is always bound to more school-based learning settings and practical work contexts. The focus on dual vocational education systems as a specific type of a national vocational education regime has led to overlooking the general “dual nature” of any vocational education and training.

Often vocational education practice goes beyond a mere *orientation towards work* by making *practical work experience part of the vocational education and training curriculum*. Yet even in cases of purely school-based settings, the question remains on how far the learning experiences of individuals from school-based instruction match with what they would be required to do in their future jobs and the learning experiences they engage in. Instead of asking how work experience integrates with education, it might also be legitimate and important to question *how educational experience is or can be integrated into work*.

On the other hand, the widely used term “work-based learning” does not sufficiently address the relevant contextual conditions for understanding the integration problem tackled in this volume. “Work-based learning” will always be strongly shaped by local or national institutional contexts in forms and content, and it only turns into education as soon as there is some kind of “curricular” formalisation and/or acknowledgement. By looking at international educational statistics and comparative research, the contribution in this chapter will show that the “dual nature” could be depicted better by taking into account education as well as employment statistics at the system level. The contribution also discusses where statistics could be misleading. In addition different forms and concepts of dual vocational education and training and practical examples are presented. Conclusions are drawn for further research on curricular integration for a variety of dualities.

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**Keywords** Germany · France · Australia · Canada · Switzerland · Denmark · Austria · Vocational education and training · Apprenticeship · Alternance · Dual system

## Increased Attention to Dual Forms of Vocational Education and Training

Two contextual developments are worthwhile to take into account when looking at the combination of vocational education and work-based learning on an international scale. One is the general interest of research on vocational teaching and learning including issues of integrating learning experiences in schools and colleges with those made at work, and the other is the increasing international interest in dual forms of vocational education provisions.

### *Integration of Work and Learning*

Over the last 20 years, research literature on vocational education and training on an international scale has increased significantly, exemplified by the development of a number of journals and basic publications (e.g. Maclean u.a. 2008; Malloch u.a. 2011; Rauner and Maclean 2007).

It is universally recognised that a specific characteristic of vocational education and training relates to the world of work or practice. Often vocational education practice goes beyond a mere *orientation towards work* by making practical *work experience part of the vocational education and training curriculum*. But even in cases of purely school-based settings, the question remains on how far the learning experiences of individuals from school-based instruction match with what they would be required to do in their future jobs and the learning experiences they engage in.

At the curricular level the question is how well work experience contributes to achieving defined educational goals. At the individual level, the question is to what extent can different learning experiences in the world of education and the world of work be combined by individuals into something that supports the competent, skilful and meaningful execution of work tasks. Such fundamental questions of research on education and training have been investigated and discussed under varying labels and with different substantive and conceptual focus such as “connectivity” (e.g. Griffiths und Guile 2003), “integration” (Stenström and Tynjälä 2009) and “transfer of learning” (cf. respective chapter in Bransford 2004). Although such approaches usually recognise the significance of context, they are strongly rooted in an educationalist or psychologist view on teaching and learning processes that does not spe-

cifically look at the contextual conditions and yet might have a considerable effect on the examined teaching and learning practices and desired outcomes.

Such conditions could be the institutional framework in which vocational teaching and learning take place and the relative meaning that different learning experiences and outcomes could potentially have in different environments. For instance, different national labour markets are also related to different employers' expectations of skills and competences that workers should have acquired before or when entering employment.

Some approaches to situated or organisational learning have stressed this level of analysis. What is important here is that these approaches often look at the knowledge that is generated in those settings as a quality of its own in contrast to other forms of knowledge that are central to school-based instruction (Boreham u.a. 2002; Fuller and Unwin 2003; Lave and Wenger 1991).

Instead of asking how work experience is integrated within education, it might also be a legitimate and important to question *how educational experience is or can be integrated into work*.

However, comparative research on vocational education and training is strongly dominated by system-oriented analysis, which is mainly looking at national types of vocational education and training. Often the background of this analysis is influenced by political science and respective research paradigms. Increased attention was, for example, given to different models of governance of skills and vocational education and training policies over recent years (Greinert 1995; Greinert and Hanf 2004; Pilz 2016; Trampusch and Busemeyer 2010). Another strand of research has emphasised the significance of skill formation for economic performance and competitiveness of industrial states (e.g. Hall and Soskice 2004).

In that sense, there is a gap in research on the level that is exactly in between teaching and learning process and their effects on the one hand and the level of national systems on the other. This gap has also been tackled in other recent publications on comparative research in vocational education and training (e.g. Pilz 2016).

## **Emphasis on Dual Vocational Education and Training in International VET Cooperation**

Several European countries that traditionally have school-based training models have announced an intention to introduce dual training structures.

However, the basic momentum for this is not necessarily the interest in integrating vocational education and work-based *learning* but the observation that national systems of vocational education that are based on dual structures are performing better with *integration of young adults into the labour market*. However, there are debates about the efficacy of transferring dual VET models.

## *The Debate Around Transfer of Dual VET*

The objectives for a dual VET model are also being driven by the European Commission, which has launched a number of initiatives to support this fundamental realignment of vocational education and training policy in Europe (Organisation for Economic Co-operation and Development 2014a, b; Steedman 2012). In connection to this relatively new policy, there is increased attention on the question of how well dual educational practices or even systems can be transferred from one country to another.

Dual VET structures are often linked to a complex nexus of labour market institutions, political control structures and culturally shaped concepts of vocational training (Ertl and Frommberger 2008; Georg 1990, 1996; Grollmann 2008). In his study drawn up for the Bertelsmann Foundation, Dieter Euler (2013) identified 11 constituent elements of dual vocational education and training which in his view are better suited to the transfer debate than a whole system. He is right to point out that the evaluations conducted over several years by the German Agency for International Cooperation (GIZ) show that effective and sustainable transfer of the German dual vocational education and training system is not possible (Stockmann 1998, 2000). There are the following reasons for the limitations of transfer:

1. Vocational education and training systems are complex fabrics which have grown historically. Structures established since the Middle Ages have developed further on an ongoing basis and been adapted within the process of industrialisation and the development of national states (Georg 1996; Greinert and Hanf 2004).
2. Complex correlative effects arise between the labour market, company organisational and human resources development and the educational system (cf., e.g. Maurice and Sorge 1990; Maurice u.a. 1982). These overall follow a separate logic tending to exhibit an evolutionary character rather than that of a rationally planned structural process (cf., e.g. Schriewer 1986).
3. In the policy development process, vocational education and training usually occupies various institutionalised political areas between education and employment. Even if there is a high degree of readiness to implement dual solutions in vocational education and training, VET policy needs, for example, to take place in a cross-departmental manner.
4. The idea of the transfer is frequently based on concretist notions regarding what is actually being transferred and how this process functions. Specific things or institutions cannot be the centre of attention here. At best, the focus is on knowledge of such things or institutions, which is then deployed in practical and political structural processes. Research on vocational education can play an important role in exploring, producing and making this knowledge visible.

With regard to the question of transfer, it is apparent that we should also look at smaller social units rather than dealing exclusively with “systems”. Euler (2013), for instance, has proposed “Alternating learning situations in accordance with the dual principle” (Euler 2013: 30–35) as one 1 of 11 constituent elements.



**Table 4.1** Prerequisites for and barriers to successful transfer

Content of policy	General conditions similar	General conditions different
Global problem definitions and solution strategies	(1) Possibility of learning is high	(2) Consensus deficits (no transfer)
Specific programmes and concrete instruments	(4) Efficiency deficits (technical problems)	(3) Probability of diffusion is low

Source: Schmid (2010: 479)

It is difficult to predict what effects the adaption of a single or a few of the “constituent elements” will have, since the way in which dual vocational education and training structures works is, at least at the systems level, presumably based precisely on the interplay between individual components. Aspects such as costs/benefits need to be considered in conjunction with contents and forms of human resource development and work organisation and stipulations in employment law or collective wage agreements. A partial transfer of only some of the 11 “constituent elements”<sup>1</sup> of dual vocational education and training (Euler 2013, p. 7) shows as limitations and will permit also only limited achievement of (systemic) effects. In any case 10 of the 11 constituent elements constitute a general condition for effectiveness of the remaining constituent element.

### *Transfer in Political Sciences*

Vocational education and training is not the only area in which it is well known that complex institutional interweaving of this kind cannot simply be transferred from one country to another (Schmid 2010). The possibility of transferring policy and societal institutions is a recurrent issue in political science. Schmid (2010) and Klenk (2013), for example, point out that a transfer can only occur under one of the four possible combinations of general conditions and political contents, namely, if general conditions between the cooperating countries and “global learning objects” are comparable. In the three other constellations, a transfer of systems (or system components) is stated to be impossible or “doomed to failure”. Table 4.1 summarises the prerequisites for and barriers to successful transfer.

<sup>1</sup>The 11 “constituent elements” according to Euler are (1) broad objective, vocational training as a means of achieving economic, social and individual goals; (2) the main objective of vocational training, to produce skilled workers with flexible qualifications who are mobile and capable of working in their chosen fields; (3) alternating learning situations in accordance with the dual principle; (4) vocational training as a task to be carried out in partnership between the government and the business community; (5) joint funding of vocational training; (6) complementary programmes run by schools or nonbusiness entities; (7) codifying quality standards; (8) qualifications of teachers and training personnel; (9) balance between standardisation and flexibility; (10) creating a solid basis for decisions and design; and (11) social acceptance of vocational training.

Cooperation in vocational education and training usually encounters highly different general conditions, and, if we take the idea of a one-to-one transfer of the dual systems in German-speaking countries as our starting point, we need to deal with a highly specific and concrete design concept. In order to tap into the opportunities offered by transfer, it therefore seems important to us to abstract from the specific nature of the solution (as “dual systems”) in German-speaking countries and also to consider the general conditions. “Alternating learning situations in accordance with the dual principle” might be a solution; however, those situations are highly inter-related with contextual conditions. Therefore, it might be useful for the international dialogue to further pin down a number of scenarios of this practice that are different, conceptually and empirically.

## **Terms in Use in the International Dialogue<sup>2</sup>**

In this section I would like to systematise and present some terms and concepts that are in use within the international discourse and that can be built on in order to come up with the kind of “global learning objects” that are appropriate for an international discourse on “duality”.

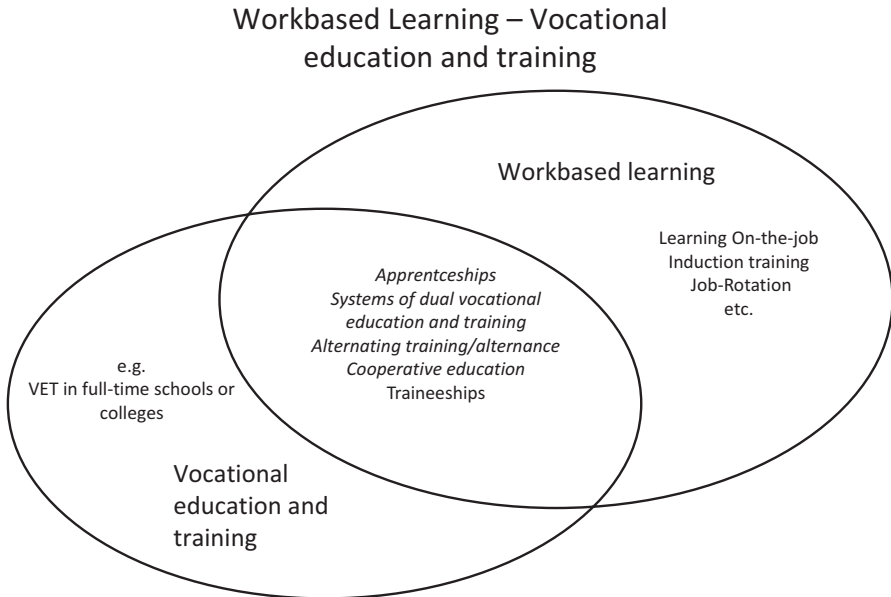
Especially against the background of the urgent problem of high youth unemployment and of precarious employment situations in numerous countries, a series of international organisations have been looking at forms of dual vocational education and training over recent years (European Commission u.a. 2013; Organisation for Economic Co-operation and Development 2010; Steedman 2010) and are continuing to work on relevant international projects and concepts up to the present day. Important terms that constantly arise in this debate are traineeships and apprenticeships and “work-based learning”. Are these then suitable as “global learning objects”?

### ***Vocational Education and Work-Based Learning***

International organisations have taken up the term “work-based learning” (European Commission 2015; Organisation for Economic Co-operation and Development 2010, 2014b). However, this does not necessarily need to happen in a formalised environment of vocational education and training. In principle work-based learning can happen anywhere and at any time. Its major definite criterion is that it takes place during work. Examples for rather informal structures of work-based learning that are not directly connected to vocational education are practices of learning at work such as job rotation or mentoring at work. It shows how loose the term is and

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<sup>2</sup>Parts of this section are a revised, updated and expanded version of a contribution to the BIBB Data Report on VET 2014 (Grollmann and Helmrich 2014).



**Fig. 4.1** Work-based learning and vocational education as set theory

how strongly it might be associated with different cultural and institutional concepts and understandings.

On the other hand, we have the world of education and training that usually is associated to formalised learning settings in educational systems. Especially, when those two sets overlap, one can think about how to support the integration of learning experiences that are made by individuals between the two (see Fig. 4.1). Based on the analysis of practices in different countries, I would like to elaborate on terms and concepts that are in use in the international discussion and a number of practices that we find in different national contexts.

### ***Work-Based Learning***

Both the EU and the OECD have embraced the term “work-based learning” (WBL) within the context of discussions. One major feature of this term is that learning in the workplace actually takes place everywhere, no matter how the educational system is shaped. WBL is thus sufficiently non-specific to be applied across a wide range of national and international contexts. The OECD has consequently given a current project the title of “work-based learning in VET” (Organisation for Economic Co-operation and Development 2017), thus making it clear that the focus is on learning in educational programmes. This is not self-evident if we look, for example, at training traditions in which much of the learning also occurs during the work

process but does not commence outside the formalised educational system until an employment career has been embarked upon (cf., e.g. Demes and Georg 1998). The OECD also uses the term in international educational statistics to categorise vocational training courses. According to the OECD measurement concept, “combined school- and work-based programmes” are defined as follows:

In combined school and work-based programmes, instruction is shared between the school and the workplace, although instruction may take place primarily in the workplace. Programmes are classified as combined school and work-based if less than 75 per cent of the curriculum is presented in the school environment or through distance education. Programmes that are more than 90 per cent work-based are excluded. Combined school and work-based programmes are programmes in which both elements are part of an integrated formal training course. (Organisation for Economic Co-operation and Development 2016: 289)

## *Traineeships*

In connection with two studies conducted for the European Commission (European Commission u.a. 2012; European Commission und IKEI 2012), an investigation was undertaken of the various forms of company-integrated training and of traineeships in the European member states. Following the study, a public consultation was held on the quality of traineeships/internships, and this was then used to inform a recommendation for a European framework for traineeships. So-called “apprenticeships” (company-based VET contracts) have been excluded since the assumption is that sufficient regulations are already in place (Council of the European Union 2014).

The fundamental finding is, however, that both forms, in particular company-based VET, occur in many countries and not merely in the so-called dual systems. In order to facilitate better delineation of the two terms and associated concepts, the following model comparison was developed in connection with the study of traineeships in Europe. This makes it apparent that the term “apprenticeship” is more narrowly defined and regulated with regard to many different aspects. An overview on the differences between apprenticeships and traineeships according to this study can be found in Table 4.2.

Whereas the aim of company-based vocational education and training (apprenticeship) is usually for a professional or vocational qualification, a traineeship may fulfil many different functions. The smallest common denominator is normally a focus on recording and documenting practical experiences. The term traineeship, however, does not define at which level of the educational system training takes place. Traineeships range from vocational orientation placements at secondary school level to internships in the higher education sector or even post-graduation. Whereas this means that either no regulations or very few and various minimum standards apply to trainees with regard to status and remuneration, VET apprentices are considered to be employees and are regulated accordingly. Dual VET contracts

**Table 4.2** Company-based VET (apprenticeship) and traineeship

	Company-based VET (apprenticeship)	Traineeship
Scope	Full qualifying professional or vocational education and training	Complementing educational programme or individual CV
Goal	Professional profile/qualification	Documented practical experience
Educational level	Usually EQF level 3–5	Traineeships can be found as part of programmes on all EQF levels – common forms in (pre-)vocational education, in higher education and after graduation (sometimes compulsory)
Contents	Acquisition of the full set of knowledge, skills and competences (KSC) of an occupation	Vocational and/or work/career orientation, acquisition of parts of competences, knowledge and skills of an occupation or a profession
On-the-job learning	Equally important to coursework	Usually complementing coursework or optional extra
Time frame	Determined, middle to long term (up to 4 years)	Varying, short term to middle term (frequently less than 1 year)
Employment status and compensation	Contracted/employed apprentice. Remunerated – amount collectively negotiated or set by law	Trainee/pupil/student often based on an agreement with employer or school. Varying remuneration, often unpaid
Governance	Regulated, often on a tripartite basis	Unregulated or partly regulated
Stakeholders	Social partners, training providers, state	Individuals, companies, state, educational institutions

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are usually to be found at secondary level or as part of post-secondary training programmes in some instances. In some exceptional cases, the term is even used to refer to dual forms of higher education with a company-based training contract (such as in Italy or France).

The term “traineeships” is, then, presumably too unspecific as a “global learning object”. The term “apprenticeships”, however, may be too specific.

“Apprenticeships”, i.e. regulated company-based vocational education and training contracts, exist in many countries, including, for example, the USA and Canada. These are frequently domiciled in the post-secondary training segment or in continuing training. Some programmes are company based only and not always governed and controlled by representatives of labour and/or employers. They may prescribe “upgrading training” in the form of “on-the-job” and “off-the-job” learning, i.e. alternating learning during the work process and supplementary teaching. One major difference in the German dual VET system is the age of the trainees,

which is usually between 25 and 39. These programmes are notionally regulated in the USA and Canada by the Ministry of Labour. In Canada, they form part of the “adult education” sector.

Another country in which “apprenticeships” are even more widespread without being aligned to the secondary school system is Australia. Extended dual VET takes place in the form of “apprenticeships” and “traineeships” which are, however, domiciled within the post-secondary educational segment (Grollmann and Smith 2007).

In some countries, a form of vocational education and training similar to the German dual system exists in a small number of occupations only (such as in France, cf. the figures) or in Italy and Belgium as a specific regional feature (e.g. South Tyrol or the German-speaking part of eastern Belgium). Further forms and types of systematic integration of company-based learning into vocational education and training are presented in the following sections (cf. Grollmann 2012).

### ***Systems of Dual Vocational Education and Training***

When speaking of the duality as regard to the VET system, experts in Germany, for example, comprise a complex construct which is particularly aligned to the formal stipulations of the German education system and to the Vocational Training Act. The existence of a Vocational Training Act and of a training contract, para-governmental monitoring of VET by the chambers, and integration into the upper secondary school system (vocational school) are always part of the thinking in this regard.

Company-based vocational education and training integrated at upper secondary level in the educational system, which is of high quantitative significance and is combined with a specific employee status (company-based training contract), is an exception when considered in international terms. The countries which possess an established “dual system” of this kind are Germany, Denmark, Austria and Switzerland. Nevertheless, the quantitative significance of this form of vocational education and training varies between these systems (cf. figures in the next section).

### ***Alternating Training/Alternance***

There are also instances of the coexistence of dual VET (company-based vocational education and training in the educational system) and school-based VET incorporating longer practical phases such as placements. The form of “alternance” or alternating training follows this model. Phases of scheduled teaching blocks at school alternate with phases of company-based practical training of varying length. This form of dual learning is most prevalent in VET systems which are more school-aligned, such as in France (2005) or Finland. In overall terms, the quantity and duration of such practical placements are on the increase.

## ***Cooperative Education***

The “cooperative education” model is frequently encountered at the post-secondary level of the educational system, such as at community colleges in North America. Cooperation in this case is initiated locally between companies and educational providers (a college or university) and is not governed by any kind of nationally regulated and institutionalised duality. Incentives include competition with providers of similar training courses and the intention of demonstrating the labour market relevance of a programme or increasing the practical relevance of the training in a clearly comprehensible manner. Further incentives may arise for the institutions on the basis of financial advantages via contributions from trade and industry or local tax monies. No training contract is usually entered into between the company and the trainees (Grollmann and Lewis 2004). Because such arrangements have their foundations in a particular degree of commitment at local level, very little reliable and secure data is available on this form of cooperation.

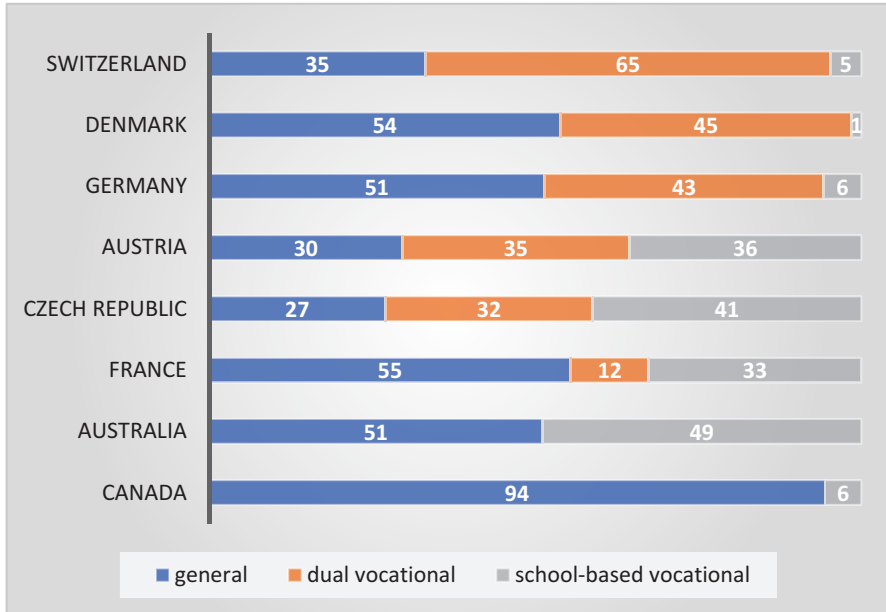
Data and information which are available on the various types of dualised vocational education and training are presented in the following section.

## **International Comparative Data on Dual Forms of Vocational Education and Training**

The following chart shows the amount of work-based learning as a proportion of vocational education and training at upper secondary level for a number of selected countries. In Belgium, for example, the reason for the proportion of dual training contracts is 3% is that dual training exists in the German-speaking community in the East, whereas training in the rest of the country is otherwise largely organised in school-based form. France and the Czech Republic are typical examples of countries that have full-time school-based vocational education and training systems in which company-based learning also represents part of the curriculum. The proportion of practical learning is, however, far below the level in the dual VET systems of Germany, Denmark, Austria and Switzerland. The OECD concept for “combined school- and work-based programmes” requires a proportion of company-based learning of at least 25% for programmes to be allocated to this category.

In the Czech Republic, this practical element of training usually takes place in special school-based training workshops rather than at companies. The school-based part of training is supplemented by practical placements (Refernet Czech Republic 2012). Figure 4.2 shows the proportion of students enrolled in VET and general education programmes in upper secondary schools. In addition school-based and work-based VET settings are differentiated.

In France, 12% of training is deemed to be company-based VET (Centre d’analyse stratégique 2013). A further 33% may, however, certainly include practical placements at companies.



**Fig. 4.2** Proportion of pupils at upper secondary level in vocational and general educational programmes

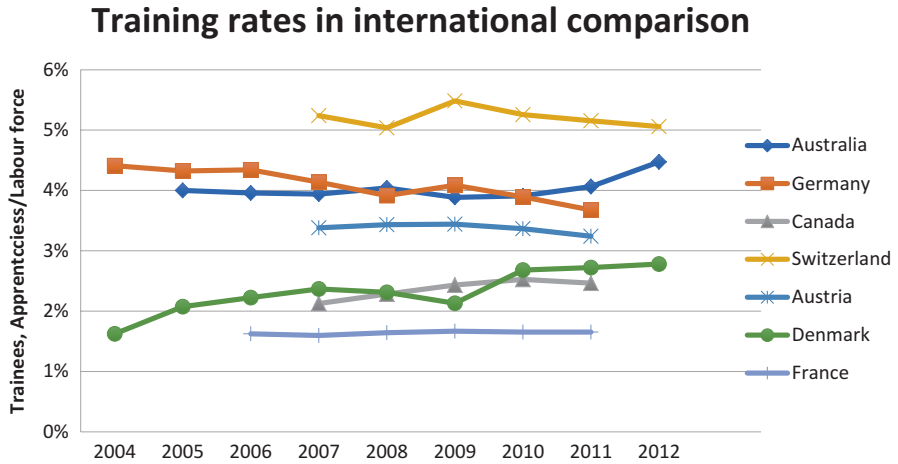
Note: Included are programmes leading to qualifications aligned to ISCED level 3 (a, b, c). When comparing the data, it must be taken into account that the length of educational programmes varies internationally (e.g. 12 or 13 years of schooling, compulsory education until the age of 16 or 18). Ascription of data is made by national statistical offices according to criteria developed with OECD

Source: Organisation for Economic Co-operation and Development (2013, 271)

Work-based learning has a high degree of quantitative significance in the dual vocational education and training systems in Germany, Denmark and Switzerland. It is noticeable that the proportion of work-based training in Austria is relatively low. The reason for this is the existence of very well-established school-based vocational education and training which afford the opportunity of a double qualification (VET and higher education entrance qualification). In all cases of dual vocational education and training, however, practical training at the company is the norm, whilst instruction at school-based training institutions constitutes the exception.

Figure 4.2 also includes data for Canada and Australia. In Canada, VET at upper secondary level is virtually non-existent (Grollmann und Wilson 2002), hence no dual vocational education and training is shown. By way of contrast, the proportion of vocational education and training in Australia is 49%. Notwithstanding this, the OECD data does not provide any information on the proportion of dual VET in Australia.





**Fig. 4.3** Trainees as a proportion of the labour force (training rate) 2004–2012

Source: Labour force data is from the *ILO database (ILOSTAT)* and is based on national labour force surveys. Data on training contracts is taken from *national statistical offices*. All used data is available online at the webpages of the responsible organisations. Deviations to the German training rate stated in the Data Report to accompany the Report on Vocational Education and Training are the result of the different denominator used. Here, this is the “labour force”, whereas the national calculation for Germany is based on “employees subject to mandatory social insurance contributions”

## International Comparative Data on Formal Company-Integrated Training

Vocational education and training with proportions of company-based learning typically takes place following completion of upper secondary level education and is aligned to continuing training (Steedman 2010, 2012). For this reason, it is also useful to look at company-based VET as a proportion of employment (Robinson 2001). In Germany, this “training rate” is calculated on the basis of the number of trainees as a proportion of all employees, subject to mandatory social insurance contributions. We have also followed this calculation to determine the training rates for other countries. Nevertheless, the organisation of contracts of employment is subject to considerable national differences. The working population has therefore been selected as the denominator for the purpose of this comparison. Labour force information is taken from ILO figures, and information regarding company training contracts is based on data from national training statistics. The apprenticeships endure very specific regulations and arrangements in terms of contents and forms (see above and the following country examples). Figure 4.3 shows trainees as a proportion of the labour force.

If this indicator is considered, then Australia, for example, certainly forms an object of interest in that the rate exhibited is nearly as high as in Germany (AUS, 4.0%, and DE, 4.2%, in 2008). This magnitude is, however, not mapped in the international education statistics from the OECD or UNESCO.

## **Practices of Company-Integrated and Dual Vocational Education and Training in Different Systems**

Examples of the differing structure of dual VET practice are presented below on the basis of important core characteristics. Particular characteristics are highlighted for each country.

### ***Denmark***

Denmark has a dual system of vocational education and training. The particular characteristics of the Danish system are a dual VET levy and the special status of the schools. The Danish vocational schools integrate functions that are divided between different actors in other dual systems. For example, they are not only responsible for the design of school-based part of the programme but also for administrative and strategic functions on the regional level. Assuring the quality of work-based learning and maintaining the register of training enterprises are also part of their mandate. They act as central points of contact at a regional level for the implementation and governance of vocational education and training.

In Denmark, each company pays into a vocational education and training fund depending on the number of employees it has. There are a total of four possible different kinds of training contracts. These are a “normal” training contract with a company within the scope of dual training arrangements, a contract concluded with a company prior to commencement of basic vocational training, shorter-term contracts with different companies and a contract with a school to replace a company-based training contract (Buske and Grollmann 2010).

### ***France***

The number of apprentice contracts (apprentissage) in France has doubled since the 1980s, as a result of various reforms (Berger und Mouillour in Vorbereitung). One particular characteristic in France is the possibility of also completing apprentice training within the scope of academic training programmes leading to relevant qualifications. Most apprenticeship training, however, takes place at lower qualification

levels. Beyond the company-based training contract integrated into the educational system, there is also a shorter so-called professionalisation contract, which forms part of the continuing training system. Wages paid during training are aligned to the minimum wage and rise gradually, based on the age of the trainees. France also has a training levy, which is paid directly to a training institution by the companies. In addition to this, company-based training contracts are subsidised by the regional authorities (Centre d’analyse stratégique 2013; European Commission and IKEI 2012; Steedman 2010).

### *Australia*

Apprenticeships and traineeships are a common feature of VET that exemplifies a dual training model. Originally established for the traditional trades, these programmes have now expanded to include sales, service and clerical occupations. The dual training model operates under a tripartite agreement between the apprentices and trainees, the training providers and employers and, in some cases, the group training organisations who employ the apprentices or trainees and place them with suitable employers. Apprentices and trainees receive an incremental training wage as they progress through their training programme which can be completed on a part-time (where available) or full-time basis. Whilst the majority of apprenticeships and traineeships are offered by registered training providers, some secondary schools also offer these programmes. These programmes are also offered to people aged 45 years or over. Financial incentives are offered to employers who take on new apprentices or trainees or retrain existing workers. Responsibilities for connecting and integrating learning in the main sites (training organisation and the workplace) to achieve quality outcomes are shared between the training organisation and the workplace. The award of the qualification rests with the registered training organisation.

### *Canada*

A training relationship based on a contract between a company and a worker is also viewed as an “apprenticeship” in Canada. Each of the Canadian provinces governs this form of training itself. Nevertheless, a national system for the recognition of training programmes is in place (red seal). It is usually the case that three quarters of learning is conducted in the workplace, whilst one quarter is in the form of back-up teaching. Dual training follows completion of compulsory schooling (12 years). Training providers are usually the so-called community colleges or similar institutions in the post-secondary educational sector. Training within the scope of apprenticeships primarily occurs in manufacturing and craft trade occupations. Companies receive tax breaks if they offer training contracts. Individuals may obtain support

from the Federal Government if they have reached a certain phase of their dual training as a form of incentive for the completion of such training. Companies also receive financial support for training in some cases.

## **“Varieties of Duality” as an Object for Comparative Research on Vocational Education**

Company-based and dual vocational education and training is attracting considerable attention internationally. It is viewed as a key means of countering youth unemployment. For this reason, many countries are involved in drawing up and implementing reform plans to put vocational education and training on a stronger company-based footing. The OECD is also addressing the topic of company-based training in VET in a current project.

All in all, this debate and political action mainly focus on the potential effect for labour market integration. Almost no emphasis is directed at questions that arise on the *integration of learning experiences from school or college on one side and work on the other*. Neither questions about how to design curricula is substantially addressed in that regard.

“Work-based learning” and “apprenticeships” are key terms in the international discourses, especially when it comes to discussions on the transfer of VET models. Whereas the term “work-based learning” is too non-specific because it may be associated with a very wide range of constellations that are unconnected with vocational education and training, the terms “apprenticeship” and “dual system” are too specific and concrete. Typical forms of integration of companies into VET are company-based vocational education and training (“apprenticeship”), cooperative education and alternating training (alternance). Data on company-based and school-based forms of dual VET has been presented in order to highlight that dualised forms of vocational education and training exist in countries, which are not usually classified as having dual VET systems. Moreover, these forms frequently exist parallel to one another. “Alternating learning situations in accordance with the dual principle” as suggested by some authors encompass a continuum from largely unregulated traineeship arrangements to forms of regulated company-based VET within an established dual vocational education and training system. In that sense, duality is a characteristic of many or even any form of vocational education provision. However, the distinct forms of “duality” also have multifarious implications for curricular integration of work-based and school-based learning experiences and learning outcomes, accordingly.

Germany’s system of dual vocational education and training together with Switzerland and Austria, in which company-based contractually regulated training arrangements are integrated into the formal secondary VET system, means that,

viewed from an international perspective, those countries occupy a separate position. A certain form of delivering vocational education and including work experience – which might be found in other countries as well – is a common systemic practice in those countries. In that regard there is quite a broad common basis for a joint understanding of the *purposes and goals* of vocational education and the *design of respective educational support to individual learning processes*. Roles of different actors, such as companies and colleges and teachers and trainers, are legally defined and delineated. In addition the role of the individual within this learning setting is also clearly defined as “apprentice”. Denmark, which is usually also categorised amongst dual vocational education and training systems, has a lower (quantitative) level of company participation in training and represents a special case amongst the dual VET systems. Vocational colleges themselves have a very strong significance not only to the organisation of school-based instruction but also on questions of vocational guidance, curriculum design and the selection of appropriate companies for work-based learning. Such functions are regulated on other levels and partly through third institutions in some other systems. Different institutional setups, roles of actors and availability and division of learning time render the pedagogical task into something different that might need or will empirically lead to *other concepts of curricular integration*. It might be more similar to another form of duality, i.e. alternating training.

Whereas internationally comparative educational research offers access to a good data and information base in some areas, we still have too little knowledge of the conditions governing the realisation of work-based learning through vehicles ranging from single traineeships to comprehensive company-based training arrangements fully integrated into VET systems. We are still far away from a mapping or topology of vocational programmes, forms of provision and their relation to curricular and didactical concepts. However, this would be an important prerequisite for scientific analysis that allows for the kinds of evidence that are increasingly demanded by policymakers and could form the basis of an evidence-based curriculum design.

The challenge for comparative research in vocational education will be to look at “varieties of duality” that are embedded into national systems. This variety goes across systems but can also be found within national contexts. This implies on the one hand that the focus of research has to be directed more closely to the actual form of implementing duality on a level that is well below the systemic level whilst on the other hand guaranteeing a constant back reference to the national contexts of skill formation. Another challenge is that in some cases, it might be more appropriate to look at vocational learning as something embedded into and geared more towards certain types of employment practices than to educational practices.

## References

- Berger, S., & Mouillour, I. L.. Frankreich. In P. Grollmann u.a. (Hrsg.), *Internationales Handbuch der Berufsbildung*. Bielefeld in Vorbereitung.
- Boreham, N., Fischer, M., & Samurcay, R. (2002). *Work process knowledge*. London/New York: Routledge.
- Bransford, J. D. (2004). *How people learn: Brain, mind, experience, and school*. Washington: National Acad. Press.
- Buske, R., & Grollmann, P. (2010). Dänemark. In P. Grollmann u.a. (Hrsg.), *Internationales Handbuch der Berufsbildung Bielefeld*.
- Centre d'analyse stratégique. (2013). Berufliche Erstausbildung: ist Deutschland ein Modell für Frankreich? In *La note d'analyse* 322.
- Council of the European Union: Council Recommendation of 10 March 2014 on a Quality Framework for Traineeships 2014/C 88/01.
- Demes, H., & Georg, W. (1998). Zum Qualifikationsverständnis in Japan – Anmerkungen aus deutscher Perspektive. In: G. Laske (Hrsg.), *Lernen und Innovation in Industriekulturen*. Bremen: Donath.
- Ertl, H., & Frommberger, D. (2008). Comparative research in VET – Methodological considerations, results and current questions. In F. Rauner, & R. Maclean (Hrsg.), *Handbook on research in technical and vocational education and training* (pp. 259–266). Dordrecht: Springer.
- Euler, D. (2013). *Germany's dual vocational training system: A model for other countries?* Gütersloh: Bertelsmann Stiftung.
- European Commission. (2015). *High-performance apprenticeships & work-based learning: 20 guiding principles*. Brussels: European Commission.
- European Commission, European Social Partners, & Council of the European Union. (2013). *European Alliance for Apprenticeships. Declaration of the European Social Partners, the European Commission and the Lithuanian Presidency of the Council of the European Union*. Brussels, Leipzig.URL: [http://ec.europa.eu/education/policy/vocational-policy/doc/alliance/joint-declaration\\_en.pdf](http://ec.europa.eu/education/policy/vocational-policy/doc/alliance/joint-declaration_en.pdf) (Stand: 28.06.2014)
- European Commission u.a. (2012). *Study on a comprehensive overview on traineeship arrangements in Member States*. Final Synthesis Report. Brussels.
- European Commission, & IKEI. (2012). *Apprenticeship supply in the Member States of the European Union*. Final Synthesis Report. Brussels.
- Fuller, A., & Unwin, L. (2003). Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work*, 16(4), S. 408–S. 426.
- Georg, W. (1990). Berufsausbildung ohne Beruf: Qualifizierungsstrategie in Japan. In Fernuniversität Hagen (Hrsg.), *Arbeit und Ausbildung in Japan* (pp. 1–4). Hagen.
- Georg, W.. (1996). Kulturelle Tradition und berufliche Bildung. Zur Problematik des internationalen Vergleichs. In W. Greinert (Hrsg.), 30 Jahre Berufsbildungshilfe. Berlin.
- Greinert, W.-D.. (1995). Regelungsmuster der beruflichen Bildung: Tradition – Markt – Bürokratie. In *Berufsbildung in Wissenschaft und Praxis*, 24(5), S.31–S.35
- Greinert, W.-D., & Hanf, G. (2004). *Towards a history of vocational education and Training (VET) in Europe in a comparative perspective Luxembourg*.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), S.56–S.73.
- Grollmann, P.. (2008). Comparative research in TVET. In R. Felix, & M. Rupert (Hrsg.). *Handbook on research in technical and vocational education and training*. Dordrecht.
- Grollmann, P.. (2012). Duale Ausbildung – Nischenexistenz oder auf dem Vormarsch? In K. Eva u.a. (Hrsg.), *Akademisierung der Arbeitswelt? Zur Zukunft der beruflichen Bildung* (pp. S300–S.312). Hamburg.
- Grollmann, P., & Helmrich, R. (2014). Formen betriebsintegrierter Ausbildung in Europa. In BIBB (Hrsg.), *Datenreport zum Berufsbildungsbericht* (pp. S427–S435). Bonn.

- Grollmann, P., & Lewis, M. V. (2004). Lernortkooperation aus internationaler Perspektive – USA. In E. Dieter (Hrsg.), *Handbuch der Lernortkooperation* (pp. S655–S670). Bielefeld.
- Grollmann, P., & Smith, E. (2007). International perspectives on apprenticeship, Special ed. *Education and Training*, 49, 3.
- Grollmann, P., & Wilson, D. N. (2002). Berufliche Bildung in Kanada. Episodenhaftes operieren am Symptom oder nachhaltige Reformen? In L. Uwe (Hrsg.), *Internationales Handbuch der Berufsbildung*. Baden-Baden.
- Hall, P. A., & Soskice, D. (2004). *Varieties of capitalism : the institutional foundations of comparative advantage* (p. S. XVI, 540 S). New York: Oxford University Press.
- Klenk, J. (2013). *Nationale Qualifikationsrahmen in dualen Berufsbildungssystemen. Akteure, Interessen und politischer Prozess in Dänemark, Österreich und Deutschland*. Bielefeld. URL: <http://www.ciando.com/ebook/bid-892403>
- Lave, J., & Wenger, E. (1991). *Situated learning : legitimate peripheral participation*. Cambridge [u.a.].
- Maclean, R., Chinien, C. N., & Wilson, D. N. (Hrsg.). (2008). *International handbook on education for the world of work: Bridging academic and vocational education*. Dordrecht.
- Malloch, M. u.a. (Hrsg.). (2011). *The Sage handbook of workplace learning*. Los Angeles u.a.
- Maurice, M., & Sorge, A. M. (1990). *Industrielle Entwicklung und Innovationsfähigkeit der Werkzeugmaschinenhersteller in Frankreich und der Bundesrepublik Deutschland : gesellschaftliche Analyse der Beziehungen zwischen Qualifikation und Wirtschaftsstruktur* (Discussion paper FS I 90-11). Berlin.
- Maurice, M., Sorge, A., & Warner, M. (1982). Societal differences in organizing manufacturing units: A comparison of France, West Germany, and Great Britain. *Organization Studies*, 1(1), S59–S86.
- Organisation for Economic Co-operation and Development. (2010). *Learning for jobs*. Synthesis report of the OECD reviews of Vocational Education and Training. Paris.
- Organisation for Economic Co-operation and Development. (2013). *Education at a glance OECD indicators*. Paris
- Organisation for Economic Co-operation and Development. (2014a). *Education at a Glance 2014: OECD Indicators*. URL: <https://doi.org/10.1787/eag-2014-en> (Stand: 22.12.2015).
- Organisation for Economic Co-operation and Development. (2014b). *OECD Reviews of Vocational Education and Training*. Skills beyond School. Synthesis Report.
- Organisation for Economic Co-operation and Development. (2016). *Education at a Glance 2016*. OECD Indicators. Paris. URL: <http://www.oecd-ilibrary.org/docserver/download/9616041e.pdf?expires=1490346135&id=id&accname=guest&checksum=B435E0ADDFE65EE8D5DBF529A7CA6AF9>
- Organisation for Economic Co-operation and Development. (2017). *OECD thematic studies: Work-based learning in vocational education and training (VET) – Papers and reports*. URL: <http://www.oecd.org/edu/skills-beyond-school/work-based-learning-in-vocational-education-and-training-vet-papers-and-reports.htm>
- Pilz, M. (2016). Typologies in comparative vocational education: Existing models and a new approach. *Vocations and Learning*, 9(3), S295–S314.
- Rauner, F., & Maclean, R. (Hrsg.). (2007). *Handbook on research in technical and vocational education and training*. Dordrecht.
- Refernet Czech Republic. (2012). *Czech Republic*. VET in Europe – Country report. Prague.
- Robinson, C. (2001). *Facts, Fiction and Future*. Australian Apprenticeships.
- Schmid, J. (2010). Sozialpolitische Schlussfolgerungen und Chancen des Politik-Transfers: Ein Fazit. In (Hrsg.), *Wohlfahrtsstaaten im Vergleich* (pp. S471–S492).
- Schriewer, J. (1986). Intermediäre Instanzen, Selbstverwaltung und berufliche Ausbildungsstrukturen im historischen Vergleich. In: *Zeitschrift für Pädagogik*, 32. Jahrgang 1, S. 69–89.
- Steedman, H. (2010). *The state of apprenticeship in 2010*. International comparisons Australia Austria England France Germany Ireland Sweden Switzerland. London.

- Steedman, H. (2012). *Overview of apprenticeship systems and issues*. ILO contribution to the G20 Task Force on Employment. Genf.
- Stenström, M.-L., & Tynjälä, P. (2009). *Towards integration of work and learning : strategies for connectivity and transformation*. Dordrecht/London.
- Stockmann, R. (1998). Transferierbarkeit dualer Systemelemente in Länder der Dritten Welt. Eine Querschnittsanalyse von GTZ-geförderten "Dualprojekten". In S. Friedhelm, & U. Ernst (Hrsg.), *Die Modernität des Unmodernen* (pp.S83–S104). Berlin/Bonn.
- Stockmann, R. (2000). *Wirksamkeit deutscher Berufsbildungszusammenarbeit. Ein Vergleich staatlicher und nicht- staatlicher Programme in der Volksrepublik China*. Wiesbaden.
- Trampusch, C., & Busemeyer, M. (2010). Einleitung. *Swiss Political Science Review*, 16(4), S597–S615.



**Part II**  
**Integrating Work Experiences Within**  
**Vocational Education: Empirical Cases**

# Chapter 5

## Integration of Learning in Educational Institutions and Workplaces: An Australian Case Study



Sarojini Choy

**Abstract** How comprehensively learners make connections between what is taught in educational institutions and in the workplace has significance for developing competencies as productive workers. However, connectivity of learning in the two sites has been problematic for some time (Akkerman SF, Bakker A, Vocat Learn, 5:153–173, 2012; Fuller and Unwin 2011). Sappa and Aprea (Vocat Learn, 7(3):263–287, 2014) contend that shared conceptions of connectivity by key stakeholders such as learners (students/apprentices/workers), teachers, managers, supervisors, trainers and training coordinators lead to better outcomes for work-integrated learning.

This chapter reports on the findings from an Australian case study on how vocational education and training (VET) students, teachers and managers/coordinators conceptualise connectivity between what is learnt in educational institutions and workplaces. The study focused on two main questions: (i) How do key actors in the Australian VET system (VET students, teachers, trainers and managers/coordinators of training) conceptualise vocational learning and teaching across VET institutions and workplaces? (ii) What are the implications of their conceptions for connectivity of the VET curriculum? Participants engaged in semi-structured interviews. Their responses were analysed using the phenomenographic method (Marton F, Booth S, Learning and awareness. Lawrence Erlbaum, Hillsdale, 1997; Åkerlind GS, Phenomenographic methods: A case illustration. In Bowden JA, Green P (eds) Doing phenomenography (pp. 103–127). RMIT University Press, Melbourne, 2005a, High Educ Res Develop, 24(4):321–334; Paakkari L, Tynjälä P, Kannas L, Stud High Educ, 35(8):905–920). The study found four dominant conceptions of connectivity with structural and referential variations.

**Keywords** Phenomenography · Vocational education · Workplace learning · Integrated learning · Learning in context · Integration of experiences

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## Introduction

For vocational education and training students, including apprentices, the two main sites (educational institutions and workplaces) form parallel nodes that present opportunities and access to distinct as well as complementary sets of knowledge and skills needed to become competent and productive workers. Principally, it is the associative connections between these nodes that contribute to the development of students and apprentices. According to Clara and Barbera (2013), it is the pattern of connections that form the ‘matter of knowledge’ (p. 199). This analogy makes connections central to integration of learning that takes place in different sites, concentrating on learning *through* work instead of *for* work alone and shifting the focus from knowing to being able to perform work competently. The point is that the ability to correctly perform tasks at work cannot exclude knowledge and importantly ‘knowing’ how to apply that knowledge.

### *Learning Through Work*

While learning in educational institutions remains a routine practice, researchers (e.g. Billett 2006; Eraut 2004; and Ellstrom 2001) maintain that engagement in real work experiences presents a richer source of learning to develop competence for work. Learning in the workplace is ubiquitous and perpetual, though not always consciously acknowledged as such. Authentic settings in workplaces offer five main prospects, according to Ellstrom (2001). These are (1) the learning potential of the task; (2) opportunities for feedback, evaluation and reflection on the outcomes of work actions; (3) the formalisation of work processes; (4) employee participation in handling problems and developing work processes; and (5) learning resources (p. 425). However, Eraut (2008) argues that the quality of learning is influenced by learning strategies embedded within work processes. This supports earlier research by Collin (2002) on development of engineers that found five main ways of learning in the workplace: (1) through doing the job, (2) through co-operation and interaction with colleagues, (3) by evaluating work experiences (e.g. by reflective practices, from mistakes, accumulation of experiences and competencies), (4) by engaging in new and novel projects and (5) from sources outside work, yet related to work (e.g. networks, customers, professional and trade fairs, benchmarking). These five approaches make learning meaningful to individuals, and therefore, careful matching of curriculum in each setting becomes a critical step to support integration (Aarkrog 2005).

According to Billett (2001), implementing appropriate strategies to integrate learning in educational institutions and workplaces delivers meaningfulness not only to individuals but also to employers. In the workplace, it is the expected outcomes of work, driven by the demands and challenges of work and the social interactions that determine the purpose and direction of learning (Collin 2002). For the

most part, learning at work is informal or incidental and circumstantial and could be limited by work tasks that need to be performed, making learning restrictive, for instance (Fuller and Unwin 2003). Hence well-considered plans for workplace learning are pivotal (Billett 2014).

Billett (2001) argues that efficacies of learning in the two sites demand three key affordances: engagement in routine and nonroutine work tasks, direct and indirect guidance and opportunities and accessibility to practise opportunities. These require selective pedagogies and learning strategies to make appropriate connections between learning at the two sites (educational institutions and workplace). Griffith and Guile (2003) suggest four ways to realise connectivity: (1) thinking, (2) dialogic inquiry, (3) boundary crossing and (4) resituating competences. These workplace pedagogies are significant because workplaces are not set out for learning, yet appropriate pedagogical tools can harness learning in the workplace, especially aspects that cannot be replicated in simulated environments. However, students and trainers need to become aware of teachable moments (Bailey et al. 2004) to harness opportunities for integration. Researchers (e.g. Billett 2006 and Miller 2003) suggest that learning in the workplace should be accumulative, that is, commence with simple, solvable tasks and then gradually progress to more complex tasks where learners are also expected to become more accountable. This means students and apprentices need adequate preparations to connect learning in educational institutions and workplaces. Even with appropriate affordances in the different learning sites, selective pedagogies and learner preparations before engaging in work experiences, the main stakeholders play an important part in making connections or integrating learning in the two main sites. But, how do they go about doing this?

This chapter presents an Australian case study that interpreted VET teachers, apprentices and managers/coordinators' conceptions of learning in educational institutions and workplaces to understand how they make connections and integrate learning in these two sites. The overall purpose was to investigate ways to improve integration. The chapter is structured in the following way. First, an overview of the Australian apprenticeship system is outlined. Second, a brief description of the study is provided. Third, four conceptions that reflect integration are described and discussed. Fourth, factors affecting integration are summarised. Fifth, the main challenges and implications for integration are discussed. Finally, conclusions about key considerations to improve integration are drawn.

## **The Australian Apprenticeship**

The Australian vocational education and training (VET) sector is part of a broader educational network that includes schools, public and private providers of VET, universities, adult/community education providers, industry skills centres, commercial training providers and enterprise training providers. The VET sector focuses largely on developing skilled workers for specific trades or industries and remains a primary link between VET and the labour market. The apprenticeship scheme,

incorporating traineeships, is an integral part of the Australian VET landscape. The scheme has been in existence for over a century and is founded on strong support from industry and community, offering initial as well as continuing VET that is available for all ages, not just young people. Typically, the apprenticeship scheme operates under an indentured service agreement of 3–4 years, formalised by a contractual agreement between the apprentice, an employer and a registered training provider. Four key features define apprenticeship in Australia. These are outlined by Karmel and Knight (2011) as follows:

- The existence of a regulated, employment-based training arrangement and a registered legal training agreement (originally called an ‘indenture’ and more recently a ‘contract of training’)
- A commitment by the employer, the employee [apprentice] and a registered training organisation (RTO) to an agreed training programme in a specified occupation, all of which are set out in the agreement
- An occupational training programme that consists of a concurrent combination of paid employment and on-the-job training and formal (usually off-the-job) training that leads to a recognised qualification (commonly Certificate II or III levels)
- Training that is provided at an agreed level in the Australian Qualifications Framework (AQF) and to standards set down in the Australian Quality Training Framework (AQTF) (p. 10)

Variations between trade areas and size of workplaces may exist to accommodate specific contexts. In the main, the agreed training programme is negotiated to allow for a broad set of opportunities and outcomes for apprentices, employers and VET institutions. It appeals to apprentices because the scheme includes paid employment and learning. It is subsidised by government to enable entry into employment and at the same time presents a source of low-cost labour for the employers and opportunities for recruitment of future workers.

Apprentices can enrol in programmes at Certificate III and IV and Diploma qualifications under the Australian Qualifications Framework (see <http://www.aqf.edu.au/>). The curriculum comprises formal training in a registered VET institution (public or private) or school and supervised experiential learning in a workplace. Typically, about 80% of time is spent in practice-based learning in work sites and the remaining 20% spent at a VET institution. Learning in the educational institution and on-the-job training is not necessarily concurrent; the schedule is negotiated at the time of developing a training plan. The registered training provider has a primary role in assessment and is authorised by the relevant government department to award the appropriate qualification upon successful completion of the agreement.

Foundational to the administrative arrangements for apprentices’ learning in the two sites is the connectivity which rests on contributions from a range of stakeholders (e.g. apprentices, teachers, trainers, managers/coordinators, workplace supervisors and co-workers). In Australia, some VET teachers are also trainers in the workplace so act as conduits between the two learning sites. Work supervisors oversee the apprentices’ performance and, if qualified, may also formally assess them to

ascertain competency. Certain VET providers may also have dedicated personnel (e.g. managers/coordinators) who liaise with industry partners or workplaces to secure placement of VET students and then monitor their progress. The level of input from each varies. Hence there are different arrangements for connecting to achieve integration. The arrangements reported in this chapter are drawn from a study of stakeholders' conceptions of vocational learning and teaching across VET institutions and workplaces (Choy and Sappa 2016).

## The Study on Integration

The study on integration was through an investigation on how key actors (VET teachers, managers/coordinators and apprentices) in the Australian VET system conceptualised connections in learning across educational institutes and workplaces. The apprentices were at different phases in their programme. The study was guided by two research questions: (1) How do key actors in the Australian VET system (VET teachers, managers/coordinators and apprentices) conceptualise vocational learning and teaching across VET institutions and workplaces? (2) What are the implications of their conceptions for connectivity of the VET curriculum? The sample comprised of two teachers and two apprentices from each of three courses (telecommunications, instrumentation and hospitality) and two managers/coordinators from telecommunications. All participants were engaged in the apprenticeship programmes offered by Technical and Further Education (TAFE) institutes (public providers) in the south-east of Queensland, Australia. The sample participated in face-to-face interviews lasting between 30 and 45 min. The interviews were transcribed and then analysed using the phenomenographic method validated by Marton and Booth (1997), Åkerlind (2005a, b) and Paakkari et al. (2011). The analysis process followed six steps:

1. Independent analysis to identify common themes
2. Consensus on the themes
3. Independent coding
4. Consensus coding
5. Analysis to identify common conceptions of learning in educational institution and workplace settings
6. Secondary analysis

(For more details about the procedures, see Sappa and Aprea 2014.)

The merits of phenomenography are premised on the assumption that there are qualitatively different ways of experiencing and understanding a particular phenomenon (e.g. connection between learning at TAFE and at the workplace). The task of the researcher is to uncover qualitatively different ways of experiencing a certain phenomenon. In line with this, each interview transcript was read independently several times by two researchers. Their summary of the conceptions was then discussed to agree on a common label for each category derived from multiple interview transcripts. That is, each interview contained more than a single category.

The differences are interpreted through analysis of data in the form of discourses where participants describe critical aspects of their experiences. The depth of detail and level of complexity in their descriptions depend on their linguistic abilities in expressing themselves at the time of the discourse. The strength of phenomenography rests in its procedural process to identify elements of variations that characterise the phenomenon interpreted by the participants. Hence, by means of phenomenography, it is possible to identify less and more complex conceptions and interpretations of a particular phenomenon as manifested in the individuals' discourse. However, it must be noted that the phenomenon comprises more than what is interpreted by the participants.

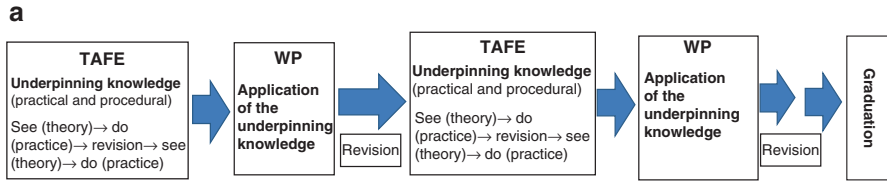
## Conceptions of Connectivity

Conceptions refer to the individual's ways of representing and understanding a particular phenomenon. Different individuals can interpret the same phenomenon in different ways, depending on their preconceptions and/or their particular ways of experiencing such phenomenon. Individual ways of interpreting connections between educational and workplace settings (i.e. conceptions) may be influenced by the design and provision of learning.

The findings from the Australian study show four common conceptions that suggest how learning is integrated between sites:

1. *Experiences as preparation for learning in different sites* and comprising a sequential and linear combination of conceptual and practical learning
2. *Broader perspective on learning at TAFE and the workplace* through engagement in a combination of standard and situated learning in both settings
3. *Encompassing perspective on learning in the two sites* whereby learning focuses on applying conceptual knowledge to 'make sense' of the practical procedures
4. *Learning that stimulates higher-order thinking* through a circular process of developing critical thinking and acting

These conceptions illustrate particular phases in the trajectory for apprentices. That is, the level of complexity is seen to increase from less to more sophisticated across Conceptions 1–4. The learning expressed in the two versions of Conception 1 (sequential and linear) are foundational and remain central in all other conceptions; hence there is more commentary on Conception 1 to avoid repeating the same when reporting on the remaining conceptions. It is likely that the conceptions were influenced by the site where apprentices commence learning (at TAFE or the workplace) or by year of their agreement (first, second, third or fourth year of apprenticeship) and learner maturity as an apprentice. These assumptions were not examined as part of the project. In the ensuing sections, the four conceptions are described and discussed.



**Fig. 5.1a** Learning commencing at TAFE in preparation for practice in the workplace. (Source: Choy and Sappa 2016, p. 8)

### *Conception 1: Experiences as Preparation for Learning in Different Sites*

The first conception is interpreted as a sequential and linear combination of learning conceptual and practical knowledge and skills, all being richly interconnected. Two sub-conceptions were noted: (i) learning at TAFE in preparation for practice in the workplace and (ii) learning in the workplace in preparation for learning at TAFE. The conceptual component was mostly learnt in TAFE and the practical component predominantly in the workplace, albeit some practical learning also took place at TAFE. In the workplace apprentices also acquired the canonical knowledge of the occupation and its variations, generally established by the organisational cultures. Practical learning components at TAFE and the workplace made distinct contributions, more aligned with theory and practice. Figure 5.1a shows the sequence of learning commencing at TAFE.

The programme at TAFE provides basic underpinning knowledge and technical and procedural skills in preparation for practice in the workplace. This is explained by a manager/coordinator as follows:

*... the apprentice comes here to learn the underpinning knowledge... They get all the theory. They do pracs, but they really get all the theory here and then they go back to the workplace and apply that theory that they've learnt, and that's how they make their connections.* [Manager/coordinator, Telecommunications]

Apprentices who engaged in this sequence of learning are mainly school leavers (young people) and are accustomed to classroom-based learning. They have academic skills to learn and conceptualise theoretical and procedural knowledge and then observe and engage in basic practical activities to gain an understanding of the job tasks.

Typically, teachers use standard classroom-based pedagogies (didactic teaching) and multimedia to illustrate examples of how the theoretical and procedural knowledge is applied in real work contexts. They use their practical knowledge of current practices and draw on their own experiences in authentic settings as informative resources for teaching. All the same, for more productive integration, Billett (2011) recommends extending beyond didactic instructions, aside to teacherly engagement. This is because curriculum and pedagogic interventions (structured responses and approaches to optimise quality experiences) contribute to the richness of



learning (Billett and Choy 2012). Swanwick and Morris (2010) caution that the focus should extend beyond learning as acquisition (e.g. at TAFE) to learning as participation through social practices in authentic settings (workplace). The richness of practical experiences in simulated environments in TAFE varies, depending on the resources (contemporary tools and equipment) and volume of curriculum content that needs to be covered in a given term or semester. However, with the introduction of online learning, many apprentices are expected to learn most of the theoretical knowledge on their own. Online provisions have seen reduced face-to-face contact with teachers who try to optimise coverage during the contact hours by focusing more on the practical aspects of learning, as explained by a hospitality teacher:

*More of a one-third theory, two-thirds practical is what I try and look at. Then when you get into their apprentices. It changes a little bit depending on what year they are. Some of the more technical subjects, they're leaning towards doing a lot of that online. So we're focusing now on teaching a lot more of the practical side and letting the online resources that are being developed take care of a lot of the theory. In some ways that's really good but in some ways it is confusing for some of the students. [Teacher – hospitality]*

As illustrated in Fig. 5.1a, much of the underpinning knowledge is learnt in TAFE generally in the beginning for apprentices who commence at TAFE. The hospitality teacher explains that there is more reliance on online learning, so during the face-to-face sessions, teachers try to focus on the application of the underpinning knowledge during practical activities. Teachers do feel pressured to complete the curriculum and at the same time assist with integration, especially when students return from their first attachments in the workplace and seek clarifications about practical and theoretical aspects of their experiences. Where the apprentices complete a full set of practical activities in simulated environments such as in a TAFE training restaurant, teachers complete the log books to capture the day's learning and then engage the learners in a debrief:

*It's something that's a habit from when I've been a head chef in industry. We always debrief at the end of service, what went wrong, so it's not really debriefing about their work experience as such but that particular service period, so what went wrong. [Teacher – hospitality]*

So, during the first episode of learning at TAFE, they engage in a series of repeated theory and practice lessons. The foundational knowledge and skills acquired during this episode equip the apprentices with the basics to apply these when on their first placement in the workplace where students learn to contextualise the skills and processes, as explained by a teacher:

*Basically, so getting all the foundation skills down right so then once they get into an industry restaurant they basically have got those foundations in place and they can start to work on their speed, start to work on improving those skills and taking it from there... That realistic service ratio and speed needs. [Teacher - hospitality]*

Teachers organise the enacted and experienced features of the curriculum (Print 1993) to allow for seven key areas of learning: (1) learning about the occupation, (2) variations within the occupation, (3) extending knowledge, (4) gaining orientation,

(5) building capacities, (6) developing occupational specific forms of knowledge and (7) meeting requirements for licensing (Billett 2011). The challenge then is for the employer to scope a learning programme and afford opportunities to practise. How this is done varies across sites. Teachers and/or managers/coordinators ensure that workplace supervisors are well briefed and are fully aware of what the apprentices have learnt in TAFE so that they can schedule appropriate opportunities for relevant experiences. Workplace learning provisions as a preparatory curriculum give confidence to apprentices. Teachers ensure that the learners are well prepared for experiences in the workplace and integration for planned and unplanned curriculum that unfolds during the period of placement in the workplace. That is, as they actively engage in work tasks, participate in problem solving, observe and get enculturated into the workplace, they are more likely to experience rich learning. However, many apprentices need to be taught to do these to optimise learning. The TAFE teachers and coordinators/managers who participated in the research explained that they regularly kept in touch with workplaces, by visiting them or by phone to ensure apprentices received a wide spectrum of experiences. Some would even get their administrative staff to call and check on the apprentices.

On their return following the first engagement in the workplace, teachers routinely hold debriefing sessions. An essential point is that debriefs also allow apprentices to internalise and reconcile experiences they may be uncertain about, as they begin to identify new kinds of learning that arises from work. This calls on specialised skills of teachers to engage apprentices in active, critical, reflective and reflexive thinking. All this reinforces the key ideas underpinning the curriculum. The process forms a way to self-evaluate work experiences and also reflect and learn from mistakes (Collin 2002):

*A year later they come back for a week. We then sit them down and go through like a review. Where are you at? What are you going? "Oh we've got all this". "Right we need to start putting this into your training plan". Then they come back in their final year and they do what we call a capstone test which is a trade test. [Teacher – instrumentation]*

The review exercise mentioned here is to audit the range and scope of experiences, not necessarily only self-reflection on learning during the experiences.

*I do go through and ask them all individually around the table when they come back from work experience, "Can you tell us about your experience?" We can say what went wrong or what they didn't like. It's kind of like a debrief but a sharing experience because of the different experiences that they have. [Teacher – hospitality]*

The sharing of experiences allows apprentices to understand the variations in practices attributable to the different sites and industry contexts. Nonetheless, VET teachers' knowledge, skills and experiences of current practices in the workplace play an important role in helping apprentices integrate learning in the two sites. So, although individual apprentices may be constrained by the scope of situations for practice or just doing routine tasks, sharing experiences as a group adds to their knowledge base. Teachers and students also discover good and bad practices. Indeed, both are likely to also learn things that were not necessarily covered in the curriculum at TAFE and get an opportunity to theorise the idiosyncratic learning

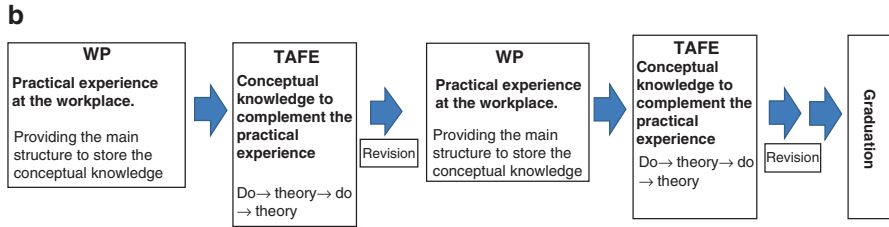
apprentices experienced in the workplace. That is, apprentices are able to intellectualise experiences gained at work (Svensson, Ellstrom and Åberg 2004) and appraise the meaningfulness of what they experienced. Through a deliberate process facilitated by their teachers, apprentices engage in additional learning to continue building this platform. That is, more underpinning knowledge and applications through practical activities are pursued in TAFE before they engage in the next set of workplace learning to apply what they have learnt. All the same, to enhance the quality of learning (Eraut 2008), apprentices need to be made aware of specific learning strategies as they engage in work tasks. Teachers play an important role in negotiating a shared set of goals for the formal curriculum and that of the workplace (Collin and Tynjälä 2003). On their return from each episode of learning placements in the workplace, the process of debriefing, critical thinking and reconceptualisation is repeated. It is at this point teachers may review the scope of practical experiences offered in particular sites and suggest to apprentices that they secure new sites to supplement those skills they are already competent in:

*So certain restaurants can't offer you all of that and I always suggest to the apprentices when they stop learning in a place after a year or so, maybe it is time to move on to another placement. [Teacher: Hospitality]*

The teacher's advice here illustrates a learner-centred focus to ensure they gain a variety of experiences so that they meet the requirements for the final assessment (e.g. trade test) that concludes the programme before apprentices graduate. Teachers in the study actively supported apprentices to ensure a broad scope of experiences, citing over 95% completion rates and over 92% passes in the trade tests as evidence of good outcomes. However, the success of such arrangements rely on their efforts to ensure workplace trainers or supervisors are fully aware of what the apprentices have already learnt in TAFE, the types of work activities that will reinforce that learning and also advice on scheduling appropriate tasks for practical applications. The point being, that the precise nature of arrangements cannot be left to assumptions or ad hoc action, rather through collaborative efforts.

In most sites where the participants of this study were involved, employers monitored the growth in apprentices' understandings of the theories and applications in the context of the work they perform. The richness of experiences in the workplace also depends on the workplace affordances, nature of learning cultures, opportunities as well as the agency of apprentices themselves to access learning. For instance, one of the workplaces that offered apprenticeships in instrumentation had a long history and well-established culture of supporting apprentices. That culture was maintained and strengthened mainly through the close relations with TAFE teachers.

The second version of Conception 1 commences with experiences at the workplace followed by learning in TAFE, again in a sequential and linear fashion. This version is more popular with experienced workers who wish to gain a qualification and those who are able to secure an apprenticeship before attending TAFE. In this instance learning in the workplace provides the basis for the theoretical and conceptual curriculum taught at TAFE:



**Fig. 5.1b** Learning commencing in the workplace in preparation for TAFE. (Source: Choy and Sappa 2016, p. 8)

*So they really get everything on the job. They just come to us with the knowledge really, in trade that is. [Teacher – Telecommunication]*

Figure 5.1b summarises the conception on learning that commences in the workplace.

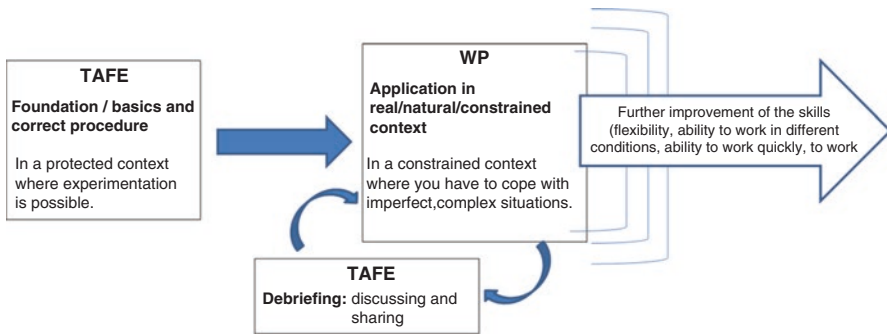
The cycle of learning theoretical and conceptual knowledge in TAFE and practical knowledge in the workplace is similar to that in the version illustrated in Fig. 5.1a. However, the content of learning in the workplace followed by learning in TAFE is likely to be much richer and extended beyond just the basics. Students’ learning at TAFE is enhanced by augmenting and supporting what they already acquired during their recent work experiences. So, the second set of experiences in both sites is about further extending the foundational knowledge and skills for their chosen occupations and getting more familiar with the normative and social practices.

Regardless of the site learners commence learning in, both conceptions illustrate incremental coverage of the intended curriculum for the apprenticeship programme in the two main sites (TAFE and workplace). This supports their ‘becoming’ as a practitioner and at the same time forming their professional or practitioner identities. However, the focus is more on the content of the curriculum (knowledge and skills) than on the learners.

***Conception 2: Broader Perspective on Learning at TAFE and the Workplace***

The second conception focuses on learning correct procedures in a safe and simulated environment (at TAFE) and then applying such procedures in the real work situations which may present constraints that cannot be emulated in simulations. Figure 5.2 illustrates this conception.

In this conception participants interpreted learning that extended beyond theory and practice to include professional standards and acquisition of situation-specific knowledge and skills. They spoke about the ‘protected’ and ‘simulated’ nature of learning at TAFE and the ‘naturalistic’ way of learning at the workplace. The



**Fig. 5.2** Broader perspective on learning at TAFE and the workplace. (Source: Choy and Sappa 2016, p. 8)

creation of a range of simulated environments and scenarios hinges much on the ingenuity of the teachers. The main difference between the first and the second conception lies in the apprentices having the opportunity to master their skills and procedures which they can then appropriate in specific work contexts. They do this by learning the standard and then the situated examples. The focus of learning is largely on reproduction of practice, where apprentices tend to mimic simple work tasks but at the same time learn about the learning potential of the task and formalisation of work processes (Ellstrom 2001). This conception relates to what Baartman and Bruijn (2011) describe as ‘low-road integration’, which is when individuals reach automatic performance resulting from repeated practice. A low-road integration is logical because initial experiences in the workplace can be overwhelming for apprentices as they need to comprehend a large volume of new information.

Basic learning and teaching strategies are similar to those expressed under Conception 1, but there is more emphasis on gaining proficiency in foundational canonical knowledge and skills to develop a range of technical skills in preparation for experiences in workplaces where apprentices can focus on aspects such as occupational and work requirements (plus variations within), speed, communication (i.e. the ‘language’ of the work community), idiosyncratic dispositions (as in the hospitality industry, if dealing with diverse clients, for instance) and the practice of the community in the work site as apprentices get socialised and enculturated. Collin (2002) contends that informal learning at work is ‘constructed discursively, through work-based communication and symbolic patterns of behavior...’ (p. 135). It therefore becomes essential for apprentices to learn basic communication skills that are vocational as well as site specific so they can engage in interactions with the local communities of practice. Workplace language competence enables apprentices to understand and contribute to communicative actions and to correctly interpret and negotiate meanings. The importance of basic skills and correct procedures was emphasised by a teacher from telecommunications:

*Knowledge of the rule book. Correct procedures. They do it in the workplace but ... you see some really hairy stuff out in the workplace.* [Teacher: Telecommunications]

This teacher explained that apprentices need to be taught correct procedures because many workplaces are likely to follow ‘shortcuts’ and compromise safety. Teachers and apprentices also recognised that rule following alone is not sufficient. This point was also stressed by Claxton (2000) who explained that learning about rules through formal education forms the foundations and through practice individuals also develop intuition which is necessary for problem-solving. Schaap et al. (2012) stress that students need to draw on and combine ‘different theoretical notions, abstract models and practical insights in order to be able to adequately solve problems’ (p. 103). Additionally, teachers also need to explain the consequences of not following correct procedures, as done by a teacher:

*... if you don't follow this procedure and someone is killed you will be ending up in a coroner's court explaining your actions.* [Teacher: Telecommunications]

Such cautionary statements coerce apprentices to reflect on the procedures and processes. However, the general approach to learning was on mastering the conceptual, procedural and practical knowledge so that it can be applied in flexible ways to solve different types of problems. The mastering takes place in a protected environment at TAFE:

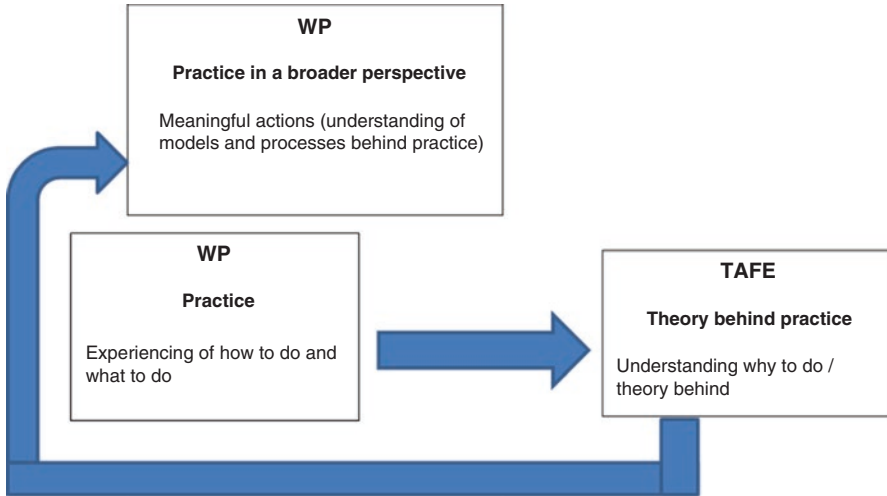
*The fundament is rote learning, believe it or not. We don't go in and do something in a switchboard without putting into place risk assessments and safety assessments. We don't go in there deliberately to work on live cables, even though we have skills and knowledge to do it. Avoided outage is the last step that we go through ... Good training overcomes all their fear of any danger that they're going to have. They're aware of the dangers, but they know while they're doing that job they're not going to be exposed to excessive danger.* [Teacher: Instrumentation]

Apprentices who have experienced the challenges of learning and working in standard and situated environments appreciate the opportunity to experiment in TAFE where they work in a laboratory-type environment and experiment in the absence of authentic external factors such as those present in real work situations:

*Obviously in the workplace there are always time constraints and often, if it's a continuing working process, then you can't do stuff offline, like say an instrument or a piece of electrical equipment and work on it because it's live, it's in service.* [Apprentice: Telecommunications]

*... but there is a need to be learning off the job because you need to have that environment where you're not under the duress of time and you can learn at your own pace and free will and explore different avenues off to the side without being told they're not relevant, because in order to complete that whole body of learning often that is required.* [Apprentice: Instrumentation]

One other apprentice pointed that the standard practices taught at TAFE also expose them to different examples, whereas certain workplaces have particular specialised services or products and limited opportunities to learn beyond these. Conception 2 suggests ‘routine generating’ (Kira 2010) learning which develops basic competence, important for beginners, though limited in scope. Nonetheless, the foundational knowledge and skills set a sound platform for apprentices to extend understandings about occupational and workplace requirements so that they ‘get the feel’ (Harris et al. 2001, p. 267) and gain insights of the practices in particular



**Fig. 5.3** Circular process of applying conceptual knowledge to ‘make sense’ of the practical procedures. (Source: Choy and Sappa 2016, p. 10)

trades. Equally important is that apprentices are made aware of expectations, what to learn and how to access and engage in learning (Billett and Choy 2012).

### ***Conception 3: Encompassing Perspective on Learning in the Two Sites***

The participants’ conceptions on integration of vocational learning across the different settings suggest higher-order thinking. It extends beyond basic skills and competencies and involves a progressive and circular process of ‘making sense’ of practical procedures experienced at the workplace, using the conceptual frameworks and tools learnt in TAFE. The sequence is circular. This conception is summarised in Fig. 5.3.

Under this conception apprentices get to understand the theory and subsequently the rationale for enacting work procedures in particular ways:

*They’re supposed to be sort of mirroring what they’re doing at work but this time with theory behind it, knowing why they’re doing that sort of work. A lot of students are surprised when they do the theory, going, “Oh, well, that’s why we have to do it that way”.*  
[Teacher: Telecommunications]

Apprentices appreciate this, as explained by one:

*Usually when I do something at work, when I come to TAFE and get the theory, I understand it, because some tradesmen can teach and some that can’t, and for a while I was with a person who just couldn’t teach. He’d say do this, then I’d ask him to explain why this happens, and he’d be like I don’t know, it just happens. So then I came to TAFE and it broadened my perspective on the subject – like okay, so this is why this happens, now it’s all making sense.*

The focus of learning is similar to that described under Conception 2 and concentrates on refining the procedural skills but also understanding the rationale for using particular approaches in given contexts. Apprentices engage in careful analysis of situations, developing solutions and justifying chosen approaches. This necessitates thorough understanding of the theory behind practice, not just mirroring what is learnt at TAFE. The approach to learning and integrating between sites presents what a telecommunications teacher described as ‘light bulb’ moments that may arise through self-discovery, explanation by the teachers or through structured questioning. It is not always customary for workplace trainers, supervisors or other experienced workers working with apprentices to explain why jobs are done in particular ways. Often apprentices will be told what not to do, citing company policy on risks, but given no valid reasons of theoretical or conceptual nature. One apprentice discovered that workers, even the most experienced ones, had never sought an explanation so could not explain when asked. Yet, TAFE teachers were able to provide a rationalistic explanation. In this instance, TAFE teachers made connections between underpinning knowledge and applications to practical activities. Apprentices who lean more towards this conception of integration were encouraged to consider integration that extends beyond what is in the intended curriculum.

#### ***Conception 4: Learning that Stimulates Higher-Order Thinking***

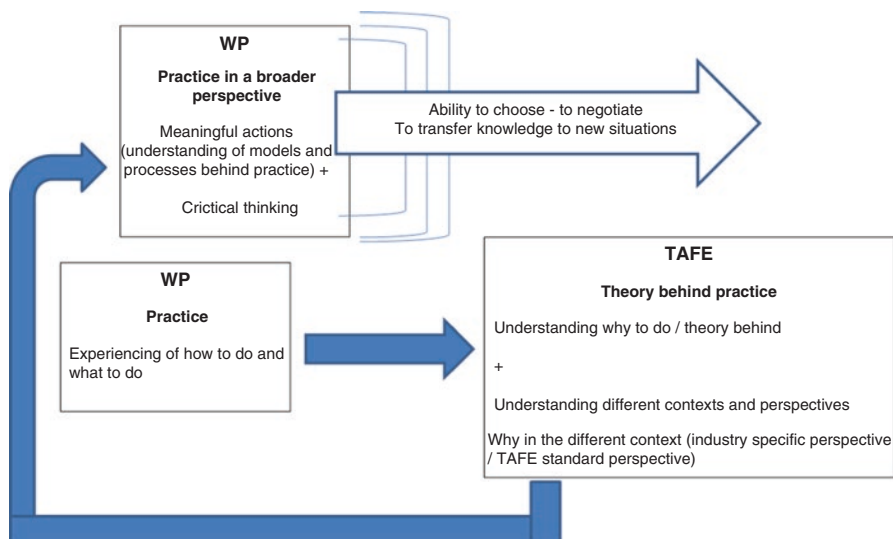
The last conception is a further extension of Conception 3 and illustrated in Fig. 5.4.

In this conception TAFE becomes a place to learn different standards and work cultures. This learning helps apprentices diversify their understandings about practical strategies and scenarios for application. It extends beyond routine approaches and stimulates higher-order thinking to anticipate and solve complex problems. Apart from understanding the reasons behind specific procedures, they also learn how to appropriate different procedures in different contexts, even when the tasks are similar. To be able to do this, they need to understand why certain procedures are best suited in given circumstances. Hence, reflective processes for critical thinking are included as pedagogy and in this way making learning even more learner-centred.

In the work context decisions about how tasks are performed in different work settings are formed by reconciling standards and regulations sourced from the TAFE curriculum (as set out in the Training Packages) and industry or workplace operating procedures. However, stipulations in the Training Packages lay out common and often basic standards and practices. Licensing authorities may have more specific regulations for particular trades. Thus critical judgement becomes necessary when integrating different sets of learning. This was explained by a teacher from the instrumentation industry:

*Well, this is how you need to do it because of the training package or because of the Australian standard or because of something. In this environment this is the way that you need to be demonstrating it. What you do in the workplace will be a negotiation between you and the manager, I suppose. [Teacher: Instrumentation]*





**Fig. 5.4** Learning that stimulates high-order thinking. (Source: Choy and Sappa 2016, p. 11)

Learners need to critically assess and evaluate situations to develop the most relevant and appropriate approach to complete tasks within the constraints of time and resources. Conception 4 suggests ‘high-road integration’ where learners need to engage not only in practice but also reflections and they need to ‘think consciously about what he or she is doing’ (Baartman and Bruijn 2011, p. 129).

Teachers facilitate this process by asking questions such as ‘Have you considered this?’ or explaining the potential consequences of not following standard procedures. For instance, the consequences of cost-cutting or using shortcuts could have detrimental effects on customer services. In this way integration and proper implementation of what is learnt in TAFE into the context of real work situations are emphasised. Importantly, Ellstrom (2001) suggests that learners be instructed to ‘use their own competence and to define and evaluate the task, methods and results’ (p. 423) because not all aspects of work are clearly defined or easily determined. Apprentices in the Australian study valued the ability to diagnose problems and work out a solution:

*To me, the most important skill in any trade is problem diagnosis, whether it’s a mechanic on a car or an electrician working on whatever... the logical powers of deduction.*

*I would say basically they’ve [TAFE teachers] given me the tools here that on my own I can go and research whatever it is and determine what’s wrong with it, apply the appropriate test to it and see what it’s doing, when I give it those signals or whatever. Then when they say, “What’s wrong with it?” I would know what test to do on it. [Apprentice: Instrumentation]*

The examples here illustrate how teachers enact the curriculum in ways that invite apprentices to engage in learning that is relevant and meaningful to their work and to them personally. Such learning extends beyond the formal curriculum and

assessment requirements. Billett and Choy (2014) advocate aspects of personal meaningfulness: ‘It is the permutations between curriculum, pedagogy, and personal epistemologies that result in what is considered meaningful learning for particular contexts. This meaningfulness is mediated by those who engage with and learn through and from them’ (p. 495). Regardless of the purposes of learning (for formal curriculum and assessment or personal meaningfulness), it is the quality of integration that underpins competence development.

## Factors Effecting Quality of Integration

Analysis of data from the research reported in this chapter showed that the quality of integration was influenced by four main factors, identified as themes of variation. The four factors effecting quality integration are:

1. *Aim of learning*, which increases in complexity and cognitive hierarchy (as interpreted in Conceptions 1–4), commencing from basic reproduction of tasks to solving problems by extending basic understandings to meet situational contexts, to developing comprehensive underpinning knowledge to understand and justify solutions and finally through critical and reflective thinking to solve complex problems and develop innovative solutions.
2. The *content of learning* also progresses from basic conceptual and practical knowledge and skills to professional standards and procedures to be applied in controlled environments, then to understanding the rationale for particular approaches for performing tasks and finally to more context-specific and sensitive solutions to manage a range of routine and nonroutine challenges.
3. *Processes of learning* which commence with basic theoretical and practical learning, to reflective and critical thinking for meaning making and innovation.
4. *Sequencing of learning* in the two main sites, where the direction of learning progresses from being linear to linear/circular to sequential-circular and finally iterative circular.

The findings from the Australian study, including the four factors effecting quality integration, have implications for integration. These are discussed in the next section.

## Challenges and Implications for Integration

Participants’ conceptions of learning in the two main sites illustrate ways in which apprentices, teachers and managers/coordinators interpret connections between learning in TAFE and in workplaces. These conceptions also reflect aspects of integration, even though the word integration was rarely used during the interviews. That is, what participants described indicated integration. None of the participant

groups expressed particular responsibilities for integration, yet their actions were intuitively contributing to the process.

Overall, teachers' pedagogical skills and ability to make connections seemed critical to successful integration. One of the managers stressed that teachers need to be enthusiastic, motivated and must have the expertise in using 'some structure around how they get it out of their head to their students so that the students or apprentices can then go back and apply it'. She explained that there is often a weak alignment between the content in the Training Package and how things are actually done in the workplace. According to her, apprentices often say, 'We haven't done it that way ever'. Her advice to teachers is to teach according to the standards in the Training Packages to meet the requirements for certification and, however, inform apprentices that 'What you do in the workplace will be a negotiation between you and the manager'. This manager also advises her teachers to deconstruct and provide an explanation when apprentices say, 'This is how we do it in our workplace'. That is, explain how their practice relates to what is being taught in the curriculum as well as the industry-wide perspective. The fact that teachers have close networks and also maintain some form of practice in their fields (e.g. running their small business as electricians or working for an electrical company on a part-time basis) means that they are able to design simulations that are more realistic, unlike teachers who are remotely connected with current practices in their field. Teachers can also use very personal styles to facilitate integration – through storytelling, for instance:

*... we spend a fair bit of time telling the stories because a lot of the stories lead to why and how that's done a certain way, so we tell the story. So we try to do it both with teaching and technology, but also teaching with stories and history and first-hand examples. [Teacher: Telecommunication]*

Another approach is to use extreme cases:

*... we can show the Houston oil refinery that blew up and we can tell you exactly what happens. We take you through the process of where it went wrong, how and where the process failed, what instrument failed, what happened next – and when it's all explained to them, they go, "Oh! So calibration is important". [Teacher: Instrumentation]*

Aside to VET pedagogies in classroom settings, teachers were also aware of the complexities in daily operations of any worksite and implications of these for learning by apprentices. A teacher from instrumentation put this as follows:

*So workplace training has four major problems. The interference from the company to deliver the training; the non-value of the company for the training, they are looking at a cost benefit not as a training benefit; the interruptions to the training of non-stop, and also we're not allowed to use the gear on the job. [Teacher: Instrumentation]*

Costs aside, use of contemporary tools is seen by one teacher as the connecting factor:

*So it's the equipment that you use here in your block training that connects them to the workplace. [Teacher: Instrumentation]*

Apprentices' learning in the workplace is also influenced by the size of the workplace, as explained by a teacher:

*... in a large organisation, where you've got the opportunity to have structured learning in place ... so there is team leaders. There is mentors [sic]. There is a process that they have to go through to get stuff done. Working with the trainers at [name of company] because we have partnerships with them ... they're some of my casual teachers. Where there's all of this structure in place in a large organisation then the learning is on course. [Teacher: Instrumentation]*

According to one lead teacher, because 'training is not the core business' in the workplace, many apprentices do not get a trainer to help them out. This is not surprising, as reported by Achtenhagen and Grubb (2001) who observed that students' learning in the workplace sometimes remains unguided. Schaap et al. (2012) explain that those who can guide are not able to pause during regular work to give explanations and guide learners. Even when there are opportunities to explain, Nickolaus and his research team (2007) noted that knowledge is often presented in fragmented and unsystematic ways. It then becomes necessary for teachers to negotiate and organise learning in educationally purposeful ways, where possible, and make apprentices aware of both, intentional as well as unintentional integration.

Aside to the roles of teachers, there are key curriculum considerations for integration. The findings here suggest that integration of learning in the different sites is motivated by the aim of learning, content, process and direction. These four factors have implications for curriculum considerations. Basic adult learning principles (Knowles 1990) suggest that learning needs to be aligned with what learners already know and want to know. Although the aim of learning from a curriculum perspective is for apprentices to gain competency, individuals also want to see how the learning will contribute to their work tasks and development as a professional. Accordingly, it becomes important to make these complementary aims quite explicit. Similarly, the content needs to be relevant and applicable in the context of apprentices' work.

## Conclusion

The four sets of conceptions illustrate a progression from learning *for* work that is carefully matched with the intended curriculum to learning *through* work where feedback, evaluation and reflection allow learners to consider outcomes of work and to full participation in work contexts, and be able to assess problems and develop solutions. Conception 4 emphasises dialogic inquiry where apprentices are encouraged to ask questions and seek explanations on why work tasks are conducted in certain ways. The interpretations of participants' conceptions highlight the importance of the roles that apprentices, teachers and workplace trainers play in the process of learning and hence integration. That is, their contributions to appropriate pedagogical strategies are necessary for learning in TAFE together with specific workplace pedagogies because 'integration requires a particular set of couplings of

pedagogy, curriculum and personal epistemologies' (Billett 2009, p. 829) to allow for conceptual, procedural and dispositional knowledge to be interconnected in meaningful ways. The four conceptions synthesised from the Australian data highlight the importance of couplings that Billett advocates.

However, ultimately the agency of the apprentice underpins what, how much and the quality of what is learnt. Inherently apprentices need to be independent and interdependent learners, who co-participate and contribute to productivity and at the same time actively access and engage in learning. Overall, the Australian case study findings show that teachers are key facilitating agents for connections and integration. As such, development of their knowledge and skills in making connections should form a significant part of their own training and professional development.

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## References

- Aarkrog, V. (2005). Learning in the workplace and the significance of school-based education: A study of learning in a Danish vocational education and training programme. *International Journal of Lifelong Education*, 24(2), 137–147. <https://doi.org/10.1080/02601370500056268>.
- Achtenhagen, F., & Grubb, N. W. (2001). Vocational and occupational education: Pedagogical complexity, institutional diversity. In V. Richardson (Ed.), *Handbook of research on teaching* (pp. 604–639). Washington, DC: American Educational Research Association.
- Åkerlind, G. S. (2005a). Phenomenographic methods: A case illustration. In J. A. Bowden & P. Green (Eds.), *Doing phenomenography* (pp. 103–127). Melbourne: RMIT University Press.
- Åkerlind, G. S. (2005b). Variation and commonality in phenomenographic research methods. *Higher Education Research and Development*, 24(4), 321–334. <https://doi.org/10.1080/07294360.2011.642845>.
- Akkerman, S. F., & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning*, 5, 153–173. <https://doi.org/10.1007/s12186-011-9073-6>.
- Baartman, L. K. J., & Bruijn, E. (2011). Integrating knowledge, skills and attitudes: Conceptualising learning processes towards vocational competence. *Educational Research Review*, 6, 125–134.
- Bailey, T. R., Hughes, K. L., et al. (2004). *Working knowledge: Work-based learning and educational reform*. New York: Routledge Falmer.
- Billett, S. (2001). Learning throughout working life: Activities and interdependencies. *Studies in Continuing Education*, 23(1), 19–35.
- Billett, S. (2006). Constituting the workplace curriculum. *Journal of Curriculum Studies*, 38(1), 31–48.
- Billett, S. (2009). Realising the educational worth of integrating work experiences in higher education. *Studies in Higher Education*, 34(7), 827–843.
- Billett, S. (2011). *Curriculum and pedagogic bases for effectively integrating practice-based experiences*. Sydney: Australian Learning and Teaching Council.
- Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A sociopersonal account. *Educational Research Review*, 12, 1–13.

- Billett, S., & Choy, S. (2012). Emerging perspectives of and challenges for workplace learning. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede (Eds.), *Practice-based education: Perspectives and strategies* (pp. 145–160). Rotterdam: Sense Publishing.
- Billett, S., & Choy, S. (2014). Integrating professional learning experiences across university and practice settings. In S. Billett, C. Harteis, & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 485–512). Dordrecht: Springer.
- Choy, S., & Sappa, V. (2016). Australian stakeholders' conceptions of connecting vocational learning at TAFE and workplaces. *International Journal of Training Research*, 14(2), 88–103. <https://doi.org/10.1080/14480220.2016.1200237>.
- Clara, M., & Barbera, E. (2013). Three problems with the connectivist conception of learning. *Journal of Computer Assisted Learning*, 30, 197–206.
- Claxton, G. (2000). The anatomy of intuition. In T. Atkinson & G. Claxton (Eds.), *The intuitive practitioner. ON the value of not always knowing what one is doing* (pp. 32–52). Buckingham: Open University Press.
- Collin, K. (2002). Development engineers' conceptions of learning at work. *Studies in Continuing Education*, 24(2), 133–152.
- Collin, K., & Tynjälä, P. (2003). Integrating theory and practice? Employees' and students' experiences of learning at work. *Journal of Workplace Learning*, 15(7/8), 338–344.
- Ellstrom, P. (2001). Integrating learning and work: Problems and prospects. *Human Resource Development Quarterly*, Winter, 12(4), 421–435.
- Eraut, M. (2004). Transfer of learning between education and workplace settings. In A. F. Rainbird & H. Munro (Eds.), *Workplace learning in context* (pp. 201–221). London: Routledge.
- Eraut, M. (2008). Using research into how professional learn at work for enhancing placement learning. *WACE/ACEN Asia Pacific Conference E- Proceedings* (pp. 148–154).
- Fuller, A., & Unwin, L. (2003). Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work*, 16, 407–426.
- Fuller, A., & Unwin, L. (2011). Apprenticeship as an evolving model of learning. *Journal of Vocational Education and Training*, 63(3), 261–266.
- Griffith, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2, 56–74.
- Harris, R., Willis, P., Simons, M., & Collins, E. (2001). The relative contributions of institutional and workplace learning environments: An analysis of apprenticeships training. *Journal of Education and Training*, 53(2), 263–278.
- Karmel, B., & Knight, B. (2011). *Overview of the Australian apprenticeship and traineeship system*. Adelaide: National Centre of Vocational Education Research.
- Kira, M. (2010). Routine-generating and regenerative workplace learning. *Vocations and Learning*, 3(1), 71–90.
- Marton, F., & Booth, S. (1997). *Learning and awareness*. Hillsdale: Lawrence Erlbaum.
- Miller, P. (2003). Workplace learning by action learning: a practical example. *Journal of Workplace Learning*, 15(1), 14–23.
- Nickolaus, R., Knoll, B., & Gschwendtner, T. (2007). Innovations in vocational education and difficulties in their empirical substantiation. *European Journal of Vocational Training*, 40, 22–37.
- Paakkari, L., Tynjälä, P., & Kannas, L. (2011). Student teachers' ways of experiencing the teaching of health education. *Studies in Higher Education*, 35(8), 905–920. <https://doi.org/10.1080/03075070903383229>.
- Print, M. (1993). *Curriculum development and design* (2nd ed.). Sydney: Allen & Unwin.
- Sappa, V., & Aprea, C. (2014). Conceptions of connectivity: How Swiss teachers, trainers and apprentices perceive vocational learning and teaching across different learning sites. *Vocations and Learning*, 7(3), 263–287.
- Schaap, H., Baartman, L., & de Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning*, 5, 99–117. <https://doi.org/10.1007/s12186-011-9069-2>.

- Svensson, L., Ellstrom, P., & Åberg, C. (2004). Integration formal and informal learning at work. *The Journal of Workplace Learning, 16*(8), 479–491.
- Swanwick, S., & Morris, C. (2010). Shifting conceptions of learning in the workplace. *Medical Education, 44*, 538–539.

# Chapter 6

## Learner Agency and the Negotiation of Practice



Raymond Smith

**Abstract** Within work, it is impossible to ‘not act’. Workers, by necessity of their presence and participation in the goal-oriented practices that constitute work, are inexorably driven to engage in the activities and relationships that enable and sustain their work. However, and by contrast to such certainty, the nature of their engagement remains problematic as their capacities and willingness to enact the requirements of work are interdependently related to and, hence, mediated by all the resources that comprise the people, places and practices of their work. Conceptualising these mediations as ‘negotiation’ and individual workers’ circumstances through these negotiations as ‘agency’ offers an opportunity to examine work learning as a transformational practice and highlight the contributions workers make to this practice. What emerges from such examination is a conception of learning in, through and for work as a kind of resource management process whereby workers control (or seek to understand and affect with varying degrees of intention and success) the fluctuating levels of influence that the numerous resources enacted in work practice can exert on their personal engagement. To illustrate its case, the chapter draws on qualitative research that examined the personal work and learning practices of workers from very different contexts and with a range of differing skill and qualification requirements. These included packers from fruit markets who required no qualifications or previous experience prior to employment and who sourced all their work learning from the immediacy of their work, firefighters who were constantly engaged in nationally accredited and compliance-driven vocational training as part of their regular occupational practice and restaurant staff who were pursuing their careers after long apprenticeships. Findings from this research suggest that learner agency is, in part, about generating a personal work-practice agenda that enables active engagement in the negotiations of work learning.

**Keywords** Learner agency · Personal agency · Personal practice · Learner engagement · Learning negotiation · Transformational practice · Intentionality · Work learning · Agentic learning

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Developing more accurate and productive understandings of the nature of work and learning experience can be supported by adopting and accepting what Lave and Wenger (1991: 50) described as a 'broad view of human agency'. Such a view, they state, must emphasise the 'integration in practice of agent, world and activity' (1991: 50). This unifying and holistic conception of practice, that is, that the doer (agent), the site and the context of their doing (world) and their doings (activity) are essentially inseparable, suggests that a broad view of human agency cannot focus solely or even predominantly on personal intention as the basis of agency. Such a focus can overstate the influence of the individual in the events and activities that constitute social practice. Rather, a practice-oriented view of human agency must move to both secure intentionalism as a fundamental personal quality and further and at least account for how personal intentions are developed and mediated by the many social and material influences from which they are sourced and to which they are subjected.

A personal intentions focus defines human agency in terms of it being an individually and personally held capacity to enact desires, interests and priorities. Its foundations are in human free will and the exercise of this will in personal decision-making and selection processes. Through this exercise of agency, humans come to be perceived as variably autonomous, self-governing or in control of themselves and the initiatives and choices they take and make from within their circumstances (Giddens 1984). People, and particularly adults, are rightfully seen as purposefully influential in their own lives and the lives of others.

For those who are engaged in learning in and through work, when viewed through the lens of sociocultural constructivism and activity-based adult learning theories, this agency as enacted intention can be interpreted as constructing knowledge or making meaning from experience (e.g. Rogoff 2003; Wenger 1998). That is, workers are self-regulating adult learners who control and are responsible for their own learning through the ways they choose to engage in the participative practices that comprise their work. That engagement, individuals' ways of being and doing what their work requires, is the basis of their self-construction and development of the skills and understandings that characterise their work.

As personally empowering as such a perspective may be, in that it emphasises the freedoms, aspirations and volitional qualities typically associated with adult living (Deci and Ryan 1985), it de-emphasises the mediating qualities of context that Lave and Wenger (1991) draw attention to in their advocacy of a broader view of human agency.

Accounting for context requires adopting a more social perspective that addresses both the historical and situational circumstances in and through which adults develop and act. Workers' exercise of personal agency is enacted in the moments of their activity and interactivity as they manifest the levels and directions of their self-investment in what they are doing. Personal agency is thus qualified by the legacy of workers' previous learning framed by the historically derived practices in which they operate and circumscribed by the immediacy of their situation. Hence the exercise of agency is inevitably bounded and relational (Evans 2007; Edwards 2010). It is mediated by the array of social resources (i.e. people, places and practices) in and

with which it is enacted. Further, some contexts are limiting. They do not afford participants the opportunity to enact their preferences or create alternative responses. Similarly, some contexts are generative and invite or necessitate participants' influential contributions to the actions that are unfolding. Contrast, for example, and as a way of illustrating this point, the task requirements of working with dangerous chemicals and working in a design studio. The former is rightfully governed by tight regulatory controls that might be considered as prohibiting agentic action, while the latter is reliant on new and original ideas that might be considered as dependent on and encouraging of agency. Yet further again, and salient as significant aspects of context, are considerations of capacity and willingness to act within the discretionary and structural boundaries of any work task. Some workers may have high levels of discretion in their work and yet be unwilling to exercise it. While yet others may be highly constrained by the structures in which they operate and still find opportunity to enact their will. The expert and the novice, the authority and the subordinate, the zealous and the indifferent and the included and excluded are all parameters of the socio-personal mediations that encourage and constrain the enactment of personal agency in work and work-learning contexts.

Numerous research disciplines and perspectives seek to illuminate the range of sources, processes and outcomes of the social and contextual mediation of workers' energies, wellbeing and engagement in work. Organisational psychology, labour relations sociology and management in particular have generated a broad personal agency-related literature on the nature of workers' capacities, for example, to improve performance, enhance productivity, secure job satisfaction, construct careers, innovate, collaborate and secure the resilience necessary to successful engagement in competitive labour markets and organisations. Concepts such as alienation, the psychological contract, human resources, emotional labour and professional development (among many others) have emerged as vehicles and frameworks through which the complex interdependencies among workers, their work and their workplaces have been examined. Despite the significance of such concepts as means of addressing worker agency, the focus here is on worker agency through the perspective of learning in practice. For example, the concept of alienation (as originated from the work of Marx – see Geyer and Schweitzer 1976) that conceptualises the estrangement of workers from the product and control of their work due to the imposition of organisational hierarchies and production systems is not taken up in this chapter. Similarly, the concept of the human resources (as originated through the work of Frederick Taylor and has come to be termed Taylorism – see Bamberger et al. 2014) that generally suggests workers are better able to enact and deploy their full potential when engaged in work that suits them is not taken up here. These concepts may be said to focus on the socio-personal nature of production and performance, respectively, and offer opportunity to examine the various mediations that shape workers' personal practices and their exercise of agency. In this chapter, the focus is on the socio-personal nature of learning in practice and consideration of personal agency as a mediator of that learning. This learning perspective and focus may be seen as addressing the question – What are some of the key considerations

necessary to better understanding a broader view of workers' personal agency and how it both shapes and is shaped by learning in and through work?

Through this trajectory into the socio-personal nature of agency, this chapter progresses from two foundational assumptions. First, the sociogenetic perspective that what is enacted as evidence of agency is invariably socioculturally derived and recognised consequential activity. Hence, what people do is emergent from social interaction, transforms them and their circumstances and matters for self and others (Smith 2006, 2012). Second, the premise that workers cannot 'not act'. That is, workers must and do exercise agency (irrespective of how weakly it is executed) and are unable to do otherwise. Work is purposeful goal-directed activity, and to participate in it is to contribute to its making and remaking (Billett et al. 2005). From within these parameters, the chapter proposes that learner agency at work (or worker agency) may be seen as founded in a set of interdependent resources that coalesce as the personal circumstances of individual workers. These personal circumstances identify the ways in and by which workers enact their work as a personal practice and so evidence the exercise of personal agency.

When the work context in which this enactment occurs is viewed as negotiation (in that all social activity is negotiated), workers' personal practice can be seen to position them as negotiators who contribute to the processes and outcomes of their work. Rather than view agency as a capacity to influence (that may or may not be exercised and which limits its conceptualisation to personal intention and its measure to the degree of success accomplished in realising intentions), agency is here conceptualised as the management of the resources that comprise the negotiations in which one is involved. Hence, intentions come to be seen as but one of the numerous resources enacted. As resources, personal intentions may vary and transform in number, significance and intensity. For the individual worker who is proactively engaged in the negotiations that shape their work, managing intentions and their emergence in social activity becomes more salient than having them.

The chapter elaborates these suggestions in consideration of a broader view of learner agency in work in efforts to more fully account for and appreciate the contributions workers make to their learning and the development of their occupational practice. To illustrate its case, the chapter draws on two qualitative research projects that examined the personal work and learning practices of workers from very different contexts and with a range of differing skill and qualification requirements. These included, in the first project, fruit and vegetable packers working in a wholesale supply market and, in the second project, firefighters from a city central fire and emergency response station and a restaurant owner, manager and staff. Both projects were ethnographies where data was collected through direct on-site observation and extensive semi-structured interviews. In the first project, the researcher was a full participant observer who worked alongside the research participants, packing produce orders in the wholesale market as both colleague and known and accepted researcher over a 3-month period. In the second ethnography, the researcher acted in the role of nonparticipant observer over a period of 18 months. Research participants were extensively observed in the practice of their work and interviewed on at least five occasions both in work and away from work. Both projects generated a

range of rich data that afforded strong insights into the nature and personal practice of the workers who so generously opened themselves and their work to research investigation. Following the presentation of some of the findings from these projects, the chapter concludes with a discussion about viewing learner agency as emergent from workers' personal work-practice agenda. Such an agenda enables and sustains workers' active engagement in the negotiations that comprise work learning.

## Considering Some Perspectives on Agency

Within work, it is impossible to 'not act'. Workers, no matter how reluctantly involved, unproductive or disengaged they may seem, are unable to do nothing at work. Work necessitates active participation. One's mere presence at work is contributing (however minimally or negatively) to the activities enacted as work. Hence, within work, workers must labour and so enact themselves as individuals engaged in the actions that constitute their occupational practice (Smith 2012). Further, work is always a collective practice, a goal-oriented endeavour, constituted in interdependent relationships and purposes that bring resources and intentions together in the production of goods and services for delivery and consumption. The diversity and complexity of the collective goals, resources and relationships that comprise work cannot be overstated. Work is, both personally and socially and economically and morally, deeply significant as individual and national sources of livelihood and wellbeing (Noon et al. 2013).

From a learning perspective and the desire to explore and better understand learning in vocational practice, work enables opportunity to examine the rich interactional complexities on which learning in practice is based. Workplaces 'comprise environments where social structures are enacted and knowledge that has historical and cultural geneses is manifested and engaged with by individuals' (Billett et al. 2005: 220). Learning to do what is required, at the level of performance expected and in ways that advance practice, can be observable and open to interrogation in and through work. From a learner agency perspective and the need to better understand how workers personally enact their individualism in social practice, work offers opportunity to examine how social intentions become personal intentions and, similarly, how individual intentions become collective intentions. Such considerations of intentions are important because agency is often advanced as a capacity to enact intentions that are equally often seen as preceding action. So, when exercising agency is seen as being able to do what one wants or needs to do, it is usually presumed that one knows what one wants or needs to do in advance of doing it.

However, as Gibbs (2001) argues, intentions can be more than cognitive preconditions to actions. That is, intentions need not be the antecedents of action and may be better understood as emergent products of social interaction that can arise from or following the enactment of collective activity. Gibbs (2001) outlines a range of language use and object/event interpretation instances that illustrate how shared

meaning and experience are not accomplished by interactive participants seeking to discover the hidden and privately held premeditated intentions that motivate their actions. Rather, the interpretive meaning of action is negotiated in the enactment of that action and the interactions in and for which the emergent meaning has consequence. For example, Gibbs (2001:108–109) describes how a comment by one participant (a customer at a bar) leads another (the wait staff) to interpret that comment as a request on which they act. This action causes the initial participant to re-evaluate and accept their comment as an intention for the other to act. Consequently, what was not intended comes to be an intention after the act, and so the interaction (conversation) between the customer and wait staff continues. In such instances, it becomes the range of construals available through the interaction that sets the parameters from within which intentions can be negotiated. Further, Gibbs (2001) illustrates how seeming straightforward intentions can be sufficiently indeterminate and vague as to imply a broad range of simultaneously possible and actual intentions that can explain actions taken and enacted. He cites the case of the mother whose actions taken in efforts to secure her son's completion of his school homework could mask or be part of numerous other yet undeclared intentions to secure, for example, deadlines for other family plans and her son's future life wellbeing. Again Gibbs (2001) illustrates how the motivation and planning of the kinds of goal-directed action that evidences agency can be occurring below or without consciousness and forethought.

The suggestion that agency can (at times) be intentionless seems unfeasible, given that it is only individuals who can initiate their own actions. Doing something without volition or desire to accomplish objectives seems not, essentially, to qualify as agentic. However, and as Gibbs (2001) advances, the post-act emergence of intentions as justification or explanation for actions taken is part of the negotiation of meaning and consequence that characterises social interaction. Agency, as it can be attributed to individuals as self-sourced purpose-driven actors, may be but one aspect of the social sense-making practices that comprise collective activity – such as work and learning. The reasons for doing things, as these can be said to constitute intentions, may well be negotiated through doing them and become articulable only after the recognisable consequences of action emerge. These consequences become the bases on and from which subsequent action progresses (and as the negotiation of collective activity continues).

As an aspect of social interaction and the need to make sense of and give meaning to actions, personal agency may be viewed as an essential attribute on which collective activity is founded. In exploring some of these issues, Goffman (1959) utilised the metaphor of the theatre to account for the individual as a socio-personal performance, that is, the presentation of the self to the audience of those with whom that person is interacting through the social practice of everyday life. Within work, that audience is the co-workers and stakeholders (customers, suppliers, etc.) with whom one works. Two perspectives of the individual worker become immediately significant – that of the performer-self, the individual presenting themselves through their presence in activity, and that of the character-self, the individual as they are perceived by their audience of others within that activity. For Goffman (1959), the

individual as performer-self is engaged in a process of managing the impression of themselves they generate for their audience. Equally, the audience is engaged in a process of interpreting and evaluating that generated impression (or character-self) and doing so from perceptive bases that are different to those of the performer. The audience must attribute this character-self with having personal agency – with, at least, some capacity to manage the impression they are generating. Without such attribution, the character-self cannot be accepted as an authentic social being. They would remain hollow or counterfeit, lacking the social authenticity and legitimacy of being participant in the interactions that comprise their social activity.

In contemporary adult life, social authenticity and legitimacy may be seen to equate with what Hampe (2002 – as cited in Straub, Zielke and Werbik 2005: 324) proposes as the four bases of personal autonomy. They are the ability to (1) make promises and keep them (i.e. commit to the future), (2) take and accept responsibility for their actions, (3) justify their actions and (4) accept the promises of others (i.e. recognise others as likewise autonomous). Such abilities are both personally and socially directed and in the context of work and work learning become indicative of individuals seeking to do both what their work requires and to secure what they require from it – at its simplest, complete the task and thereby earn the wages this generates. Abilities and capacities to do what is required or what one ‘ought’ to do (in work as in all culturally contexts), to know and accept why it is required, to want what is required (and more), to have opinions and preferences, to practice self-control, to be liked and to be believed are elements of the kinds of personal and social attributions conferred upon adults through the interactions in which they are engaged (Heider 1958). As much as such attributions are necessitated by social interaction, the individual, as performer, is seeking to influence the ways and degrees by which these attributions are allocated. This impression management practice is the individual’s effortful personal investment in themselves and the interactions in which they are engaged. It has a self-seeking vein as Goffman indicates when he states (1959: 15–16):

Thus when an individual appears in the presence of others, there will usually be some reason for him to mobilise his activity such that it will convey an impression to others which it is in his interest to convey.

Agency, then, may be seen as both socially necessitated and personally realised as the interactions that comprise activity demand that those within them are exercising some (however weak) level of personal autonomy and accomplishing (however clear) some level of intentional understanding of theirs and others actions.

Within work, given its specific and identifiable contexts and practice requirements (e.g. workplace situated, occupationally derived, etc.), the parameters of agency can be reasonably delineated. That is, the boundaries and conditions of what work requires of its participants can be identified and used as a set of factors against which the nature and levels of agency enacted can be examined. These parameters may be viewed as the resources of practice – each resource mediating individuals’ engagement in and performance of that practice and each in turn being manipulated, deployed and managed by individual workers as they enact their work in their

personally particular ways. These resources include the tools and equipment used; the regulatory systems that manage and organise; the supervisors, colleagues and co-workers with whom one interacts; as well as the personal resources one brings to work as the legacy of a history of previous engagement in social activity – personal perspectives, preferences and priorities, ways of relating to others, ways of appreciating and engaging in learning, value systems and the like. So, just as individuals are managing their impression formation through their engagement in social activity, they are also managing the numerous resources that mediate their personal practice.

These parameters of practice can be conceptualised in numerous ways. For example, Smith (2006) advances a set of five mediational categories that frame the diverse range of resources workers are personally managing as the enactment of their learning in work. Smith's (2006) focus is on new employees and the importance of the intensity of learning in such circumstance. The five categories are (1) time, (2) the organisation, (3) motivation, (4) learning strategies and (5) identity. The first, time, addresses issues of how time is personally perceived and responded to as a mediating resource that is both external (e.g. as schedules and deadlines imposed by customers, procedures and co-workers) and internal (e.g. as choices to rush or reduce the pace of work, take a break, exchange for additional pay). Second, the organisation, captures the range of regulatory systems and relationships workers need to engage with in the conduct of their work. To learn who does what and how that impacts personal practice is fundamental to work in terms of everything from administration (e.g. of wages and the conditions of employment) through to friendships formed with fellow workers. Third, motivation, pertains to attitudes to opportunities to learn or to take up new tasks and responsibilities and issues concerning how much of oneself individuals are willing and able to invest in identifying, evaluating and pursuing their goals and aspirations in work. Fourth, learning strategies, addresses issues of how individuals learn and how and when they deploy and develop the skills of observing, questioning, reflecting, etc., as they engage in their work and the changes they experience through it. Fifth, identity, addresses issues of personal development and how new workers move from being focused on themselves and their learning requirements to becoming increasingly representative of their employing organisation and its ways of presenting itself to customers and other significant stakeholders, including new employees. This identity transformation is noted as a movement through learning from 'I' to 'we'. Across these five sets of mediational categories, workers enact their personal work practices as forms of resource management practices that secure their construction of the knowledge necessary to their accomplishment of work. For Smith (2006), this construction and accomplishment is workers enactment of epistemological agency.

The considerations of agency briefly outlined above (i.e. Gibbs 2001; Goffman 1959; Smith 2006) go some way to broadening the view of human agency deemed necessary by Lave and Wenger's (1991) social theory of learning. These considerations begin to suggest that accepting personal agency as an individuals' capacity to enact their intentions through initiating action that accomplishes forms of control of self and context is insufficient to the task of better understanding how individuals

contribute to their learning. Within such capacity to enact intentions definitions (and similar versions – e.g. Giddens 1984; Bandura 2006; Harteis and Goller 2014), the sources and potency of intentions, notions of self-initiated action and issues of accomplishment and control remain problematic when the extent of social interaction and contextual influence is accounted within individual action. Further, these considerations do more than emphasise the interdependent and relational nature of personal agency as some form of hybrid socio-personal capacity or systemic by-product. Rather, they incorporate personal agency as a characteristic of social activity. Similarly, Emirbayer and Mische (1998) advance a conception of human agency that integrates the broad range of personal and social dimensions of action (e.g. purpose, judgement, choice, responsibility, structure, etc.) and their temporal enactment as historically emergent and future-oriented engagement in social transformation. They examine agency as ‘the dynamic interplay among these dimensions and how this interplay varies within different structural contexts of action’ (1998: 963). In their accounting for the numerous elements of social interaction that mediate agency, the agentic person comes to be understood as an actor who is ‘capable of formulating projects for the future and realising them, even if only in small part, and with unforeseen outcomes, in the present’ (1998: 964). Progressing from Emirbayer and Mische’s understanding of agency, Biesta and Tedder (2007) advance an ecological perspective of agency where personal agency is viewed as something achieved rather than something possessed:

the achievement of agency will always result from the interplay of individual efforts, available resources and contextual and structural ‘factors’ as they come together in particular and, in a sense, always unique situations. Methodologically an ecological approach to understanding agency thus focuses the attention on the unique configurations of such ‘factors’. (2007: 137)

For Biesta and Tedder (2007), the agency achieved becomes a tool of kinds that adults use to shape their responsiveness to the life circumstances they experience. In one sense that tool can be sharpened by learning how to become more critically aware of the agentic orientations one already deploys and Biesta and Tedder (2007) go on to elaborate how narrative and biographical learning can support that development of critical awareness and help people secure a better understanding of how and why they experience and control their lives as they do.

Both Emirbayer and Mische (1998) and Biesta and Tedder (2007) explore agency within the interactive and transformative qualities of individuals’ engagement in social activity. In doing so they highlight the need of an integrated perspective (as Lave and Wenger (1991) promote) that seeks to account for the range of socio-personal resources that constitute agency and, hence, some of the problematic considerations noted previously.

The following review of some research that focussed on the personal practices of individual workers seeks to progress explorations of agency in ways that can address the problematic considerations outlined above and, thereby, go some way further to accomplishing a broader view of human agency and its manifestation in work and work learning. The predominant focus is not on how the interactions noted were



conducted but more on what the operant circumstances were at the time of their enactment. Three worker illustrations are offered – not because they are definitive but because they are distinct examples of some of the ways in which the socio-personal contexts and circumstances of worker, work and workplace interpenetrate to generate, not simply an integrated experience but, a whole of being in and doing work experience. What emerges is a consideration of workers' learning in work as the integration of the range of negotiations workers are enacting through their practice. This integration is based not so much in the tensions and reconciliation of the differences among what was learned in training and what is needed in work, but it is based more in the unfolding personal agenda, that is, workers' agentic transformation of work circumstances into learning circumstances. It is the enactment of this transformation that identifies and evidences workers' personal agency as fundamental to considerations of their learning. The integration of work and learning is a negotiated practice, enacted by workers as they transform their practice through the various negotiations in which they are engaged.

## **Examining Workers' Personal Practice**

Ian is a senior firefighter, a rank he has gained through 7 years work and study in the Metropolitan Fire and Emergency Service. As well as progressing to this highest of the non-officer ranks, he has trained and become a specialist aerial operator – one who is skilled and qualified to operate the elevated ladder and the numerous pieces of equipment that can be fitted to it. He is also working towards becoming a station officer and is fulfilling the various formal study and work management duties this requires, all of which is additional to his routine duties. At 35 years of age, he was the second oldest of three firefighters from his workplace who participated in the ethnographic project partly reported here. Over a period of 18 months, Ian was extensively interviewed and observed in the practice of his duties on five occasions. The wealth of qualitative data generated enabled a strong understanding of how Ian went about his work and how he secured and sustained his aspirations for promotion, his formal and informal learning and how he both generated and responded to the many changes that characterised his work, learning and general living through the period of the research.

The most significant change that Ian experienced through the research period was the decline in his wife's health. The impact this had on his work circumstances was momentous, but it was not sudden. However, due to the demands of being with and supporting his wife and two young daughters, he quickly moved from being an aspirational employee enjoying generous work conditions and leave entitlements to being someone who was needing to quit because he had exhausted his leave allocations and was unable to meet his routine obligations at the fire station nor satisfy the conditions of his officer training programme. Through all this unfolding adversity, Ian sustained a positive attitude to this work and the extensive training that marked

the daily routine of firefighters who must be vigilant in their preparedness and readiness to respond to emergency call-outs.

On one interview occasion, when discussing the transformative qualities of circumstance and the need to be constantly finding time to devote to his officer training studies, Ian recounted a recent instance where he accompanied his wife on one of her regular hospital visits:

*A couple of weeks ago my wife had a procedure done in hospital where she's going to be there all day – just her and me sitting there all day where she has no choice but to lay there for hours and I have no choice but to sit there with her. I took a book up, one of my study books, and made use of the time*

Ian is effectively transforming the social resource of time for work purposes through the enactment of his personal practice. He has learned to do this through the needs of his officer training programme and the workplace expectation that completion of the programme is a self-directed undertaking that cannot impede the performance of normal duties. As Smith (2006) elaborates and Ian illustrates, he manages this resource by transforming waiting time into study and career development time. It was intentional action. Yet, unintentional were the additional transformations Ian discusses further into the interview. He had imagined that his wife would be sleeping, at least resting with a magazine, and he spending the majority of his time in the coffee shop and the hospital gardens in his attempts not to disturb her and/or get in the way of the hospital staff as they went about their duties. Instead, the hospital room was transformed into a study space and his wife into a personal learning assistant as she quizzed him on his reading and got him talking about his preparations and the requirements of upcoming assessment tasks. These transformation were unplanned, what Gibbs (2001) would describe as unintentional, yet their enactment emerged from the set of circumstances that characterise the work-practice negotiations in which Ian was engaged. Ian could not control the hospital, but he could manage the way it mediated his work-learning experience by enacting the resources he brought to the interaction in ways that supported accomplishing better than expected outcomes. In short, he negotiated his engagement.

As Ian's wife required greater levels of support due to increased and lengthier hospital visits, Ian made increasingly frequent requests for changes to his shift roster and for time off work. Within the limits of its human resource management policy, the Fire and Emergency Service supported his requests in the full knowledge of Ian's circumstances. Eventually, he came to the point where he would need to take leave without pay or cease employment – a prospect he did not welcome but saw as inevitable. What Ian didn't know was that fire service senior management were seeking ways to amend their organisational policies in efforts to make it more able to accommodate and support Ian's difficult circumstances and those of other highly valued staff who may experience similar difficulties in the future. As he discussed in interview, Ian was completely surprised when he was asked to meet with senior management who were seeking his views on proposals regarding how and under what conditions firefighters and station officers could be enabled to work from home with the aid of employer-supported computing and telecommunications

facilities. What eventuated was the provision of policy enabling Ian (and others in similar circumstances) to undertake special-project research and report work from home during regular day-shift rosters. Ian described:

*That was the beginning of setting up this precedent as a case-by-case scenario for future similar situations. Guidelines have been drawn up to stop the likes of in-grown toenails qualifying for this consideration and further supporting those who do the right thing.*

Ian's circumstances and direct negotiations with his employer had resulted in what were considered generous leave provisions being transformed to being inadequate. He had no leave provision when he needed more and was considering resigning. However, indirectly, these same negotiations led to the broader organisational policies of the fire service being permanently transformed as senior management enacted the resources they brought to the negotiations that comprised Ian's personal work practices. Such outcomes or accomplishments, for Ian and the fire service, cannot essentially be traced to any single initiating source. Rather, the agency that enables such accomplishment is a set of negotiations that characterise Ian's personal work practices. Those negotiations are enacted by a range of parties who bring diverse resources into play – what Emirbayer and Mische (1998) would describe as the interplay of social and personal factors or resources comprising Ian's work circumstances.

The issue of outcomes or accomplishments is significant. Just what is it that the exercise of agency accomplishes in work and, in consideration of Biesta and Tedder (2007), what is the influence and control that is accomplished when agency is achieved? Given that work and learning are prolonged and complex interactive engagements, the momentary nature of action in activity maybe inadequate to the task of identifying agency and its accomplishment(s) – as Robert illustrates.

Robert is a chef. He was one of three staff at the restaurant, Platinum, who like Ian and his colleagues in the Fire and Emergency Service agreed to participate in the 18-month personal work-practice research. In his mid-twenties and after completing an apprenticeship that enabled him to travel the world, he secured work as a sous chef in a high-end fine dining restaurant. As sous chef, he worked directly with the head chef who was the owner of the restaurant. The restaurant owner was impressed by Robert's technical and management skills and offered him a partnership in the business. At the time of the research reported here, Robert was a 25% owner of the business, and, apart from contributing to the routine running of the restaurant, he was heading up the catering business that focused on weddings and corporate events. Under his guidance, the catering business was doing well and Robert's work moved from being predominantly in the kitchen and concentrated on food preparation to being the manager of all aspects of the business – everything from promoting the business to dealing with clients and contracts, securing equipment and supplies and managing the large numbers of casual and on-call staff needed to conduct a successful event. Essentially, his work had changed from that of being a chef to that of being a chef as well as a small business owner who is responsible for everything. The substantial learning his new work required equated with the range of tasks he

needed to complete. In terms of accomplishments, that is, the work outcomes his energies and efforts secured, he states in interview:

*You're always trying to get the little bits and pieces done as you go and it takes a long time to do anything – that's the sheer frustration of it ... I give it everything I've got but I always feel I'm behind with something – whether it's quoting, invoicing, staff rosters, food orders, talking to staff who have been wanting to talk to you for the last week, the book-keeper and the signatures required for BAS statements, or whatever – you always have something to do, you're always finishing something that's never really finished, so everything gets done but it's never really done.*

Robert's multi-faceted work keeps him busy and comprises his constantly moving in and out of a range of simultaneously enacted negotiations. Some of these negotiations are resolved, concluded and in turn give rise to new interactions – as when staff ask questions and are quickly answered in ways that assist them to continue their work. Others of these negotiations are ongoing, protracted and unable to be resolved in immediate time and circumstance. Throughout the interviews, Robert recounted numerous instances of having to solve problems that arose and how he relied on his ingenuity to secure successful outcomes. On one occasion in the interviews, he mentioned needing to wash dishes (a task decidedly beneath the work of a chef but not, apparently, beneath that of a small business owner who must do whatever is required). He commented, 'sure, I can wash the dishes, but it doesn't solve the problem of our need of a dish washer'. In such a statement, as in the interview excerpt above, Robert highlights the nature of work whereby accomplishing something can seem like accomplishing nothing, how being busy with required tasks and the many choices and decisions this entails can be far from agentic and more about what Smith (2006) describes as the necessity of the self in action.

Learning in work may be seen as emergent through the necessity of action. For example, Michael is new to his work in the fruit and vegetable markets, and he is keen to do well. He is in his early twenties and was one of a group of ten new employees at FruitCo who agreed to participate in a 3-month ethnographic study of new employee learning. More than packing orders, Michael wants to be a salesman – he has been employed on that basis and so spends more of his time at the front of the business than the order packers who venture out the front only to take the next order sheet from the tray. Out the back are the stockrooms and sorting benches. Out the front are the customers and the phones that never stop ringing between 2.00 am and 9.00 am. FruitCo is in the wholesale business of supplying and delivering all manner of fresh fruit and vegetables. It is one of the hundreds of small businesses that make up the city's central produce markets.

Michael deploys three key learning strategies – listening, asking questions and keeping a note book. His work and learning circumstances necessitate such practices as his primary focus is the customers who buy and his secondary focus is the growers who supply. To do his work well, he needs to establish strong relationships with all of them. In one of the numerous interviews undertaken through the research, he states emphatically, 'Well the customer is always the most important because they're paying the cash that pays your wage ... you go out of your way to help them'. For the order packers, customers are buyer codes on order sheets. For

Michael, they are the people he speaks with regularly and needs to know well. Through attentive listening, questioning for detailed information and note taking for later recall and reference, Michael had, within 2 months of being in the job, secured two customers who dealt with him directly in that when they rang they asked to speak with him and rather than leave their orders with anyone who answered the phone, and they would request that Michael call them back to discuss product price, quality and availability. The strength of these relationships and his developing knowledge of these buyers' needs and expectations led to Michael pre-empting their requirements and contacting them directly when product and information that addressed their requirements became available. All this kind of information was noted in his notebook – contact details, product preferences, delivery preferences, etc. These work accomplishments were not emergent from his initially treating these particular customers any differently than any others. He sort and recorded all manner of information in his notebook. Rather, these work accomplishments emerged incidentally from his routine practices as strengthening personal connections based in a rapport he welcomed but could not explain. In interview he stated, 'I don't know why, we just clicked and they became my first real customers'.

As he had got to relate to these buyers more closely, his agency developed. He was calling them as much as they were calling him. The origins of this developing agency reside in the requirements of his work. As much as it was achieved (Biesta and Tedder 2007) through his engagement in his work, Michaels' agency emerged through the interpersonal interactions he negotiated with these customers. Perhaps they liked the sound of his voice on the phone. Perhaps, as Goffman (1959) might suggest, they attributed Michael with qualities they required from a salesman and so secured them. Such suppositions require further inquiry.

## Agency and Learning

Michael, Robert and Ian may all be considered highly agentic workers. Each of them, through years of skill development and training, the advantage of legitimate authority and/or the drive of motivation and opportunity, could be said to be exercising some control over the direction and quality of their work and learning practices. Their personal practices, that is, their individual ways of enacting the requirements of their work, are influential in shaping and transforming the nature and organisation of their practice. As he learns in his new work, Michael is securing reliable customers for his employer. Robert is learning what is required of a successful restaurateur, and Ian is assisting the development of new and better human resource policies for the Fire and Emergency Service. Each is enhancing their work in ways that accord with their personal practices. Yet, their personal practices and the agency on which these practices are based cannot be fully ascribed to them as individual properties and capacities. More accurately, their personal agency may be viewed as a quality of the circumstances in which they act and the negotiations through which those enactments are manifest as socio-personal activity.

As each of the workers briefly sketched above illustrates, those circumstances are complex and fluid and their negotiations are many and simultaneous. Robert learns to be a business man by washing dishes in the midst of a fully catered function where hundreds of people and innumerable resources are collectively securing a profitable outcome for the restaurant, wages for the many workers, fond memories for the bride and groom – and so on. He is engaged in all these interactions, they are his work. Smith (2014) categorises these numerous negotiations in terms of levels of personal goal realisation and purposeful engagement. For example, where workers are securing outcomes from their efforts that are purposefully directed to accomplishing those goals, they may be said to be enacting realised negotiations. The outcomes of realised negotiations need not be favourable, but they are identifiable as resolutions of deliberate action. The great majority of work is of this kind as workers complete their tasks and so secure expected, and sometimes unexpected, outcomes. In this sense, being engaged in realised negotiations may be said to evidence agency (when agency is understood in the traditional sense of accomplishing intended objectives). From such a perspective, simply turning up for work is agentic behaviour – being present in activity is the beginnings of influencing how that activity will progress and so is the beginnings of agency. Yet in work, not all outcomes are secured through deliberate action. As Smith (2014) elaborates, work can be enacted unintentionally, in ways that lack deliberate action and outcomes realised emerge as incidental or accidental. Such negotiations are categorised as discovered negotiations. Robert is discovering just how diverse the work of a small business man can be and ‘who’ he is in such work. Ian is discovering how his personal family circumstances are impacting his work. Through these kinds of negotiations, agency comes to be seen as emergent and indirect, within but not of endeavour.

Further, Smith (2014) elaborates protracted and concealed negotiations. Protracted negotiations are where goals are yet to be realised and so deliberate action continues. Concealed negotiations account for the incidental unknowns. Sometimes work is leading people into opportunities and difficulties they are yet to become aware of. Bob cannot be aware of all the consequences of his conversations with new and potential customers. Yes, he tries to be considerate and accommodating, in his efforts to establish connections, but he cannot ensure his impression management practices will be faultless. The nature of interpersonal communication (Goffman 1959) suggests that additional to the content of messages delivered there are the relational unknowns that are being activated for a future yet to be experienced. From the perspective of concealed negotiations, agency may be viewed as an elasticity of being, an awareness-building process of both self and circumstance or a kind of contingency preparedness and readiness to take up what may emerge – not because self-efficacy (Bandura 2006) and learned personal capacities of, for example, resilience and confidence enabled it, but because it was inevitable as change. The transformation of activity and all the resources that constitute it is assured yet indeterminate.

In seeking to better understand learning in and through work, adopting what Lave and Wenger (1991) suggested as a broad view of human agency requires moving beyond the capacities of individuals to direct their activities. Focusing on such

capacities cannot accommodate the complexities that need to be accounted when learning is accepted as the participative practice of engaging in social activity. Such participation is ubiquitous, and even its most partial examination reveals that individuals do and learn much that is highly influential in transforming person and practice and yet cannot be directly attributed to their efforts. Such a perspective does not deny what McCann (1998: 170) describes as ‘our sense that we are responsible in a distinctive way for the changes we produce in the world’. Workers in work are always agentic, always exercising their agency. The issue is not that this is or is not the case. Rather, the issue is how can this reality be conceptualised in ways that support enhancing agency as an integral aspect of enhancing learning in and through work. The considerations and research findings noted above suggest that workers are always negotiating their practice and that those negotiations are multiple and inclusive of a vast array of personal and social resources. What may be useful is viewing personal agency, not as the power that drives action and change but as the set of circumstances that comprises personal action in activity. That activity is always collective and, thereby, always negotiated. As one of the sets of resources engaged in those negotiations, the individual’s contributions within them may be viewed as an agenda, not fixed and limited but developing and variable. Hence, individuals’ work learning may consist in two primary elements of participation in the negotiations that are work. First, learning is negotiating, that is, learning is an interactive resource management practice. Second, learning is evidenced by a developing agenda, that is, learning generates changes that are experiences to be had. Such perspectives of agency and learning may enhance better understanding what workers ‘do’ when they learn in and through their work.

## References

- Bamberger, P., Biron, M., & Meshoulam, I. (2014). *Human resource strategy: Formulation, implementation and impact* (2nd ed.). New York: Routledge.
- Bandura, A. (2006). Towards a psychology of human agency. *Perspectives on Psychological Science*, 1(2), 164–180.
- Biesta, G., & Tedder, M. (2007). Agency and learning in the life course: Towards an ecological perspective. *Studies in the Education of Adults*, 39(2), 132–149.
- Billett, S., Smith, R., & Barker, M. (2005). Understanding work, learning and the remaking of cultural practices. *Studies in Continuing Education*, 27(3), 219–237.
- Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum Press.
- Edwards, A. (2010). *Being an expert professional practitioner*. Dordrecht: Springer.
- Emirbayer, M., & Mische, A. (1998). What is agency? *American Journal of Sociology*, 103(4), 962–1023.
- Evans, K. (2007). Concepts of bounded agency in education, work and the personal lives of young adults. *International Journal of Psychology*, 42(2), 85–93.
- Geyer, F., & Schweitzer, D. (Eds.). (1976). *Theories of alienation: Critical perspectives in philosophy and the social sciences*. Leiden: Springer.
- Gibbs, R. (2001). Intentions as emergent products of social interactions. In B. Malle, L. Moses, & D. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition* (pp. 105–122). Cambridge: MIT Press.

- Giddens, A. (1984). *The constitution of society*. Berkeley: University of California Press.
- Goffman, E. (1959). *The presentation of self in everyday life*. New York: Doubleday.
- Hampe, M. (2002). Cited in Straub, J., Zielke, B. & Werbik, H. (2005). Autonomy, narrative identity and their critics. In W. Greve, K. Rothermund & D. Wentura (Eds.), *The adaptive self: Personal continuity and intentional self-development* (pp. 323–350). Cambridge, MA: Hogrefe and Huber.
- Harteis, C., & Goller, M. (2014). New skills for new jobs: Work agency as a necessary condition for successful lifelong learning. In T. Halttunen, M. Koivisto, & S. Billett (Eds.), *Promoting, assessing, recognising and certifying lifelong learning* (pp. 37–56). Dordrecht: Springer.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- McCann, H. (1998). *The works of agency: On human action, will and freedom*. New York: Cornell University Press.
- Noon, M., Blyton, P., & Morrell, K. (2013). *The realities of work: Experiencing work and employment in contemporary society*. Basingstoke: Palgrave Macmillan.
- Rogoff, B. (2003). *The cultural nature of human development*. New York: Oxford University Press.
- Smith, R. (2006). Epistemological agency: A necessary action-in-context perspective on new employee learning. *Studies in Continuing Education*, 28(3), 291–304.
- Smith, R. (2012). Clarifying the subject centred approach to vocational learning theory. *Studies in Continuing Education*, 34(2), 159–174.
- Smith, R. (2014). Conceptualising the socio-personal practice of learning in work as negotiation. *Vocations and Learning*, 7(2), 127–143.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.



# Chapter 7

## Integration for Holistic Development of Apprentices' Competences in Finland



Laura Pylväs, Heta Rintala, and Petri Nokelainen

**Abstract** This chapter provides an overview of the Finnish VET system and discusses the integration of vocational education and workplace learning in the context of Finnish apprenticeship training. The study reported here focuses on integration of apprentices in their work environment and the development of occupational (theoretical and practical) and personal competences into holistic vocational expertise in the context of apprenticeship training. The chapter presents the results of an empirical study conducted in ten Finnish small- and medium-sized technology and health and social care enterprises. The research questions for the study are as follows: (1) How does a student integrate into the social environment and work practices in apprenticeship training?; and (2) What competences are integrated with students' holistic development of vocational expertise in apprenticeship training? We used the qualitative content analysis method to analyse semi-structured interview data ( $N = 40$ ) from technology as well as health and social care services organisations. The results show that boundary-crossing and collaboration between workplaces and education providers rarely take place in the context of Finnish apprenticeship training. To support the holistic development of vocational expertise and to avoid drop-outs in apprenticeship training, workplaces need to acknowledge not only the significance of apprentices developing occupational competence but also the role of social competence and meta-competence, i.e. self-regulation, when operating in vocational institution and, simultaneously, as an accountable employee in a workplace.

**Keywords** Integration · Apprenticeship training · Finland · Competence · Self-regulation

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## Introduction

This chapter first provides an overview of the Finnish VET system and then proceeds to discuss the conceptualisation and purposes of integration in the socio-constructivist framework. We present examples of integration at the vocational upper secondary level with a focus on apprenticeship training in workplaces. The chapter concludes with a discussion related to the main challenges and critical aspects of integration, e.g. in the reform of vocational upper secondary education in Finland.

### *The VET System in Finland*

The Finnish VET system is predominantly school-based (Virolainen and Stenström 2015; Virtanen and Tynjälä 2008). The craft guild system was responsible for passing on vocational skills from master to apprentice, but the guilds lost their power, leading to the establishment of VET institutions and vocational schools in the late nineteenth century (Kivinen and Peltomäki 1999). Vocational education and training grew slowly until World War II, but post-war changes, including industrialisation and urbanisation, as well as legislative changes led to an expansion of the network of state-run and municipal vocational schools (Numminen 2000). Simultaneously, apprenticeships did not take root, because employers and students failed to support the programme, viewing them mainly as complementary to institutional forms of vocational schooling. This left to the state and municipalities the responsibility for providing vocational education and training (Kivinen and Peltomäki 1999). During the 1970s, comprehensive school reform replaced the old parallel school system by providing 9 years of compulsory education for all, which proved significant for vocational education and training while postponing the students' need to choose their educational track and improving their general skills and knowledge (Numminen 2000). Reforms during the 1980s, and especially during the 1990s, opened up routes to further and higher education such that by the late 1990s, upper secondary VET and a 3-year qualification provided a general eligibility for higher education (see Lasonen and Young 1998; Meriläinen 2011; Numminen 2000). Participation in basic vocational education and training after compulsory education has increased over the past 15 years, which separates the Finnish model from that of other Nordic and European countries (Virolainen and Stenström 2014, p. 83). According to Virolainen and Stenström (2014), factors resulting in increased participation in VET relate to, for example, system characteristics (on-the-job learning periods, competence tests, general eligibility for higher education), policy characteristics (youth qualifying for unemployment benefits) and improved status and image of vocational education (skills competitions, visibility in media).

## ***Apprenticeship Training***

In addition to school-based education, apprenticeship training offers a parallel route to basic vocational qualifications. In 2014, a total of 107,850 new students entered vocational education and training, of which 18% (19 400) began apprenticeship training. Apprenticeship training is mainly adult education with a proportion of those over 25 in apprenticeship training being 80% in 2014 (Ministry of Education and Culture and Finnish National Board of Education 2014). In apprenticeship training, approximately 70–80% of training takes place in the workplace, and, compared to on-the-job learning (or on training agreement), it is based on a fixed-term employment contract. In both cases of work-based learning, the education provider (educational institution or apprenticeship office) signs a contractual agreement on the educational programme with the employer, to ensure that the qualification requirements are attainable and that the workplace has sufficient personnel with vocational skills, education and work experience to nominate a responsible instructor for each student (Laki ammatillisesta koulutuksesta 531/2017).

For this study, we formulated two research questions: (1) *How does a student integrate into the social environment and work practices in apprenticeship training?*, and (2) *What competences are integrated with students' holistic development of vocational expertise in apprenticeship training?* Firstly, the status of the apprentice serves as a starting point for examining whether it affects access to participation and guidance. We continued exploring the co-operation and connection between workplaces and education providers. Earlier studies of Finnish vocational education and training on the secondary level and of Finnish higher education have used Guile and Griffiths' (2001) concept of connectivity (Tynjälä 2009; Virolainen 2014; Virtanen 2013). Virtanen and Tynjälä (2008) in particular studied student perspectives of on-the-job learning and found that the integration of school-based and work-based learning (connectivity) was most comprehensive in social and health care, whereas education in the technology sector represented the least. Our study focuses on co-operation from the workplace perspective and examines whether apprenticeship actualises partnerships and collaborative knowledge creation. Secondly, the study examines the development of work competences in apprenticeship training based on the holistic classification of the concept of competence (Le Deist and Winterton 2005) and the social-cognitive approach to self-regulation (Zimmerman 1998, 2000, 2008, 2011). Based on our earlier research (Nokelainen et al. 2016), personal-level competences are closely related to self-regulative skills and social skills. The holistic classification for competence (Le Deist and Winterton 2005; Winterton 2009) applies a general framework to examine the employees', employers' and apprentices' perceptions of the most acknowledged work competences and the integration of occupational (theoretical and practical) competences and personal competences in the context of workplace learning.

## Theoretical Overview

### *Learning Through Work Experience*

Hager (2011) provides an overview of the development of theories and research on workplace learning. Learning theories have shifted from theories influenced by behavioural and cognitive psychological perspectives to sociocultural ones, leading to noticeable differences in the use of metaphors of acquisition and participation (Hager 2011; Sfard 1998). Lave and Wenger (1991) have proposed that learning occurs in everyday interactions and through participation in communities of practice. Guile and Young (2003) credit Lave and Wenger (1991) for showing how learning is a process of interaction and part of people's lives as social beings, not only as a process that takes place in individual minds. However, Lave and Wenger's (1991) theory overlooks guidance and formal education and is based on the idea that skills, knowledge and practices are passed on to novices, which ignores the reciprocity and continuation of learning as a full member of the community of practice (Fuller et al. 2005). According to Guile and Young (2003), learning in modern workplaces thus includes both participation and acquisition of knowledge which may or may not be present in the community of practice. Paavola et al. (2004) have applied the metaphor of knowledge creation to bridge the gap between the cognitive and situated approaches, since knowledge creation emphasises the process of collectively developing and transforming knowledge and practices.

Billett (2001c, 2002) highlights the individual's knowledge construction and engagement in work practices, also supporting the idea that learning cannot be regarded solely as a process of socialisation. The other factor in participation and learning is workplace affordances, which entail access to activities as well as indirect and direct guidance provided by the physical and social environment (Billett 2001c, 2002). Swager et al. (2015) define workplace learning as an integrated process in which participation, acquisition and guidance merge through social interaction. Paavola and Hakkarainen (2005) conclude that innovative processes are modelled as social while simultaneously emphasising the importance of individual competencies and initiative. They introduce a triological approach to learning, which adds to individual efforts (monological) and community participation (dialogical) while concentrating on mediating artefacts (signs, concepts, tools) and processes (practices) which people use to collaboratively develop common objects of activity (e.g. conceptual artefacts, practices, products).

Billett (e.g. 2001b, 2014) has stated that much can be learnt in the workplace through everyday work activities. However, the best potential for vocational learning will likely come by integrating experiences in the workplace with those in the educational institution (Billett 2009). Guile and Griffiths (2001) have examined the relationship between education and work as well as how students learn through work experience provided through their vocational education and training. The typology of work experience offers not only an ideal characterisation of different approaches but also an evolving continuum of approaches to learning through work

experience. *The traditional model* views work experience as separate from the educational institution, thereby offering an opportunity to adapt to work experience and to learn tasks. *The experiential model* keeps work experience and theoretical studies distinct from each other, though it does take into account the partnerships between workplaces and education providers, as well as the need for co-operation to support student development (self-awareness, economic and industrial awareness). *The generic model* emphasises generic skills, learning outcomes and assessments in the support of student self-management, which benefits from the support of education providers and teachers as facilitators of this process. *The work process model* aims to provide a holistic understanding of the work process and context through participation in communities of practice while promoting adjustment to changing contexts, which in turn is necessary to transfer knowledge and skills from one context to another. *The connective model* represents an ideal balance between formal and informal learning. The model focuses on the influence of the context and the organisation of work on student learning and development, the situated nature of learning and the scope for developing “boundary-crossing” skills (Guile and Griffiths 2001; Griffiths and Guile 2003).

Guile and Griffiths (2001) employ the term connectivity and introduce an approach to the vertical and horizontal development of learners. The concept of vertical development is found in ideas of intellectual development and individual progress through a hierarchy of knowledge and skills (Gick 1995; Beach and Vyas 1998). Arising from recent developments in sociocultural theory, horizontal development refers to the process of change and development which occurs within an individual as he or she moves from one context to another, such as between school and work (Guile and Griffiths 2001). Moreover, Tynjälä (2009, p. 12) states that the development of expertise requires the integration of different forms of knowledge, a concept supported by connective model (Guile and Griffiths 2001), and leads to transformations on both the individual and organisational levels. Tynjälä (2009, p. 22) draws links and connects typologies of work experience (Guile and Griffiths 2001) to metaphors of learning. The traditional, experiential and generic models of learning match the acquisition metaphor, whereas the work process model represents the participation metaphor. The connective model accommodates the knowledge creation metaphor of learning (Paavola et al. 2004), because the aim is to develop working life in collaboration with workplaces and educational institutions (Tynjälä 2009). This study examines the integration of an apprentice into the social environment and work practices by applying the metaphors of learning (participation, acquisition and knowledge creation) and the integration of formal education into working life (connectivity) in the context of Finnish apprenticeship training (e.g. Guile and Griffiths 2001; Tynjälä 2009).

**Table 7.1** A holistic classification of the concept of competence (Le Deist and Winterton 2005, p. 39)

	Occupational	Personal
Conceptual	Cognitive competence	Meta-competence
Operational	Functional competence	Social competence

## *Competence Development*

In international research, the concept of competence is multifaceted, and researchers hold several different views of it. Winterton (2009) notes that research has emphasised the dissimilarity between these different views, but no attempts have been made to form a unified concept. According to Mulder's (2014) definition, competence comprises various *competencies*. A *competency*, in turn, is a unified set of knowledge, skills and views which one can employ in real contexts. Competence can be viewed as *behaviouristic functionalism* (the difference between one's actual and the desired, standard-based competence), *integrated occupationalism* (a holistic view of the knowledge, skills and attitudes required in occupational roles and situations) or *situated professionalism* (professionals interacting with one another).

In light of these different approaches, Le Deist and Winterton (2005) and Winterton (2009) support a more holistic view of competence, which allows one to embrace the concept on more global terms. The fragmentation of the concept is evident in, for example, the formation of the European qualification framework, which viewed competence narrowly and emphasised learning outcomes over competence (Winterton 2009). In response, Le Deist and Winterton (2005) and Winterton (2009) have created a holistic classification for competence; see Table 7.1. In their model, *cognitive competence* covers knowledge and understanding, *functional competence* includes skills (i.e. practical know-how), and *social competence* includes the competencies related to behaviour and attitudes; *meta-competence* differs from the others in that it aims to encourage the acquisition of other competences ("learning how to learn"). In this study, holistic classification for competence (Le Deist and Winterton 2005; Winterton 2009) applies as a general framework to examine the employees', employers' and apprentices' perceptions of the most acknowledged work competences in the context of apprenticeship training in Finland. The theoretical framework affords an opportunity to study the emphasis and integration of occupational competence and personal competence in the context of workplace learning, taking into account the knowledge gained during the institutional period of apprenticeship training. Table 7.1 shows personal-level conceptual (meta-competence) and operational (social competencies) that play an important role in apprentices' development of competence other than occupational competence.

Based on the holistic classification of competence, we apply the socio-cognitive approach to self-regulation to better understand the role of personal-level competences, especially meta-competence, in workplace learning. The term "self-regulation" refers to the process in which self-generated thoughts, feelings and actions are planned and systematically adapted to further one's learning and motivation allowing learners to modify their performance based on personal characteristics

and environmental conditions (Schunk and Ertmer 2000; Zimmerman 2000). Research has shown that successful learners can monitor and regulate the following triadic elements: volition, motivation and self-reflection (e.g. Kitsantas and Zimmerman 2002; Zimmerman 1989, 1998; Zimmerman and Kitsantas 2005). *Motivational* processes help the learner to formulate decisions and to promote decision-making (Corno 1989), whereas *volitional* processes guide one's subsequent enactment of the decision including persistence, the will to learn, endeavour/effort, mindfulness in learning, intrinsic regulation and evaluation processes. It also involves various control strategies (e.g. the allocation and control of resources, emotional attentiveness and motivational control strategies) and methods of processing knowledge. The processes of *self-reflection* enable individuals to evaluate their experiences and thought processes, whereby an individual interprets the reasons for his or her success or failure (Bandura 1986). The cyclical model of self-regulation includes three general phases: *forethought*, *performance* and *self-reflection* (Zimmerman and Moylan 2009). During the *forethought phase*, one analyses the learning task and sets specific goals for completing it. In the *performance phase*, one employs strategies to progress with the learning task and monitors the efficacy of those strategies as well as his or her motivation for continuing to progress towards the goals of the task. In the *self-reflection phase*, one evaluates his or her own performance of the learning task with respect to the efficacy of the strategies chosen. During this stage, one must also manage his or her emotions as the outcomes of the learning experience. These self-reflections shape future planning and goals, thereby initiating the cycle to begin again.

Based on our earlier research (Nokelainen et al. 2016), personal-level competences are related to self-regulative processes, particularly the component of the first (forethought) phase of the self-regulation cycle (Zimmerman 2000), which strongly impacts thought, affect, motivation and action. According to Weiner (1974), individuals are constantly searching for understanding of why an event has occurred; the learner may interpret the failure of a strategy to result from too little effort (control beliefs) or attribute the failure to a lack of ability (efficacy beliefs). These beliefs are critical to the forethought phase process, because they can sustain high levels of motivation and resilience in learners as they encounter obstacles or difficulties in learning (Zimmerman and Campillo 2003; Zimmerman and Moylan 2009). Prior learning experiences greatly influence both self-regulation and motivation; self-regulated learners are those who remain meta-cognitively, motivationally and behaviourally active in their own learning processes and in achieving their goals (Zimmerman and Schunk 2008). Motivated people are more likely to invest the necessary time and energy needed to learn and to apply appropriate self-regulation skills, and when they successfully employ self-regulation strategies, they are often more motivated to complete any associated tasks (Zimmerman 2000).

This study examines how personal-level competences integrate with the occupational competence development (see Le Deist and Winterton 2005; Winterton 2009) in the context of apprenticeship training. Earlier research has shown that apprentices are largely responsible for their own learning and must often initiate activities to develop their skills by themselves (Gurtner et al. 2011; Reegård 2015; Savoie-Zajc

and Dolbec 2003; Smith 2000; Tanggaard 2005). It emphasises the need for learners to develop their self-regulative skills (Reegård 2015; Virtanen and Tynjälä 2008; Virtanen et al. 2014) and social skills (Evanciew and Rojewski 1999; Savoie-Zajc and Dolbec 2003). However, the work community may also view excessive requests for guidance or being a slow learner as tiresome behaviour, which may also lead to the discontinuation of the apprentice's training in the workplace (Gurtner et al. 2011; Nielsen 2008). Billett (2001a) reminds that developing expertise requires more than a focus on cognitive and sociocultural tools: Expertise needs to be considered situationally, that is, related to the circumstances of the enactment of the vocational expertise. It is at the situational level that the goal-directed vocational activities are shaped, albeit influenced by historical and sociocultural lines of development.

## Method

This study examines the integration of vocational education and workplace learning in the context of Finnish apprenticeship training. The empirical data for this study were collected in 2015 at ten Finnish workplaces. Based on the European Union's (2015) definition of small- and medium-sized enterprises, the organisations represented small- (employing fewer than 50 persons) or medium-sized enterprises (employing between 51 and 250 persons). Organisations in social and health care included one small (30 employees) and four medium-sized (60–230 employees) nursing and care homes. The technology sector covered three medium-sized organisations in the field of construction and building maintenance (80 and 130 employees) and two small enterprises in metalwork and machinery (20–50 employees). In each workplace, an apprentice, an apprentice's co-worker, a workplace trainer and an employer each participated in interviews individually.

The participants in this study ( $N = 40$ ) were ten (five female, five male) apprentices, ten (four female, six male) co-workers, ten (four female, six male) workplace trainers and ten (four female, six male) employers. Semi-structured interviews varied in themes and length based on the interviewee's status as an apprentice, a co-worker, a workplace trainer or an employer. Interviews lasted from 20 to 60 min; those conducted with the co-workers were the shortest at 20–40 min. The authors of this study designed the interview structure and conducted the interviews.

Qualitative content analysis served to analyse the research data (Krippendorff 2012). It can be defined as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hsieh and Shannon 2005). The analysis yields concepts or categories that describe the phenomenon with the intention to develop a model, conceptual system, conceptual map or categories (Elo and Kyngäs 2008). The text data was transcribed from semi-structured interviews and managed (organising data sources, managing coding and using numerical counts when analysing the text) with NVivo software. Applying the approach of inductive analyses, the coding frame



consisted of the data-driven main categories and subcategories. The unit of analysis distinguished for coding was a meaningful piece of text in the interview transcript such as a word, sentence or short narrative (Krippendorff 2012; Schreier 2014). Thematic criteria served to divide the text material into units that would fit the coding frame (Schreier 2014). The sampling units consisted of both coding units (main categories and subcategories) and four demographic groups of interviewees (students, co-workers, workplace trainers and employers).

## **Experiences of Integration in Finnish Apprenticeship Training**

### ***How Does a Student Integrate into the Social Environment and Work Practices in Apprenticeship Training?***

Results showed that employers, workplace trainers and co-workers regarded apprentices mainly as competent and productive employees or as full members of the work community. Nevertheless, the study implied that apprenticeship in the social and health care and technology sectors may show important differences. Particularly in social and health care, apprentices were described as equal workers and members of the work community, enjoying direct access to productive work requiring cooperation with multiple actors.

*I see them [apprentices] as employees. I think they can do this work, because these tasks are based on common sense. And the clients are quite easy, so it is easy to co-operate with them. We don't have any challenging tasks. (Co-worker, social)*

In the technology sector, which in this study includes construction, metalwork and machinery, apprenticeship was viewed more as a model for learning, where masters pass their knowledge and skills on to novices. Apprentices were also seen as newcomers, who were on a lower level in the hierarchy and needed to learn and earn a higher position through participation in simple, low-risk tasks.

*Well, when you are an apprentice or a new employee, you are always ... how could I say ... you get the more unpleasant tasks. That's how it goes. You are not quite on the same level. [...] You need to prove [yourself] and earn your place here and so. (Workplace trainer, technology)*

Apprentices mainly considered themselves equal employees and full participants within the work community. Only two apprentices in the technology sector saw themselves as trainees in relation to the work community and the industry. Being an equal employee in the workplace meant shouldering a lot of responsibility, autonomy and independence. Accordingly, the status expectations of an employee also resulted in a lack of support, guidance and instruction. Some apprentices in social and health care retrospectively stated that more guidance would have been welcome, especially in the beginning of the apprenticeship training.

*I am like the others, an employee. I don't consider myself a student, and the others don't see me that way [either], apart from [the] assessments. Then it is different. But no, [we apprentices have] the same tasks anyway. If there is a practical nurse and me, we share the responsibilities. [...] Well, sometimes you need guidance, which of course you don't get. But now, when studying, I think I'll do better when I have some time to think about things and do them on my own, those things have I also learnt. It's good that way, too, but probably at the beginning, there could have been more [guidance]. (Apprentice, social)*

Eventually, all apprentices considered they had received sufficient guidance and support. Some apprentices found that the trainer in charge provided most of the guidance, while others emphasised the role of co-workers and the wider work community. Most of the trainers also considered themselves responsible and active in providing guidance but simultaneously expressed insecurity about what was expected of them and emphasised the joint responsibility of the whole work community, in social and health care even the patients' or clients' role. Interestingly, in the fields of construction, metalwork and machinery, co-workers failed to acknowledge their role in providing guidance even though apprentices designated them an important resource. In productive trades, the hands of management (e.g. site managers) provided guidance, suggesting that selecting and designating a workplace trainer was more a bureaucratic, contractual matter than a procedure for ensuring guidance in the workplace.

In the context of apprenticeship, collaboration is also needed between workplaces and education providers, including educational institutions and apprenticeship offices. Results indicated that the connection between workplaces and education providers was limited mostly to official matters (e.g. contracts) in the beginning of the apprenticeship training.

*After this started, the official training began, and this guy started the school; after that, there was very little contact. Then, once [or] twice a year, we had some sort of contact; always, after some period of time, we had to plan the skills demonstrations, so I can't say that we had communication on a daily basis. More like rarely. Sometimes I even forgot the names [of] the people who were involved in this, and it might be that someone even changed. Three years is a really long time. A lot of things happen here and also elsewhere. (Employer, technology)*

The apprenticeship office and workplace coordinators (representatives of vocational institutions) were contacted only in cases of problems or uncertainty arising from disagreements (e.g. units included in the qualification), problems with the apprentice or assessments and skills demonstrations. Some employers and trainers formed personal relationships with workplace coordinators, which supported the co-operation and lowered the threshold for contacting them. In contrast to employers' and trainers' views, apprentices found the role of the workplace coordinators distant and, in some cases, even unrecognisable. For apprentices, attending institutional education provided yet another community of practice for sharing experiences, but their membership most often proved peripheral. Institutional education provided peer support but infrequent contact days, different specialisations and varying groups prevented active membership. Unlike employers, apprentices were in contact with their vocational teachers. Some of the interviewed apprentices

reflected on the role of their teacher in regard to supporting guidance and learning in the workplace.

*[Name], of course, said – that's my teacher – that I should get to do a little bit of everything, but he understands that I won't necessarily get to do everything. But, I mean, he has tried to encourage me, but otherwise he hasn't got involved in anything. (Apprentice, technology)*

*He/she said, that he/she can't get involved in guidance here. It is only that they come to visit here, and then it is up to the workplace trainer, so there is nothing they can do. (Apprentice, social)*

The connective model (Guile and Griffiths 2001) suggests that the education and training provider should aim to develop partnerships with workplaces in order to create learning environments. Based on our findings, boundary-crossing rarely takes place in the Finnish apprenticeship training due to limited connections between workplaces and education providers.

### ***What Competences Are Integrated with Students' Holistic Development of Vocational Expertise in Apprenticeship Training?***

In this study, we used the holistic view of competence described in Le Deist and Winterton (2005) and Winterton (2009) as a theoretical framework for examining perceptions of vocational expertise and vocational development in the context of Finnish apprenticeship training. Overall, the apprentices and their colleagues acknowledged all four dimensions of the holistic view of competence. Occupational *cognitive competence* (knowledge and understanding) and *functional competence* (practical know-how) were elaborated in various ways, revealing some differences between the two sectors. In addition to vocation-specific knowledge (understanding and practical know-how), occupational competences were related to such generic skills as problem-solving, as well as technological skills and information processing.

*[...] You probably need to have some power of reasoning and then problem solving skills. (Apprentice, technology)*

The findings also emphasised the significance of personal levels of *social competence* (social behaviour and attitudes) and the *meta-competence* of the holistic view of competence. Through social skills, the interviewees demonstrated communication and teamwork skills, openness and courage to meet people, care and empathy and respect for others as well as listening and presence. Further, social skills were closely related to meta-competence such as self-reflection skills and an understanding of one's own competences.

*I have sometimes told my students that this is an exceptional work in that you will become aware of all sides of yourself, whether you want to or not. You need to work so much with*

*other people every day, and then their relatives and everything: physiotherapists and occupational therapists and social workers – the whole range of different professionals and people from health care. (Workplace trainer, social)*

According to the socio-cognitive approach to self-regulation (Zimmerman 1998; Bandura 1991), learning can take place without self-regulation. This means that someone other than the learner him- or herself determines the processes of learning and that the source of control is external. However, in parallel with our previous findings in various vocational fields (e.g. Pylväs et al. 2015), this study also showed that self-regulation greatly influences the development of work competences. Volition, such as exactness and carefulness, calmness, concentration and organisational skills, was considered important when performing work tasks. Some of the interviewees also recognised the significance of self-reflection and questioning work routines that led to self-awareness, but most importantly, several contexts emphasised the importance of motivation in developing expertise in the context of apprenticeship training. In the very beginning of one's career, motivational traits directed the interviewed apprentices' choices of vocational field and training. Later, motivation determined apprentices' attitude and initiative in workplace learning.

In the sectors of technology and social and health care, observing and modelling were one of the main guidance methods for supporting apprentices' workplace learning. Answering questions and assisting in work tasks, on the apprentice's demand, illustrated the guidance offered by workplace trainers and co-workers. In both sectors, one of the greatest challenges for guidance and the availability of environmental support at the workplace seemed to be the lack of time and resources. To receive the support needed to develop vocational competences in the context of apprenticeship training, apprentices were expected to be motivated, self-directed and sufficiently courageous to seek help and guidance. Thus, to become involved with learning processes and to participate as an active member of a community of practice, apprentices require strong self-regulation skills and social competence. Unlike cognitive and functional competences, which are expected to develop through increasing work experience, meta-competence, i.e. self-regulation is necessary from the very beginning of apprenticeship training. Moreover, the experiences of challenging apprenticeship cases in the examined organisations were related to a lack of self-regulation and life control. These cases may have led to a change of responsible workplace trainer or to the apprentice abandoning the training. The findings of this study emphasised the importance of all phases of the self-regulation cycle underlining the significance of motivation in first forethought phase and volition in the second performance phase (see Zimmerman 2000; Zimmerman and Moylan 2009). Thus, personal competence can be considered to precede the development of occupational competence in the context of workplace learning (see Le Deist and Winterton 2005; Winterton 2009).

*Apprentice guidance [...], but I would probably say that one-to-one discussions. There should be more of those, but we have this lack of time. [...] and there should be more of those goals as well, an apprentice bringing up her/his own goals. Then we could talk a bit about them together. (Workplace trainer, social)*

*I have been really pleased with the guidance, and then, I actually asked, after I observed carefully and consulted [about] each step, it came out that they did not realise that they should have advised me in that way. (Apprentice, social)*

The co-workers, workplace trainers and employers' views on apprenticeship training concurred with those of the apprentices' in regard to the contributions of workplace learning in developing holistic vocational expertise and self-regulative skills for which social skills (personal competence) are the prerequisites to the development of occupational competence (see Le Deist and Winterton 2005; Winterton 2009). In many cases, workplace learning was believed to afford an exceptional opportunity to learn occupational competence by getting involved with the actual work processes in authentic and diverse environments, thereby integrating occupational cognitive competence with occupational functional competence.

*Well, you can combine. And when I learn something in school, here I can challenge that [by asking] 'Why are you doing [it] like that? Because I have been told so'. So it is really good. (Apprentice, social)*

A few of the workplace trainers and co-workers felt that their guidance discussions with apprentices had also enhanced their own self-reflection. However, because workplace guidance was in many cases based on modelling and questions and answers, and only some discussions between the apprentice and an experienced employee, learning processes cannot be characterised as reciprocal and student-oriented, as the connective model of workplace learning suggests (Guile and Griffiths 2001). Thus, the role of the knowledge gained during the institutional study period was not commonly acknowledged or integrated into work practices.

*I don't know if they really bring any new expertise to the workplace. I think the direction of know-how is more from us to the apprentices rather than them bringing something new, because they have this comprehensive school and house manager's degree. Yes, it is, rather, the other way around. (Workplace trainer, technology)*

The employer interviewees had recruited the apprentices based on their cognitive and functional (work performance and experience) as well as their social competence (motivation and attitude over the application period). However, the employee and employer interviewees did not underline the development of the apprentices' holistic competence profile in the sense that they would be crossing boundaries between other organisations in the future and developing their horizontal knowledge (Guile and Griffiths 2001). The workplaces did not openly acknowledge the benefits of the apprentice's vocational expertise gained in previous workplaces or in institutional education. They rather saw apprenticeship training as a way to commit new employees to the organisation and to acquire a new workforce at an affordable price.

## Discussion

Previous research has shown that the development of work-based learning has changed the work of Finnish vocational teachers, who are increasingly required to cross boundaries between school and working life. A study by Isopahkala-Bouret (2010) discusses the positions of expert and professional role model given for working life, as well as for workplace trainers and other employees. The findings showed that teachers had to consider a student's assignments in relation to his or her workplace, even though, paradoxically, they were unable to take the position of an expert in the workplace context and had to remain advisors, networkers and collaborators (Isopahkala-Bouret 2010). Vähäsantanen et al. (2009) showed that teachers' agency between educational institutions and workplaces can take different forms. However, their study also implied that boundaries separate teachers from employees; employees saw teachers not only as unequal but even as vocationally incompetent. This study suggests that integration of apprentices into communities of working life (including the integration of knowledge and competences) requires improved structures of workplace learning and more active role of teachers. At best, the benefits of teachers' effort to collaborate with working life are advantageous to both sides as it also provides opportunities to teachers themselves to update their vocational expertise.

Learning through work requires meta-competence in apprentices from the very beginning of training. To support the holistic development of expertise and to avoid dropping out of apprenticeship training, workplaces need to acknowledge not only the significance of occupational competences but also the role of personal-level social competences and meta-competence, i.e. self-regulation. More closely, we recommend focusing more attention on learning processes and goal setting in workplace learning. This study found the need for apprentices to create more space and time for strengthening their personal skills, even if they are treated as equal employees, because those skills are actually an integral part of their vocation-specific expertise and make the work competences transferable to other workplaces in the future. This point is important, especially when focusing on the development of apprenticeship training more suitable for young persons. The study suggests that workplaces might benefit from interventions that aim to provide structure for learning and to support guidance. Although training is available from workplace trainers, in practice, the entire work community becomes involved in providing guidance and support.

The current reform of vocational upper secondary education in Finland, coming into force in 2018, aims both to create a competence-based customer-oriented system and to increase learning in the workplace. More research and interventions are needed to draw a conclusion of what kinds of educational structures can be integrated with working life and whether the issue at stake is apprenticeship training or more generally on-the-job learning. Persaud (2017) has analysed the current and widely spread agenda for adopting an integrative approach to the multiple constitutive elements of development, including the education dimension. Education

stakeholders at both global and local levels consider the links between the education and other development sectors in an effort to identify and use potential synergies that can yield greater effectiveness and efficiency in overall development outcomes. She introduces four major and overlapping sets of factors that can facilitate or hinder attempts at cross-sectoral engagement and deserve consideration as well as critical analyses: (1) contextual factors (e.g. a prior history of collaboration, the political, economic and social environment and the legal and regulatory framework), (2) personal factors (e.g. the specific skills, traits and relationships, the development of a shared vision and common goals and leadership capabilities), (3) structural factors (e.g. rules, regulations and procedures) and (4) technical factors (adequate resources, e.g. funding, staff, material and time) (Persaud 2017). All of these conditions are critical standpoints for integrated planning of vocational education and working life. The term “integration” is often used interchangeable with terms such as “collaboration”, “coordination” and “co-operation” (Persaud 2017). According to Mattesich et al. (2001), based on synthesised definitions by a number of authors, *co-operation* is characterised by informal relationships and commonly defined mission, structure or planning mission. *Coordination* is characterised by greater formality in relationships with an understanding of mutual-reinforcing missions. *Collaboration* is characterised by formal and lasting relationship, comprehensive planning and well-defined communication channels aiming to fulfil a common mission in a new structure. Apprenticeship training can be positioned somewhere in between coordination and collaboration that illustrates the complex and divergence status of the stakeholders involved. The challenge is for apprenticeship training to simultaneously provide a broad vocational qualification while also being specialised and tailored to blend with the learning affordances and needs of the workplace (Stenström and Virolainen 2014). More research is needed on organisational level of integrated planning for the context of vocational education and working life.

## Conclusion

The study shows that co-operation between workplaces and educational institutions in an effort to promote learning is still limited in the context of Finnish apprenticeship training. Instead of supporting the ideal of *connective model*, Finnish apprenticeship training was representing the *traditional model* of learning through work, viewing work experience as separate from the educational institution, or the *experiential model* keeping work experience and theoretical studies distinct from each other, but still acknowledging the need for partnerships to support student development. Further to the connections between the above-mentioned models and the metaphors of learning (Tynjälä 2009), integration of apprentices into their social environment and work practices supported the acquisition and participation metaphors of learning, whereas the knowledge creation metaphor of learning, supported by the connective model, was invisible or not explicitly applied in the workplaces

(e.g. Guile and Griffiths 2001; Tynjälä 2009; Paavola et al. 2004). In work communities of practice, apprentices were treated as equal employees and assigned tasks with responsibility. However, even if the apprentices received sufficient support and guidance at the workplace, the organisational perspective highlighted a lack of time, resources and knowledge to support collaborative working and goal setting as well as reciprocal learning. Learning in educational institutions provided another community of practice for the apprentices, but membership was rather peripheral.

In this study, we used the holistic view of competence described in Le Deist and Winterton (2005) and Winterton (2009) as a theoretical framework for examining working life actors' perceptions of work competences and competence development. The apprentices and their colleagues acknowledged the importance of developing occupational *cognitive competence* (knowledge and understanding) and *functional competence* (practical know-how) in authentic learning environments in workplaces. Occupational competences gained in working life were also related to such generic skills as problem-solving skills, technological skills and information processing. The findings also emphasised the significance of personal *social competence* (social behaviour and attitudes) and *meta-competence* that were actually considered to precede the development of occupational competences. To become involved and integrated with learning processes and to participate as an active member of a community of practice, apprentices require strong self-regulation skills; motivation, volition and self-reflection (see Kitsantas and Zimmerman 2002; Zimmerman 1989, 1998; Zimmerman and Kitsantas 2005).

## References

- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory* (Vol. xiii). Englewood Cliffs: Prentice-Hall.
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50, 248–287.
- Beach, K., & Vyas, S. (1998). *Light pickles and heavy mustard: Horizontal development among students negotiating how to learn in a production activity*. Paper presented at the fourth conference of the International Society for Cultural Research and Activity Theory, University of Aarhus, Denmark.
- Billett, S. (2001a). Knowing in practice: Re-conceptualising vocational expertise. *Learning and Instruction*, 11(6), 431–452.
- Billett, S. (2001b). *Learning in the workplace: Strategies for effective practice*. Sydney: Allen and Unwin.
- Billett, S. (2001c). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, 13(5), 209–2014.
- Billett, S. (2002). Toward a workplace pedagogy: Guidance, participation, and engagement. *Adult Education Quarterly*, 53(1), 27–43.
- Billett, S. (2009). Vocational learning: Contributions of workplaces and educational institutions. In R. Maclean & D. Wilson (Eds.), *International handbook of education for the changing world of work* (pp. 1711–1723). Dordrecht: Springer.
- Billett, S. (2014). Mimesis: Learning through everyday activities and interactions at work. *Human Resource Development Review*, 13(4), 462–482.



- Corno, L. (1989). Self-regulated learning: A volitional analysis. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement* (pp. 111–141). New York: Springer.
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115.
- European Union. (2015). *User guide to the SME definition*. Retrieved from [http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index\\_en.htm](http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index_en.htm)
- Evanciew, C. E. P., & Rojewski, J. W. (1999). Skill and knowledge acquisition in the workplace: A case study of mentor-apprentice relations in youth apprenticeship programs. *Journal of Industrial Teacher Education*, 36(2), 24–53.
- Fuller, A., Hodkinson, H., Hodkinson, P., & Unwin, L. (2005). Learning as peripheral participation in communities of practice: A reassessment of key concepts in workplace learning. *British Educational Research Journal*, 31(1), 49–68.
- Gick, J. (1995). Intellectual and manual labour. In L. Martin, K. Nelson, & E. Torbach (Eds.), *Socio-cultural psychology: Theory and practice of doing and knowing*. New York: Cambridge University Press.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), 56–73.
- Guile, D., & Griffiths, T. (2001). Learning through work experience. *Journal of Education and Work*, 14(1), 113–131.
- Guile, D., & Young, M. (2003). Transfer and transition in vocational education: Some theoretical considerations. In T. Tuomi-Gröhn & Y. Engeström (Eds.), *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 19–38). Amsterdam: Pergamon.
- Gurtner, J.-L., Cattaneo, A., Motta, E., & Mauroux, L. (2011). How often and for what purposes apprentices seek help in workplaces: A mobile technology-assisted study. *Vocations and Learning*, 4(2), 113–131.
- Hager, P. (2011). Theories of workplace learning. In M. Malloch, L. Cairns, K. Evans, & B. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 17–31). Thousand Oaks: SAGE.
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Care Research*, 15(9), 1277–1288.
- Isopahkala-Bouret, U. (2010). Vocational teachers between educational institutions and workplaces. *European Educational Research Journal*, 9(2), 220–231.
- Kitsantas, A., & Zimmerman, B. J. (2002). Comparing self-regulatory processes among novice, non-expert, and expert volleyball players: A microanalytic study. *Journal of Applied Sport Psychology*, 14(2), 91–105.
- Kivinen, O., & Peltomäki, M. (1999). On the job or in the classroom? The apprenticeship in Finland from the 17th century to the 1990s. *Journal of Education and Work*, 12(1), 75–93.
- Krippendorff, K. (2012). *Content analysis: An introduction to its methodology*. Thousand Oaks: Sage.
- Laki ammatillisesta koulutuksesta 531/2017. [Vocational education and training act 531/2017].
- Lasonen, J., & Young, M. (Eds.). (1998). *Strategies for achieving parity of esteem in European upper secondary education*. European Commission. Leonardo da Vinci Programme. Surveys and analysis: Post-16 strategies project. Jyväskylä: Finnish Institute for Educational Research.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Le Deist, F. D., & Winterton, J. (2005). What is competence? *Human Resource Development International*, 8(1), 27–46.
- Mattesich, P., Murray-Close, M., & Monsey, B. (2001). *Collaboration: What makes it work: A review of research literature on factors influencing successful collaboration*. Saint Paul: Amherst H. Wilder Foundation.
- Meriläinen, R. (2011). *Valkolakki vai haalarit, vaiko molemmat. Koulutuspolitiikan vaikuttajien näkemykset toisen asteen kehityksestä* [The clash between equality and individualism:

- The transformation of upper secondary education as portrayed by education policy-makers]. Academic dissertation. Helsinki: University of Helsinki.
- Ministry of Education and Culture & Finnish National Board of Education. (2014). *Vipunen – Education statistics Finland*. Retrieved from <https://vipunen.fi/en-gb/>
- Mulder, M. (2014). Conceptions of professional competence. In S. Billett, C. Harteis, & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 107–137). Dordrecht: Springer.
- Nielsen, K. (2008). Scaffold instruction at the workplace from a situated perspective. *Studies in Continuing Education, 30*(3), 247–261.
- Nokelainen, P., Kaisvuori, H., & Pylväs, L. (2016). Self-regulation and competence in work-based learning. In M. Mulder (Ed.), *Competence-based vocational and professional education. Bridging the worlds of work and education* (pp. 775–793). Cham: Springer.
- Numminen, U. (2000). Strategies for improving vocational education: The Finnish case. In M.-L. Stenström & J. Lasonen (Eds.), *Strategies for reforming initial vocational education and training in Europe* (pp. 74–91). Jyväskylä: University of Jyväskylä, Institute for Educational Research.
- Paavola, S., & Hakkarainen, K. (2005). The knowledge creation metaphor – An emergent epistemological approach to learning. *Science & Education, 14*(6), 535–557.
- Paavola, S., Lipponen, L., & Hakkarainen, K. (2004). Models of innovative knowledge communities and three metaphors of learning. *Review of Educational Research, 74*(4), 557–576.
- Persaud, A. (2017). Integrated planning for education and development. *European Journal of Education, 52*(4), 448–459.
- Pylväs, L., Nokelainen, P., & Roisko, H. (2015). The role of natural abilities, intrinsic characteristics, and extrinsic conditions in air traffic controllers' vocational development. *Journal of Workplace Learning, 27*(3), 241–263.
- Reegård, K. (2015). Sales assistants in the making: Learning through responsibility. *Vocations and Learning, 8*(2), 117–133.
- Savoie-Zajc, L., & Dolbec, A. (2003). Co-operative education in the pulp and paper sector in Quebec. *Journal of Workplace Learning, 15*(3), 114–122.
- Schreier, M. (2014). Qualitative content analyses. In U. Flick (Ed.), *The Sage handbook of qualitative data analysis* (pp. 170–183). London: Sage.
- Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 631–649). San Diego: Academic Press.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher, 27*(2), 4–13.
- Smith, P. J. (2000). Flexible delivery and apprentice training: Preferences, problems and challenges. *Journal of Vocational Education & Training, 52*(3), 483–503.
- Stenström, M.-L., & Virolainen, M. (2014). *The current state and challenges of vocational education and training in Finland*. Roskilde: Nord-VET, Roskilde University. Retrieved from <http://www.voced.edu.au/content/ngv%3A66853>
- Swager, R., Klarus, R., van Merriënboer, J. J. G., & Nieuwenhuis, L. F. M. (2015). Constituent aspects of workplace guidance in secondary VET. *European Journal of Training and Development, 39*(5), 358–372.
- Tanggaard, L. (2005). Collaborative teaching and learning in the workplace. *Journal of Vocational Education and Training, 57*(1), 109–122.
- Tynjälä, P. (2009). Connectivity and transformation in work-related learning – Theoretical foundations. In M.-L. Stenström & P. Tynjälä (Eds.), *Towards integration of work and learning* (pp. 11–37). Dordrecht: Springer.
- Vähäsantanen, K., Saarinen, J., & Eteläpelto, A. (2009). Between school and working life: Vocational teachers' agency in boundary-crossing settings. *International Journal of Educational Research, 48*(6), 395–404.

- Virolainen, M. (2014). *Toward connectivity: Internships of Finnish universities of applied sciences*. Academic dissertation. Jyväskylä: University of Jyväskylä, Finnish Institute for Educational Research.
- Virolainen, M., & Stenström, M.-L. (2014). Finnish vocational education and training in comparison: Strengths and weaknesses. *International Journal for Research in Vocational Education and Training*, 1(2), 81–106.
- Virolainen, M., & Stenström, M.-L. (2015). Recent Finnish VET reforms and innovations: Tackling the current challenges. *Nord-VET – The future of vocational education in the Nordic countries*. Retrieved from <http://nord-vet.dk/indhold/uploads/Innovations-in-VET-in-Finland-2015.pdf>
- Virtanen, A. (2013). *Opiskelijoiden oppiminen ammatillisen peruskoulutuksen työssäoppimisen järjestelmässä* [Students' workplace learning in Finnish vocational education and training]. Academic dissertation. Jyväskylä: University of Jyväskylä.
- Virtanen, A., & Tynjälä, P. (2008). Students' experiences of workplace learning in Finnish VET. *European Journal of Vocational Training*, 44(2), 199–213.
- Virtanen, A., Tynjälä, P., & Eteläpelto, A. (2014). Factors promoting vocational students' learning at work: Study on student experiences. *Journal of Education and Work*, 27(1), 43–70.
- Weiner, B. (1974). *Achievement motivation and attribution theory*. Morristown: General Learning Press.
- Winterton, J. (2009). Competence across Europe: Highest common factor or lowest common denominator? *Journal of European Industrial Training*, 33(8/9), 681–700.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329–339.
- Zimmerman, B. J. (1998). Academic studying and the development of personal skill: A self-regulatory perspective. *Educational Psychologist*, 33(2/3), 73–86.
- Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego: Academic Press.
- Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166–183.
- Zimmerman, B. J. (2011). Motivational sources and outcomes of self-regulated learning and performance. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 49–64). New York: Routledge.
- Zimmerman, B. J., & Campillo, M. (2003). Motivating self-regulated problem solvers. In J. E. Davidson & R. Sternberg (Eds.), *The nature of problem solving* (pp. 233–262). New York: Cambridge University Press.
- Zimmerman, B. J., & Kitsantas, A. (2005). The hidden dimension of personal competence: Self-regulated learning and practice. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 509–526). New York: Guilford Publications.
- Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 299–315). New York: Routledge.
- Zimmerman, B. J., & Schunk, D. H. (2008). Motivation: An essential dimension of self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 1–30). Mahwah: Erlbaum.

# Chapter 8

## Variations in Implementing the Dual VET System: Perspectives of Students, Teachers, and Trainers in the Certified Trades in Iceland



Elsa Eiríksdóttir

**Abstract** Vocational education and training (VET) in Iceland is generally organized as a dual system at the upper secondary level. An analysis of the curricula of 34 certified trades in Iceland – where a journeyman’s exam is legally required for working in a field – revealed considerable variations in the way the dual system is implemented (i.e. dual-system models), particularly in terms of the duration of the work-based learning period and sequencing of the periods in the workplace and in school (where the programme should begin and end). The variability in the dual-system models among the certified trades suggests independence in development and a lack of centralized governance in the VET system in Iceland. To study the implications of different VET dual-system models, four trades were selected as representatives of the various models found among the certified trades, and students, teachers, and workplace trainers in each were interviewed. The goal was to look at the rationale for the various VET dual-system models and the effects of integration of school-based and work-based experiences as viewed by the various stakeholders within the system. The results revealed conflicting goals and important trade-offs between economic and pedagogic goals of the VET system. Tensions relating to the duration of the work-based learning period revolved around providing comprehensive training on the one hand and the cost and productivity for the companies on the other. Tensions relating to sequencing revolved around when work-based learning periods should be placed in the programme: if placed early in the programme, they provided students with a sense of place and purpose, while later work-based learning meant the students were ready for work and created the opportunity for a seamless transition into employment. Overall, the results indicate two different patterns of VET dual-system models, reflecting different attempts to balance economical concerns and the educational requirements laid down by the trades, both with clear benefits and particular challenges.

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A dual system of vocational education and training (VET) is where part of the education takes place in school and part at work. Research has indicated that different, but complementary, types of learning take place in each of the two sites (e.g., Aarkrog 2005; Billett 2009; Bjurulf 2013; Eraut 2004; Fuller and Unwin 2004; Griffiths and Guile 2003; INAP Commission ‘Architecture Apprenticeship’ 2013; Lindberg 2003; Schaap et al. 2012). The dual system can be implemented in various ways, according to different approaches to integration or models of the dual system. Billett (2014) suggested the duration and sequencing of periods at school and the workplace as two key considerations for integrating experiences across the two sites of learning. Duration refers to the length of the period devoted to training in the workplace, which can vary as a proportion of the overall programme, and dual-system models can range from being predominantly work-based to predominantly school-based. Sequencing refers to how the periods of work-based and school-based learning are ordered in the programme. For example, in one dual-system model, students complete all or most of the education at school before moving on to the workplace study phase, while in another, workplace training is interleaved with school-based education. Different implementation models of the dual system reflect different rationales for the delivery of VET and can have a significant impact on the education that VET students receive (Billett 2014).

VET in Iceland is generally organized as a dual system, and here the focus is on the certified trades, where a journeyman’s exam is necessary to work in the field as an expert (Ministry of Education, Science and Culture 2013). Programmes for the certified trades are all based on the dual system and require students to complete a work-based learning period (apprenticeship) in a workplace as part of the programme. The programmes vary considerably, however, both in terms of the duration of the work-based learning period and sequencing. The certified trades in Iceland therefore present an opportunity to look at the rationale for different variations in the dual-system models for VET and the views and experience of those teaching and learning in different models within the dual VET system.

The study was carried out in two phases. First, the curricula of the certified trades in Iceland were examined to categorize the duration and sequencing of the various trades to identify the main types of dual-system models in Iceland. Secondly, four trades were chosen to represent the largest variations in the models. Recent students (journeymen), teachers, and workplace trainers (masters) in each were interviewed. The results discussed here focus on the duration and sequencing of work-based periods and how learning in school and training in the workplace are integrated in the VET dual-system model.

## Overview of the Vocational Education and Training System in Iceland

Iceland has a small population (approximately 330,000), roughly two-thirds of which lives in the metropolitan (Reykjavík) area (Statistics Iceland 2016). At the end of compulsory education, at the age of 16, students have the right to enrol in upper secondary schools; the majority of them – over 95% of each cohort in the past few years – do so (Statistics Iceland 2016).

In general, there are two tracks students can take at upper secondary level: (1) a general academic one, ending with a matriculation (university entrance) exam, and (2) VET tracks, where they can complete vocational courses, some ending with a journeyman's exam. There are no technical colleges in Iceland, and all tertiary institutions have the status of universities. Students on a VET track can choose to take extra semesters at the upper secondary level to complete the matriculation exam, so qualifying for entry to university.

Currently, there are over 100 VET programmes available at the upper secondary level for students to choose from, lasting from 1 to 4 years – although the average is 3 to 4 years (Ministry of Education, Science and Culture 2013; OECD 2016). Enrolment rates for VET programmes are generally considered low, with approximately 31% of students at the upper secondary school level choosing VET programmes, compared to the OECD average of 46% (OECD 2016; Prime Minister's Office 2012; Statistics Iceland 2016). The recent educational reform agenda has as one of its main goals an increase in the percentage of youngsters choosing VET at the upper secondary level (Ministry of Education, Science and Culture 2014a).

In 'certified' trades in Iceland (sometimes also referred to as 'licensed' or 'regulated' trades), a journeyman's certificate is required to be able to work in a field determined by regulation that legalizes the rights of those educated in the profession (e.g. car mechanics, tailoring, bookbinding, and hairdressing). In other VET programmes (e.g. dental assistants, travel guides, social assistants, and fisheries technicians), completion of studies constitutes a qualification to work in particular vocations, but the right to work in that field is not necessarily protected by legislation. The focus of this chapter is on certified trades.

## Curricula and Dual-System Models for Certified Trades

All the certified trade programmes involve a paid work-based learning period or an apprenticeship. Here the term work-based learning period is used rather than apprenticeship as apprenticeship is generally considered to refer to a long-term training and not all certified programmes fit this requirement (Cedefop 2011; Naidu 2013). Also, the term work-based learning is often used as a more general term, including apprenticeship as one form.

Fifty-one certified trades are defined in legislation in Iceland (Regulation on certified trades, No. 940/1990), but at the time of the study, curricula were available for only 34, published in the years 2001–2009 (Ministry of Education, Science and Culture 2016). The curriculum for VET programmes were developed by upper secondary schools in cooperation with the occupational councils for each sector (e.g. building and construction, food and tourism, vehicles and transportation). The councils include representatives of the stakeholders and social partners connected with the vocations in question, and their role is an advisory one (Stefánsdóttir and Ólafsson 2012; Ministry of Education, Science and Culture 2014b). Subjects in VET programmes are divided into general academic subjects (e.g. languages, social studies, and maths), theoretical vocational subjects, and practical vocational subjects (Ministry of Education, Science and Culture 2013). Currently, the curricula for all programmes in upper secondary schools are being revised, as legislature for the upper secondary schools was changed considerably in 2008, with new national curricula introduced in 2011 for all school levels.

Within the 34 curricula available for this analysis, the length of workplace learning and the sequencing of school studies and workplace training varied considerably from one field to another.

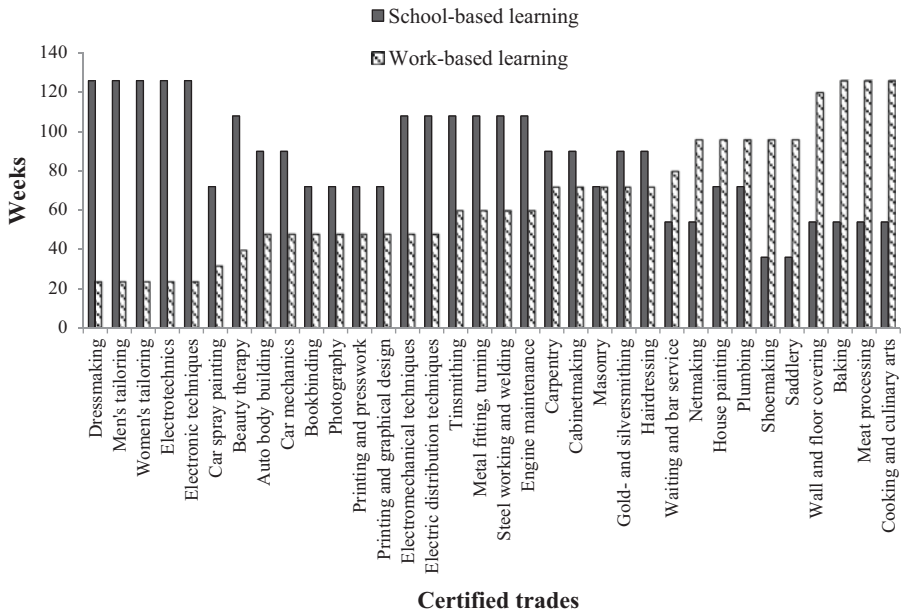
### ***Duration of the Work-Based Learning Period***

According to the curricula, the length of the workplace learning period ranges from 24 to 126 weeks (see Fig. 8.1), which means that there is a difference of 102 weeks, or almost 2 years, between the shortest and longest periods of work-based learning. The variability in the programmes is extensive, ranging from relatively short periods in the workplace to about two-thirds of the time being spent there. Students spend 16% to 73% of their time in work-based learning (an average of 43%). Categorizing a short period of work-based learning as 24–48 weeks, a medium-length one 60–80 weeks, and a long one as 96–126 weeks, 15 certified trades have short work-based learning periods, 10 medium-long, and 9 long. This means that the variability is not due to a few outliers but reflects a wide range of traditions among these fields.

Generally, the longer the work-based period, the shorter the time that is spent in school, and vice versa. The programmes therefore range from predominantly school-based to predominantly work-based.

### ***Sequencing of School- and Work-Based Learning Periods***

In some trades, the curriculum sets conditions on how the periods of school-based learning and work-based learning are to be sequenced. These conditions mainly determine where the programme is to begin and end (see Table 8.1).



**Fig. 8.1** Duration (in weeks) of school-based and work-based learning periods, according to the official curricula (at the time) for 34 certified trades in Iceland

**Table 8.1** Certified trades categorized by conditions specified in the curriculum for where studies are to begin and end

Study site for commencement	Study site for completion			
	At school	In the workplace	Either	Total
At school	8	12	7	27
In the workplace	0	0	0	0
Either	4	0	3 <sup>a</sup>	7
Total	12	12	10	34

<sup>a</sup>In these three trades (net making, shoemaking, and saddlery), the curricula were not fully developed and only provided a single paragraph describing the field of study in general. Therefore, sequencing is not specified for these trades, and the category is not considered to represent a dual-system model

As shown in Table 8.1, the general tendency is for certified trade VET programmes to begin at school. None of the curricula require that the programme should start in the workplace; the reasons for this are probably rooted in the view that the school is the default site of learning, that basic skills and knowledge are best acquired at school, and that students prefer a formal and structured learning environment; by contrast, the workplace can be experienced as overwhelming (Jónasson 2008; Schaap et al. 2012). In a few cases, the students can choose to begin the programme either at school or in the workplace. The trades are fairly equally divided



between the three categories specifying where the programme should end, with about a third ending at school, a third in the workplace, and a third at either site.

The categorization reflects the fact that different trades have different structures. In some cases, students complete their workplace learning concurrently with school studies, and in other cases, they do this subsequently (Íðan Educational Centre *n.d.*; Ministry of Education, Science and Culture 2014b, 2016). Adding to the complexity, some fields have requirements for how much of the work-based learning must be completed at which point in the programme as a whole. For example, the dress-making and tailoring curriculum specifies that 8 of the 24 weeks of the work-based learning period are to be completed during the second year of study and the rest during the third and fourth years (Ministry of Education, Science and Culture 2008).

Overall, from the variations in the length of the work-based learning periods and the conditions for sequencing set out in the curricula for the certified trades, it is clear that the VET system in Iceland is quite complex and reflects independent lines of development in the various trades. The Icelandic VET system has its roots in the apprenticeship system of the guilds, where training takes place in the workplace, i.e. in the context of work. However, increased formalization and institutionalization of education led to a gradual tendency to move VET from the workplace into the school environment (Guðmundsson 1993; Jónasson 1998, 2008; Resnick 1987). The variability in the dual-system VET models within the certified trades in Iceland suggests that the structure of different trades developed independently over time, with strong control within the trade and schools and less centralized system control over the structure of integration of school-based and work-based learning. An explanation may lie in the fact that between 1970 and 1988, the VET system developed unhindered by centralized legislation and was characterized by various experiments in implementation. It was not until 1988 that legislation was passed covering the organization of the upper secondary school level in Iceland (Guðmundsson 1993). The end result is a dual VET system with a great variability in terms of the pathways students follow in the certified trade programmes. This variability should in all likelihood influence the extent to which it is possible to integrate learning at the two sites.

## Experience of Various Dual-System Models

Research has indicated that the success of a dual-system programme depends on its coherence and implementation (Billett 2014; INAP Commission 'Architecture Apprenticeship' 2013; Mulder et al 2015; Schaap et al. 2012). Even if the learning experiences at each site are complementary, it is important to consider to what degree the experience gained in them both can be integrated due to the implementation of the system. The point has been made that the different, and often contradictory, goals and emphases in school and in the workplace contribute to transfer difficulties. Schools prioritise the learning process and providing the student with general vocational skills and knowledge, whereas workplaces focus on work-process outcomes, productivity, and specialized skills and knowledge (Billett 2009;

Lindberg 2003; Schaap et al. 2012; Tynjälä 2008). Effort is needed to integrate what is learned in the two sites. In addition, research has shown that the specific systemic context can place constraints on VET programmes that result in very different educational experiences and opportunities for students (Berglund and Henning Loeb 2013; Mulder et al. 2015). Therefore, it cannot be assumed that, because a dual system is in place, the educational experience and outcome will be uniform. A dual-system model, both in terms of the duration of work-based learning and the sequencing of work-based and school-based learning periods, is likely to influence the coherence and effectiveness of VET programmes. It is therefore important to consider the rationale for different implementation models and the experience of those working within the VET system.

Four trades were selected as representative of different implementation models of the dual system, based on different categorizations of sequencing and duration of the work-based learning period (see Table 8.2). In addition, both male- and female-dominated trades were selected. The actual certified trades will not be named to ensure confidentiality for those interviewed due to the small size of some of the trades. Besides, the focus is on the structure of the VET dual system and not on the specific trade, apart from how it represents a specific model of implementation.

Six participants were randomly selected from each of the four trades ( $N = 24$ ) to represent three different groups of stakeholders: (1) students who had completed their journeyman's exam in the past 2 years ( $n = 8$ , ages 21 to 46, 3 females), (2) upper secondary school teachers ( $n = 8$ , ages 35 to 65, 4 females), and (3) trainers at workplaces (master craftsmen) who had trained students in the past 2 years ( $n = 8$ , ages 35 to 70, 3 females).

The interviews were semi-structured and covered, for example, the content and organization of school- and work-based learning, integration practices of school- and work-based training periods, communication and relationships between teachers and trainers, and how students secured apprenticeships. The interviews were conducted during the period from November 2014 to April 2015, in and outside the metropolitan (Reykjavík) area. Each interview took 40–60 min and was subsequently transcribed for analysis. Thematic analysis (Braun and Clarke 2006) was used when analysing the transcripts, first as a means of getting familiar with the data and then later in searching for and defining themes.

Here the focus is on a subset of the results, relating to views on the duration of the work-based learning period and on the sequencing of school and work-based

**Table 8.2** The four certified trades selected as representatives of different variations in the implementation of the Icelandic VET dual system

Certified trades	Study begins in	Study ends at	Duration of WBT <sup>a</sup>	Traditional dominant staffing of trade
Trade A	School	School	Medium	Female
Trade B	School	Workplace	Short	Female/male
Trade C	School	Either	Short	Male
Trade D	Either	School	Long	Male

<sup>a</sup>Short is 24–48 weeks, medium 60–80 weeks, long 96–126 weeks

learning. The goal is to look at the arguments in favour of the various implementation models and how they can be seen to influence the integration of learning at school and in the workplace.

### *Views on the Duration of the Work-Based Learning Period*

The views of participants on each category of duration – long (96–126 weeks), medium (60–80 weeks), and short (24–48 weeks) – are discussed below. The results suggest that the main consideration regarding the duration of the work-based learning period involves a conflict between economic and pedagogical goals.

**A Long Work-Based Learning Period** The participants in Trade D, which has the longest work-based learning period (96–126 weeks), all agreed that it could not be any shorter. However, some nuances were noticeable in participants' responses and the reasons they provided. For example, workplace trainers believed a lengthy training period was necessary for the students to develop the skills and confidence required for working in the trade. Vignir, one of the workplace trainers, emphasized that a long time is required for training basic skills: 'Mainly they are being taught the basics, how you do certain things – in this field, as in others, there are these basic competencies'. In contrast, one of the teachers, Gylfi, discussed the economic importance of a long work-based learning period for the workplace since students are paid wages:

The original argument for the length of the work-based learning contract, since you asked, was that the students took a long time to become ready and the productivity of each was poor. The last part [of the work-based learning period], which was ingenious if it all worked out, was then used to get value from the student. In exchange the student got more responsibility as well, so I have never considered this to be bad. But the workplaces are making up for the first part [of the training period].

That workplaces have contradictory goals when it comes to taking on students is not surprising (Guile and Young 2003; Resnick 1987; Schaap et al. 2012). The workplace is, after all, in business. Profit and productivity are naturally of importance and can conflict with the goal of training students. How these goals are balanced remains the key issue in determining the students' experience, and when the balance tips too far in the direction of productivity the students suffer. Viktor, one of the students from Trade D, had a bad experience of his first workplace, where he worked on the same task for a long time without any further training, even when he asked for more varied experience. In his view, the duration of the work-based learning should take account of the needs of each student, because if they are methodically taught and trained, they will probably require less time in the workplace.

Trade D was the only one where interviewees discussed the need for more time at school. Both teachers, and one of the students, felt that not enough time was provided at school to cover all the theoretical vocational subjects required, but they stressed that they would not like to see the work-based learning period shortened.

**A Medium-Length Work-Based Learning Period** In Trade A, with a medium-length work-based learning period (60–80 weeks), interviewees disagreed on whether it was too long or too short, and their opinions were based on different reasons.

Both the teachers interviewed considered the work-based learning period to be too long. They were concerned that there was no guarantee of the quality of the learning in this period, as there was no clear specification of what was to be taught and there was no quality oversight. They also believed that shortening the work-based learning period could increase the supply of training places or contracts available for students, as these have been hard to come by. According to them, workplaces find it difficult to pay students for such a long training period, especially as they are often not productive at the start and the workplaces tend to be small and to rely on the productivity of a few individuals. This means that time devoted to training could also result in lost income for the trainer.

In addition, Ásta, a teacher, made the case that the educational system does not necessarily have to turn out perfectly trained professionals, as the first years of work in any field necessarily involve training and experience: ‘We are not graduating brain-surgeons. The experience mainly comes after graduation. The programme could be much better organized. It could be made tighter, much more efficient than it is today’. This involves the question of where training as a part of the educational programme should end and training as an inherent part of the job should begin.

One trainer, and both students, believed the work-based learning period could not be any shorter than it is. Berglind, the trainer, said workplace trainers ‘...often say that in fact, they don’t trust their students [to work independently] when those weeks are over’. Karen, one of the students interviewed, spent more time than required training in the workplace and found this beneficial:

I would have been ready after the designated period of time, but just for speed and ease I was happy about that extra time working – to acquire the skill. And it was good preparation for the journeyman’s exam. Instead of feeling stressed, I was able just to say to myself: I’m just here to work. .

The students viewed the work-based learning period as valuable in giving them a sense of place and purpose (i.e. ‘this is work’) and providing training. This was in contrast with the view of the teachers, who doubted the consistency or the quality of the training provided during the work-based learning.

**A Short Work-Based Learning Period** For the two trades (B and C) with a short period of work-based learning (24–48 weeks), there was no agreement on whether they were long enough or too short. No one thought they were too long.

When discussing the reasons why the work-based learning period was long enough, Andrea, one of the teachers, stressed the necessity of including a work-based learning but added that the schools were nowadays well equipped to provide specialized education in the trade and so not so much time was needed for training students in the workplace. Andrea’s view was that as schools become better equipped, the work-based learning period can easily be shortened.

Markús, one of the students, said the work-based learning period was long enough, but: ‘It depends on how well the student knows how to do things and what kinds of projects you get to work on’. In this context, it is also important to consider the experience of students when transitioning from being in training to being in employment. Markús added that as he had been hired by the company he trained at, he had gained experience in certain more advanced tasks after finishing his studies and starting work at the company full time. This indicates an overlap between the work-based learning period and induction. This point was also raised by Loftur, one of the teachers, when asked about the length of the work-based learning period: ‘When do you have enough experience really? [...] When everything is said and done, when you have finished your journeyman’s exam, you will get more responsibility, but *nota bene* the master craftsman [in the workplace] is responsible for everything at the end of the day’. Both the programmes with short work-based learning periods ended in the workplace (in one case, this was optional), blurring the lines between work-based learning and induction. This suggests that a short work-based learning period placed at the end of the programme might be considered an intermediate stage between school and induction as an employee.

Rúnar, one of the trainers, considered the short work-based learning period long enough, adding that taking on students was often a financial burden for companies. The issue of paying the students also came up in an interview with Lína, a teacher. She had heard that workplaces were pushing to lengthen the work-based learning period and interpreted this as meaning that they did not get enough out of the students in return for their training: ‘They think that the time is too short, that the student are not yet – that it takes them a long time to learn and they are not productive enough’. Both trainers in the same trade did in fact argue that the work-based learning period was too short, but for reasons other than those suggested by Lína. The main reason given was that more time was needed for learning, skill acquisition, and gaining confidence. Elín, another trainer, said:

I think it is too short. Just to acquire enough skill now in this field you have to work independently, you need to have self-discipline and be independent and take initiative. It is not just cut and dried [...] that’s what takes the longest, to learn to work like that.

Neither trainer explicitly discussed student productivity. According to Elín, the rationale for shortening the work-based learning period was to increase the likelihood of students becoming articulated as students (landing work-based learning contracts). This was based on the assumption that having to pay for fewer months would encourage employers to take on students. But Elín claimed that the decision had been made without consulting the workplaces and merely resulted in incomplete training. Here again, there is a conflict between the economic and pedagogical goals of workplaces, regardless of whether this is real or assumed.

## *Views on the Sequencing of School- and Work-Based Learning Periods*

The participants were asked how their work-based and school-based periods were sequenced and what they thought of this arrangement. The results will be discussed from the standpoint of where the studies should begin and end.

**Where the Studies Should Begin** Of the four trades, learning begins at school in three (Trades A, B, and C) and one gives students the option of starting either at school or in the workplace (Trade D). Commencing the studies at school reflects the norm in Iceland, as this is the case for most of the certified trades (27 of the 34 curricula reviewed). This could explain why the interviewees did not discuss beginning the programme at school but seemed to take it for granted. However, the option of beginning the studies in the workplace was a topic that came up often in the interviews with participants in Trade D.

According to the interviewees from Trade D, the majority of students began their studies in the workplace. However, some of them discussed the benefits of having a basic introduction to the field at school before starting in the workplace. Lára, one of the students, believed it would be beneficial to acquire basic skills and knowledge of the trade at school, early in the programme: 'Not everyone has the basic foundational knowledge, they just know how to do certain tasks [from working], but they need the basics'. Vignir, one of the trainers, also pointed out that when they start the programme, students can be very young (he mentioned the age of 17) and often have no experience of working. According to him, it can be quite a culture shock for them to start in the workplace, especially as the pace and pressure in the field is quite high. Entering the workplace later in the programme, when they are a little older, might therefore prepare them better.

However, there are benefits to starting work-based learning earlier in the programme, as working experience can provide an important context for studies at school. Viktor, one of the students, reflected that it could be problematic not having any working experience or context when being taught the basic theoretical vocational subjects at school. He started the programme at school, and when discussing one of the basic theoretical courses, he said:

At 16 I wasn't interested in this subject, it is something I would have liked to study later, when I had realized a bit better what I had let myself in for [...] Yes, I passed the course, but not with a good grade, and it is something I would have liked to have done later, when I was more involved and my mind a bit more open to information, you know?

In this instance, the issue concerns having a context for the theoretical information but also seeing the value of investing effort in learning. Earlier introduction to the workplace, and providing a sense of place and purpose, might help the students become more interested and committed.

Other participants also saw the benefit of having students enter the workplace early in the programme. For instance, Tómas, the other trainer from Trade D, said one of the benefits was that students could get a sense of whether the work they were

training for was something that suited them: ‘Many of them quit because of the hours you work, [and realize] this is not really for them. Even if they know all about the working hours when they start. [...] But then it’s just too difficult and too much pressure’. So even if the conditions of the work are something the students don’t think they will have a problem with, the reality may be different. Realizing this early on in the programme can be beneficial.

The issue of understanding the field also came up in the other three trades, which all began at school, and was considered especially problematic where the work-based learning took place later in the programme. It was seen as a problem that students had little knowledge of what the work in the trade entailed until they had completed a large part of their studies. Loftur, a teacher in Trade C, when discussing how late in the programme the work-based learning took place, said:

But I would like to [...] have a short introduction, just a day, maybe one day during the second semester. Just to send them out and see: Is this really what you are interested in doing? Then it would all be more purposeful, and then students could choose sooner in their career: ‘Is this something that suits me or not?’ Then it would be more purposeful – the teaching – and then you would have students who were interested from the beginning; had made a decision and were on track.

Therefore, when the work-based learning period is not included earlier in the programme, there needs to be a way to allow the students to be introduced to the work. The issue then becomes how the schools incorporate this experience into the earlier parts of the programme. The interviewees discussed general workplace visits, opportunities for shadowing a professional in the field for a day, and unpaid internships as part of coursework. The purpose of these measures was to introduce students to what working in the field entails and various specialities in the trade.

Another issue discussed in relation to commencing studies at school was deciding how much time at school was needed before beginning work-based learning. This came up in interviews with trainers in Trade A, where the work-based learning period was introduced after a specified minimum time at school. Both the trainers thought students should stay even longer at school before starting learning in the workplace, because they were not at all ready to do the work. Rósa said:

[The job] is difficult to do until you’ve trained enough to do it. It doesn’t just happen automatically [...] When the students come to me they have had some training, but I personally think that the student is in no way ready to go on the floor. It’s a huge problem, because they start here in an apprenticeship, drawing a salary.

In this case, it seems that going too early into work-based learning creates problems, and it is important that entry into work-based learning be tailored to students’ skill level: in some fields, entry without a good foundation will not work, even if it might in others.

**Where the Studies Should End** In the curricula of the certified trades, the studies could end at school or in the workplace, or it was optional. The 34 trades were divided fairly equally among these three options.

Earlier it was discussed how completing the studies in the workplace enabled students to proceed directly from study to employment. This can increase the likelihood of their finding employment, but at the same time, it becomes unclear where the studies end and employment and induction begins. In Trade B, the work-based learning period follows the completion of the school-based part of the programme, and the interviewees saw this both as a benefit and a drawback. The benefits were that the school-based part provided a solid foundation for entering various areas of specialization and employment opportunities, even outside the trade. Lína, one of the teachers, said:

There is no one way really. We have seen it with the kids that finish here. They get good jobs. I have been following one student [...] she got a job at a good place, but she can't get it evaluated [as work-based training], but she got this great job. We have a few who have taken this path and got a good job.

Others said that the programme was a good preparation for other educational pathways into similar fields and even higher education. At the same time, the interviewees seemed to consider it a flaw to have such an abrupt division in the programme. For the teachers, this is problematic as they do not know what happens to the students after they leave school. They do not get a sense of what the students do in the work-based training period, and as a result, it does not feel like a coherent programme to them. In addition, students are responsible for finding work-based learning contracts, which can be problematic if contracts are scarce. Lína explained: 'Yes, [one of the faults of the current system] is that the students are thrown out after finishing the school – that they are then just on their own. I think this discourages many from the work-based learning part'. For the students, this way of organizing the programme increased the likelihood of dropping out for those who had trouble securing contracts for work-based learning. Both students who were interviewed experienced a sharp division between the school-based and work-based learning periods and said they were on their own in bridging this gap. Markús explained, 'I finished [the school-based part] at Christmas and had trouble finding anything then, but then I started again in the spring [...] I think I contacted all the companies in the trade I could find'.

In Trade C, students can either end the programme at school or in the workplace. The interviewees described different traditions. For example, one teacher described the programme as always ending at school, while the other said: 'You finish school first and then you go and finish the studies [in the workplace]'. As these teachers worked at two different schools, in different communities, it is possible that different traditions have developed and a particular pathway through the programme has become dominant even if the curriculum allows students to choose how to organize their studies individually. In Trade C, the trainers were happy with students finishing most of the studies at school before coming to them, and they found them well prepared for work. Another benefit, according to Einar, one of the trainers, is that the schools see to weeding out students who are unsure about choosing the trade and he only receives those who have fully committed to completing the journeyman's exam in the trade.



It is interesting that during the interviews, completing studies at schools was never discussed specifically when the interviewees were asked to comment on the organization of the programme, unlike the work-based learning period. This mirrors the fact that interviewees generally did not discuss starting the programme at school, as discussed earlier. One can guess that school is considered to be the main site for the programme and is therefore not discussed explicitly when interviewees are asked to comment on the integration of the school- and work-based learning periods.

In general, the last part of the programme seemed very much focused on preparing students for the journeyman's exam, whether in school or in the workplace. When discussing the journeyman's exam, teachers in Trades A and D (in both of which the programme ends at school) referred to the last part at school as having the express purpose of preparing students for the journeyman's exam. Tinna, a teacher in Trade A, for example said:

How do I know that [i.e. what's in the journeyman's exam]? Because we prepare them for the exam and go over the rules of the test and emphasize that the last semester at school is about preparing for the journeyman's exam.

The trainers seem aware of this too, to an extent. Tómas, in Trade D, said: '...and the last semester is of course just practice, you know, for the journeyman's exam'. Then he described how his workplace also had provided students with the time and materials to practice for the test. In Trade C, where students could complete the programme either at school or in the workplace, both teachers and trainers discussed preparing students explicitly for the journeyman's test. The emphasis on the journeyman's exam can be explained in the words of Tómas: 'The better the student you graduate, the more honour to you, and it reflects badly on you to graduate a poor professional'. The reputation of the school and the workplaces in the industry is in part based on how well their students do in the journeyman's exam.

## Summary and Conclusions

The VET dual system in the certified trades in Iceland is characterized by variability in the implementation models, as can be seen from the review of the available curricula. Here, the focus has been on arguments for variations in the duration of the work-based learning period and different arrangements in the sequencing of school- and work-based learning periods, especially concerning where the programme is to begin and end. The results of the interviews shed light on conflicting goals in the system and how a model might solve some problems but create others.

### ***Duration: Tensions Between Economic and Pedagogical Goals***

The findings on duration reveal a tension between the economic and pedagogical goals of the work-based learning, which echoes results of previous research (Brooker and Butler 1997). Duration reflected the pedagogical objective of providing sufficient training and allowing the student to develop necessary skills. This was given as the main reason for the longest work-based period and also as an explanation for why a work-based learning period needed to be longer. However, this argument was countered both by the suggestion that schools nowadays could provide much more extensive practical training and that the length of training should be considered sufficient for a journeyman's status, given that training would inevitably continue under the auspices of future employers. Related to this was the issue, discussed mostly by students, of having sufficient training in the workplace to become confident in their skills. The economic side of the issue concerned the cost of taking on a student and whether the student could prove productive for the company. The cost of training was used both as an argument for shortening the work-based learning period (i.e. it is too costly to take on students for a long period of time, but with shorter work-based learning, more companies would be prepared to take them on) and for lengthening it (i.e. if they work long enough for the company, the students acquire sufficient skills to become productive).

These results suggest that any discussion of the duration of the work-based learning period needs to address explicitly, and balance, the pedagogical goals (i.e. training good professionals) and the economic goals (i.e. profit and productivity) of the company. As the results indicate, the way to do this might not be the same for different fields and could depend on the level of training needed and skills required to become productive. At the very least, the results show that any changes in the duration of work-based learning, whether in terms of the system as a whole or in particular trades, must be carefully negotiated from the standpoint of the needs of the student and the economic realities facing companies and trainers.

### ***Sequencing: Trade-Offs Between Earlier and Later Work-Based Learning Periods***

Sequencing arrangements revealed important trade-offs in how the periods at school and in the workplace were integrated. Specifically, this concerned whether the work-based learning period should be positioned at the beginning or the end of the programme. Having work-based learning early in the programme had the benefits of providing context and a sense of place and purpose, as well as introducing the students to what working in the trade entails. The drawbacks included the students being too young and unprepared for the work and not receiving enough training in the basic skills and knowledge of the trade. The benefits of commencing studies at school to acquire basic skills and knowledge in a formal structured setting has been

reported in prior research (e.g. Kilbrink and Bjurulf 2013; Schaap et al. 2012). In Iceland, this seems to be the norm, as teaching in most fields begins at school. There are, however, important benefits to introducing students to the workplace early in the programme, and these results suggest that VET programmes should strive to incorporate some level of work-based learning early on.

Having work-based learning later in the programme had the benefits of preparing students for work, and making them committed to graduating, and created the opportunity for a seamless transition into employment. One of the drawbacks, however, was that students were not introduced to what working in the trade entailed until after they had invested considerable time and effort in the programme. Also, when the students completed all their schooling before moving on to the work-based learning period, this was seen as creating an abrupt division in the programme for the students, resulting in a lack of cohesion in the programme as a whole, and increasing the likelihood of their dropping out. These results indicate that if the work-based learning period is placed late in the programme, or follows the completion of the school-based learning period, the student should be introduced to the workplace, by some means, earlier in the programme and should be assisted in transitioning into work-based learning. There also needs to be a serious discussion on where education in a field ends and induction into a position at a company begins. Training new employees is always necessary and the expectations regarding the work-readiness of qualified workers need to be addressed.

### *Patterns of Dual-System Models*

Overall, the Icelandic case provides an opportunity to look at the pros and cons of different implementation models of the dual VET system, and the results clearly show that different variations in duration and sequencing can both solve problems and present challenges. From the results, two general patterns of the dual system can be inferred. (1) Work-based learning periods are placed early in the programme to give the student a sense of place and purpose, but where this is done, the period involved needs to be fairly long to allow the student to develop skills and provide value for the companies engaging apprentices. (2) Work-based learning is placed later in the programme when the students have developed sufficient skills at school. In this case, the period involved can be shorter, as the students are more likely to be of value to the training company. However, the challenge is to guarantee that the students get introduced to what working in the field entails earlier in the programme. Both of these patterns represent clear attempts at resolving the tensions between economic and pedagogic goals in the VET system.

The variations in the curricula of the certified trades in Iceland indicate a lack of centralized governance of the VET system. All the certified trades build on the dual system but implement it in different ways, and it is difficult to specify the exact rationale underlying the model used in any particular field. The results, though, indicate that the different models reflect negotiations between different pedagogical

and economic goals facing companies participating in the dual system, as well as balancing trade-offs. Given the lack of centralized governance and legislation on the upper secondary school level between 1970 and 1988, it is likely that these negotiations took place separately in each field or set of related fields (Guðmundsson 1993). The end result is that the different trades have established their own dual-system models, and any changes to these must take into account these traditions and how they might underpin the participation of different stakeholders. For example, if a long work-based learning duration is important in guaranteeing a supply of qualified staff and so providing an economic foundation for companies, then shortening the work-based learning period might result in a lack of training places as the companies will not see an incentive to take on students. At the same time, the needs of the students must be kept in the foreground, and even if the economic realities of the companies are important, they cannot be allowed to supersede educational requirements.

These reflections raise the question of whether it is a strength or weakness of the Icelandic VET system that different trades have different implementation models. In some ways, the system has been flexible enough for each trade to develop a model adapted to the changing economic and technical environment of the trade in question. At the same time, the system as a whole is in many ways incoherent, and a lack of a general understanding and clear pathways might discourage students from choosing VET programmes for study.

Moving forward, it is necessary to collect more information on how the VET dual system plays out in practice in a wider context in Iceland and to identify the elements that create barriers in the system. It is also important to document best practices in different trades and look at how these can inform others for the benefit of the system as a whole.

## References

- Aarkrog, V. (2005). Learning in the workplace and the significance of school-based education: A study of learning in a Danish vocational education and training programme. *International Journal of Lifelong Education*, 24(2), 137–147. <https://doi.org/10.1080/02601370500056268>.
- Berglund, I., & Henning Loeb, I. (2013). Renaissance or a backward step? Disparities and tensions in two new Swedish pathways in VET. *International Journal of Training Research*, 11(2), 135–149. <https://doi.org/10.5172/ijtr.2013.11.2.135>.
- Billett, S. (2009). Vocational learning: Contributions of workplaces and educational institutions. In R. Maclean & D. Wilson (Eds.), *International handbook of education for the changing world of work* (Vol. 4, pp. 1711–1723). Dordrecht: Springer.
- Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A socio-personal account. *Educational Research Review*, 12, 1–13. <https://doi.org/10.1016/j.edurev.2014.01.002>.
- Bjurulf, V. (2013). Transfer as an iterative process between school and work: The LISA-project. In H. E. Middleton & L. K. J. Baartman (Eds.), *Transfer, transitions and transformations of learning* (Vol. 11, pp. 39–48). Rotterdam, Sense Publishers.

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101.
- Brooker, R., & Butler, J. (1997). The learning context within the workplace: As perceived by apprentices and their workplace trainers. *Journal of Vocational Education & Training*, 49(4), 487–510.
- Cedefop. (2011). *Glossary: Quality in education and training*. Luxembourg: Publications Office of the European Union.
- Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education*, 26(2), 247–273.
- Fuller, A., & Unwin, L. (2004). Young people as teachers and learners in the workplace: Challenging the novice-expert dichotomy. *International Journal of Training and Development*, 8(1), 32–42.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), 56–73.
- Guðmundsson, G. (1993). *Þróun starfsmenntunar á framhaldsskólástigi [The development of VET at the upper secondary school level]*. Reykjavík: Ministry of Culture and Education and Sammennt.
- Guile, D., & Young, M. (2003). Transfer and transition in vocational education: Some theoretical considerations. In T. Tuomi-Grohn og & Y. Engstrom (Eds.), *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 63–81). Oxford: Elsevier Science.
- Iðan Educational Centre. (n.d.). *Námssamningar [Apprenticeship contracts]*. Retrieved from <http://www.idan.is/namssamningar>
- INAP Commission ‘Architecture Apprenticeship’. (2013). Memorandum: An architecture for modern apprenticeships: Standards for structure, organisation and governance. In L. Deitmer, U. Hauschildt, F. Rauner og, & H. Zelltho (Eds.), *The architecture of innovative apprenticeship* (pp. 1–24). New York: Springer.
- Jónasson, J. T. (1998). The foes of Icelandic vocational education at the upper secondary level. In A. Tjeldvoll (Ed.), *Education and the Scandinavian welfare state in the year 2000: Equality, policy, and reform* (pp. 267–303). New York: Garland Publishing.
- Jónasson, J. T. (2008). Lært af sögunni? [Learning from history]. In Ó. Garðarsdóttir, H. S. Kjartansson, G. Hálfðanarson, D. S. Bjarnason og, & J. T. Jónasson (Eds.), *Menntaspor: Rit til heiðurs Lofti Guttormssyni sjöugum* (pp. 79–95). Reykjavík: Sögufélag.
- Kilbrink, N., & Bjurulf, V. (2013). Transfer of knowledge in technical vocational education: A narrative study in Swedish upper secondary school. *International Journal of Technology and Design Education*, 23(3), 519–535. <https://doi.org/10.1007/s10798-012-9201-0>.
- Lindberg, V. (2003). Vocational knowing and the content in vocational education. *International Journal of Training Research*, 1(2), 40–61.
- Ministry of Education, Science and Culture. (2008). *National curriculum for clothing industry trades*. Reykjavík: Author. Retrieved from <http://brunnur.stjr.is/mrn/utgafuskra/utgafa.nsf/SearchResult.xsp?documentId=04C18FCDD4AA6C8F002576F00058DCC9&action=openDocument>
- Ministry of Education, Science and Culture. (2013). *OECD review: Skills beyond school, National background report for Iceland*. Reykjavík: Author.
- Ministry of Education, Science and Culture. (2014a). *White paper on education reform*. Reykjavík: Author. Retrieved from [https://www.menntamalaraduneyti.is/media/frettir2015/Hvitbok\\_ENSKA\\_04.pdf](https://www.menntamalaraduneyti.is/media/frettir2015/Hvitbok_ENSKA_04.pdf)
- Ministry of Education, Science and Culture. (2014b) *Menntamál [Education]*. Retrieved from <https://www.stjornarradid.is/verkefni/menntamal/>
- Ministry of Education, Science and Culture. (2016). *Vocational education tracks*. Retrieved from <http://brunnur.stjr.is/mrn/utgafuskra/utgafa.nsf/>
- Mulder, R. H., Messmann, G., & König, C. (2015). Vocational education and training: Researching the relationship between school and work. *European Journal of Education*. <https://doi.org/10.1111/ejed.12147>.

- Naidu, R. (2013). In John Stanwick & K. Frazer (Eds.), *Glossary of VET*. Adelaide: National Centre for Vocational Education Research.
- OECD. (2016). *Education policy outlook – Iceland*. Retrieved from <http://www.oecd.org/iceland/Education-Policy-Outlook-Country-Profile-Iceland.pdf>
- Prime Minister's Office. (2012). *Allir stundir nám og vinnu við sitt hæfi: Tillögur um samþættingu menntunar og atvinnu*. Reykjavík: Author.
- Regulation on certified trades* [Reglugerð um löggiltar iðngreinar] nr. 940/1990.
- Resnick, L. (1987). The 1987 presidential address: Learning in school and out. *Educational Researcher*, 16(9), 13–20.
- Schaap, H., Baartman, L., & de Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning*, 5, 99–117. <https://doi.org/10.1007/s12186-011-9069-2>.
- Statistics Iceland. (2016). *Population – Inhabitants*. Retrieved from <https://hagstofa.is/>
- Stefánsdóttir, D., & Ólafsson, T. (2012). *Iceland VET in Europe – Country report 2012*. Reykjavík: Cedefop ReferNet Iceland.
- Tynjälä, P. (2008). Perspectives into learning at the workplace. *Educational Research Review*, 3, 130–154.

# Chapter 9

## Work-Integrated Learning in Aotearoa/ New Zealand: Diversity, Biculturalism and Industry-Led



S. Chan, B. Beatty, D. Chilvers, L. Davies, A. Hollingworth, and I. Jamieson

**Abstract** Work-integrated learning (WIL) modules are a key component of vocational education programmes. In New Zealand, graduate profiles for completion of Bachelor degrees include ensuring students learn skills in preparation for ‘work readiness’. The term ‘work readiness’, as used in graduate profile statements, refers to the combination of occupationally required skills, applied knowledge and dispositions and a range of inter-relational and citizenship features integrated within a unique New Zealand bicultural context. Hence, WIL components in Bachelor degree programmes include learning outcomes encompassing a range of skills which ideally should be completed through engagement with authentic work environments.

In this chapter, the diversity of WIL approaches within one polytechnic in New Zealand is presented. Programmes represented include broadcasting, business management, midwifery, nursing and social work. Each programme, informed by discipline-related pedagogical approaches, has structured WIL in different ways to meet industry, organisational and/or professional registration needs. The authors describe the sociocultural-historical origins of various programme approaches and illuminate their WIL structures. Additionally, case study theory building techniques are used to generate commonalities and good practice across the range of WIL approaches. Through the case study theory building process, shared challenges are also identified and discussed. Salient programme-based WIL features specific to industry or pedagogical philosophies are identified, discussed and evaluated. The perspectives of vocational education and training (VET) practitioners are drawn on to provide recommendations and guidelines to ensure WIL affords the best opportunities for students’ attainment of enhanced work readiness.

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**Keywords** Work-integrated learning · Broadcasting internship · Business degree capstone project · Nursing degree work-integrated learning · Social work degree work placements · Biculturalism in work-integrated learning · New Zealand polytechnic work-integrated learning · Curriculum design

## The New Zealand Context

Since the mid-1970s, Institutes of Technology and Polytechnics (ITP) in New Zealand have provided a range of vocationally oriented qualifications. The New Zealand tertiary learning sector consists of universities, ITPs, wananga (i.e. Maori institutes of higher education) and privately funded institutions. Under the New Zealand Education Act of 1989,

A polytechnic is characterised by a wide diversity of continuing education, including vocational training, that contributes to the maintenance, advancement, and dissemination of knowledge and expertise and promotes community learning, and by research, particularly applied and technological research, that aids development. (New Zealand Qualifications Authority (NZQA), 2014 p. 8)

Additionally, all tertiary organisations are required to meet the first priority of ‘delivering skills for industry’ in the New Zealand Tertiary Education Strategy 2014–2019 (Tertiary Education Commission (TEC) 2015). Other priorities include assisting and enabling at-risk young people into a career, boosting achievement of Maori and Pasifika<sup>1</sup>, improving adult literacy and numeracy, strengthening research-based institutions and growing international linkages. ITPs offer a broad range of programmes from Level 1 foundation (i.e. preparation for study and/or work) to Level 8 postgraduate qualifications. As such, ITPs offer qualifications for almost all of the 10 level frameworks for qualifications on the New Zealand Qualifications Framework (NZQF).<sup>2</sup> Currently, there are 17 ITPs in New Zealand providing programmes for 130,500 students or the equivalent full-time student (EFTs) numbers of 76,000. ITPs deliver 27.5% of total tertiary EFTs, and 56% of ITP provision are for diplomas (Level 6 on the NZQF) or certificates (Levels 3 and 4) (Productivity Commission 2015).

The specific qualifications described and analysed in this chapter require the equivalent of 3–4 years of full-time study, leading to applied bachelor degrees. Bachelor degrees require graduates to provide evidence of specialised technical or theoretical knowledge with depth in one or more field of study; attain the ability to analyse and generate solutions to unfamiliar and sometimes complex problems; be

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<sup>1</sup>Maori are the indigenous people of Aotearoa/New Zealand. Pasifika is an Aotearoa/New Zealand term used to describe migrants from the Pacific region and their descendants. At the Aotearoa/New Zealand 2013 census, Maori made up 5.9% and Pasifika 7.4% of the population.

<sup>2</sup>NZQF operates on a ten-level classification of programmes with Level 1 (L1) being ‘foundation studies’, L2–L4 cover certificates, L5–6 diplomas, L7 bachelor degrees, L8 honours degrees, L9 masters and L10 doctorates.



able to select, adapt and apply a range of processes; and exhibit advanced generic skills and/or specialist knowledge and skills in a professional context or field of study. The ITP focus on Level 7 and above qualifications reflects the applied nature of the curriculum, with many ITP qualifications providing specialist skills in a variety of professions. An aspect of ITP programmes is the opportunity for students to exit with qualifications at Levels 5 or 6. Hence, learning design of ITP programmes scaffolds students from Levels 5 to 7 through the attainment of academic literacies and discipline-specific canonical knowledge and practical skills.

The New Zealand Association for Cooperative Education (NZACE) is the leading body advancing WIL activities and has been in existence for over a decade. The association convenes an annual conference, with a range of papers presented and published each year. Presenters and participants at the New Zealand ACE conferences represent all the sectors of tertiary education in New Zealand (NZACE 2016). Practitioners apply a range of pedagogies for integration. Coll et al. (2009) investigated the WIL experiences of students from higher education in ITP. Advantages students perceived as useful towards their learning to become professional practitioners included the authenticity of workplace learning, opportunity to consolidate knowledge in practice and the application of 'soft skills' as required in their industry. A weakness identified through the Coll et al. (2009) study was related to the area of 'reflective practice'. WIL was premised to entail 'reflection on-action', and the authors of the paper found there was less emphasis and preparation of students for undertaking 'reflection before-action'.

Ako Aotearoa, the New Zealand Centre for Tertiary Teaching Excellence, funded a set of publications (Martin and Hughes 2011) to assist academic supervisors, workplace supervisors and WIL students to make the most of WIL opportunities. A template for good practice in WIL was also created to guide the New Zealand tertiary sector with establishing and supporting WIL. As with similar guided developments in other countries (see Wilson (2009) for United Kingdom example), the objective of the Ako Aotearoa guides is to assist students to attain competencies supporting their WIL. These competencies include developing and attaining communication skills, self-confidence, customer relationship management skills, sustaining enthusiastic participation, industry and business knowledge, self-sufficiency, personal organisation skills, professional networks and professional ethics. These guides focus on learner agency, which current studies (e.g. Billett 2015) indicate are but one of three important factors supporting WIL. The others are workplace affordances and support through the enacted curriculum.

In this chapter, a comparative analysis of WIL deployment within the specific context of one ITP is provided. In so doing, the implementation of WIL and their outcomes are contrasted and evaluated. To begin, a brief literature review of WIL in the New Zealand context is presented. The method used to collate and conduct comparative analysis of the case studies, constructed from the discipline areas that are represented, and the case studies themselves are reported. The discussion section details the comparative study, presenting commonalities and divergences and the implications to enhancement of the future deployment of WIL.

## Background

The majority of ITP degree programmes are vocational, preparing graduates for employment in a range of industries. Long-running programmes at ITPs, exemplified by nursing, medical imaging and engineering with roots going back to the early twentieth century, provide occupational training of future workers through apprenticeship, traineeship or cadetship. The move to the training of some professional occupations into the universities and ITPs occurred across the 1970s and 1980s as Aotearoa/New Zealand's population increased and became more diversified. As many original ITP programmes originated through workplace-based training, WIL has always been included. The goal of WIL is to ensure students completing vocationally focused bachelor programmes are afforded authentic learning experiences to consolidate and integrate canonical knowledge and concepts learnt primarily in the classroom.

The purposes of WIL connect well with indicators of success required by the Tertiary Education Commission (TEC) of New Zealand. These indicators are:

- Industry and Training and Educational Organisations (TEOs) invest time, money and expertise in skills development to ensure graduates gain both transferable skills and specific qualifications that are matched to labour market demand.
- There are better employment outcomes for graduates.
- Investments in education (by students, employers and government) make use of good information about employment outcomes (TEC 2015).

The above indicate a key component of all graduate profile outcomes within the intended curriculum is to ensure graduates of ITP programmes develop 'transferable'/'generic' or 'soft' or interpersonal skills. These skills, increasingly required in workplaces, include the ability to communicate well, process information effectively, think logically and critically and adapt to future changes. Hence, obtaining and developing 'transferable' or 'soft' skills and ensuring the integration of these skills to work (Choy 2018) are crucial outcomes of tertiary study.

At Ara Institute of Canterbury, WIL includes a spectrum of descriptors exemplified by work experience, practicum components, degree research projects, field education, clinical placements, internships and cooperative education. The policy for the design, development, review and approval of programmes at Ara Institute of Canterbury (Ara 2015) stipulates that learning outcomes for WIL are to be stated clearly and where formal assessment is used, assessment strategies and responsibilities are fully documented and assessment results moderated.<sup>3</sup> There is requirement for the respective responsibilities and accountabilities of staff, students and offsite supervisors to be clearly defined in writing. Workplace contracts/agreements are developed based on standards. Teaching departments are responsible for ensuring

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<sup>3</sup> Moderation in the New Zealand context refers to the consistency of judgement across different markers/courses.

requirements set out in the development, review and approval guidelines, and contractual agreements are documented and met.

The programmes described in this article have varied histories and developments as to how WIL was first established and since then evolved. Stakeholder partnerships with individual employers, small-medium enterprises, public and private organisations and local Maori iwi (tribe) are common to all programmes. Stakeholder partnerships are important (Choy 2018). In particular, to ensure students have access to work placements. More importantly, stakeholder responses gathered through staff relationships with employers and reporting through student workplace-based projects provide ITP staff with opportunities to stay abreast with industry-specific technological and socio-political changes.

## **Theoretical Bases for WIL in the New Zealand System**

Work-integrated learning in the New Zealand system is premised on specific learning theories on WIL and the nation's biculturalism initiative. Eames and Cates (2011) propose theories of learning in cooperative education and WIL as being framed by the following: Piaget's cognitive developmental (assimilation, accommodation and equilibrium), Atkinson's model of achievement motivation, Bandura's social learning theory, Kolb's experiential learning and reflection along with socio-cultural views of learning and critical approaches. These theories may be applied to the preparation of students prior to WIL, inform the support of WIL as students engage with authentic practice in the workplace and assist with development of processes to facilitate students' post-WIL reflection.

Contemporary studies on situated learning and communities of practice (Lave and Wenger 1991) have also contributed to the WIL literature. The sociocultural focus places importance on WIL's role in assisting learners' processes of socialisation into specific occupational practices and identities. Hence, occupational identity formation (Chan 2013) or practice as professionals and professional identity (Trede 2012) may be conceptualised as one result of WIL. Through WIL, learners are inculcated into the practices of their occupational practice community (Gherardi 2010) and attain initiation into the ways occupation functions including the application of canonical knowledge and dispositional approaches required.

## ***Integration of Practice-Based Learning Experiences***

Recent work by Billett (2015, 2018) provides guidelines for the conduct of integrated practice-based learning whereby work placements are undertaken by undergraduate students studying in a range of applied fields. Integration of practice-based learning requires a structured process, beginning with curriculum design to ensure there is seamless connection between students' institution-based learning and

workplace-based, practice-based learning. In particular, students have to be prepared BEFORE they embark on, supported DURING the enactment of and assisted to maximise their learning AFTER practice-based learning. Work-integrated learning is therefore not an isolated module of learning for students. Students' preparation for support during and reflective process post-WIL must be integrated into the intended and enacted curriculum.<sup>4</sup>

Work-integrated learning is thus ineffective if it is a 'stand-alone' component of the curriculum. Students' WIL must be augmented by opportunities to reflect and learn from their experiences. As workplaces in themselves may not have the resources to support students' reflective processes, the responsibility for supporting students to garner maximum benefits from WIL is therefore devolved on to tertiary institutions. Reflection on WIL should provide opportunities for students to identify and consider WIL as a learning experience, make connections between the knowledge attained through tertiary study towards application in real-world practice and evaluate their knowledge and skill base for contextualisation to their occupational practice (Billett 2015). Hence, integration between the workplace curriculum and students' experienced learning requires support within the workplace, and the provision of enacted curriculum considerations by tertiary institutions.

### *Role of Stakeholders*

Work-integrated learning requires strong reciprocal relationships between industries, employers and tertiary education institutions (Atkinson 2016). New Zealand employers rely on the tertiary education system (along with immigration) to supply them with a skilled workforce (Productivity Commission 2015). Employer participation in the tertiary education system also includes the provision of advice to various government organisations including NZQA and Universities New Zealand/Te Pōkai Tara on the ongoing quality or relevance to industry of new or existing qualifications and programmes, engagement in industry training and working with individual tertiary providers to influence and advise on the design of courses and qualifications and provide opportunities for academics and students with internships, work experience or project-based learning opportunities (Productivity Commission 2015).

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<sup>4</sup>The intended curriculum is set by statutory bodies (e.g. NZQA, registration boards, professional councils, institutions' programmes of study). The enacted curriculum refers to how teachers and institutions interpret the intended curriculum to deliver teaching and learning to students. In turn, students encounter and engage with the 'experienced curriculum'.

## ***Biculturalism in New Zealand***

In the Aotearoa/New Zealand context, authentic learning through WIL also exposes students to the multi/diverse ethnic work environment characterising contemporary Aotearoa/New Zealand. In particular, through all public organisations, there is emphasis on the need for all citizens to operate in a bicultural environment, underpinned by the government's commitment to meet the obligations set out in the Treaty of Waitangi/Te Tiriti o Waitangi. Te Tiriti o Waitangi was signed in 1840 between the British Crown and North Island Maori chiefs. The Treaty, in Maori, granted Queen Victoria governance over New Zealand and the Maori chiefs 'te tino rangatiratanga' (chieftainship over their lands), but the English version used the term sovereignty and gave chiefs 'exclusive and undisturbed possession of lands, forests, fisheries and other properties'. These two differing perspectives led to variances between the Maori and Pakeha/non-Maori interpretation of the Treaty in the nineteenth century. Eventually, these differences in perspectives contributed to conflict between government and Maori, the Maori 'land wars' and removal of land and political power from Maori. Latterly, the Treaty of Waitangi Act 1975 established the Waitangi Tribunal to redress the historical injustices and consider claims that the government had breached the treaty. The principles of the treaty between government and Maori are now enshrined in various New Zealand legislations.

Within education, biculturalism is acknowledged and applied through principles exemplified by threading 'streams of knowledge' to form the 'braided rivers' approach (MacFarlane et al. 2015). Western epistemology is woven with the Te Ao Maori/Maori knowledge stream to produce a unique New Zealand perspective. New Zealand qualifications at all levels reflect the need to prepare learners for working and living in a bicultural world. All programmes of study must therefore include the need for learners to evidence understanding, application and practice of biculturalism.

## **Method**

Case studies were compiled for each of the programmes selected for inclusion in this chapter. Case study theory building techniques were used to generate commonalities and good practice (Eisenhardt and Graebner 2007). The case studies gathered included each programme of study's documentation and provision of a brief history and evolution of the programme's WIL approach by programme academics. Programme of study documentation details the intended curriculum for attainment of a qualification. In programme documents, the graduate profiles pertinent to each programme along with learning outcomes associated with the WIL components were collated and compared. In the case studies, the pedagogical underpinnings of the programme are described and rationalised. The logistical structure of programmes is detailed including how various academic processes are interwoven with

workplace organisational demands. Details are also provided of how programmes involve stakeholders (i.e. employers/organisations/Maori iwi (tribes)) in the ongoing development of the WIL component of the programme. The case study comparative analysis methodology of process tracing (Collier 2011) was used to find the points of intersection between the various programmes. Points of intersection or concurrence/convergence and non-intersection or non-concurrence/divergence between programmes were then followed to reveal causal details, contributing to similarities or differences. The results of process tracing were used to identify themes for further investigation and discussion.

## ***Findings***

Findings are reported in the form of data extracted from programme documents and the case studies of each programme.

### ***Primacy of ‘Work Readiness’ and Biculturalism in Graduate Profile Statements***

All programmes leading to qualifications in New Zealand are approved through scrutiny and endorsement of programme documentation. At Ara, programmes of study are developed by a team consisting of subject matter experts and educational developers/learning designers. Programmes are conceived based on principles of constructive alignment (Biggs and Tang 2011) whereby learning and assessment activities are closely connected to graduate profiles. Graduate profiles are formulated through analysis of the types of knowledge, skills and attributes/attitudes students are expected to attain through programme completion. Consultation with stakeholders includes *iwi*, industry organisations, registration bodies, employers and alumni. From graduate profiles, learning outcomes and assessments to judge and validate students’ ability to meet learning outcomes are derived.

Thematic analysis identified through word association of the graduate profile statements across all the five programmes reveals the importance of ‘work readiness’ and the integration of biculturalism. In all the programmes, more than half of the graduate profile statements bear reference to ‘work readiness’ and are matched to the learning outcomes of the WIL courses. Examples of graduate profile statements with WIL requirements include the following:

- Apply a broad range of generic business skills, principles and practices, including safety in the working environment, and be able to mentor and motivate others in such application (Bachelor of Applied Management – BAM).
- Inform and prepare women and their families for pregnancy, birth, breastfeeding and parenthood (Bachelor of Midwifery – BMW).

- Apply critical research to practice, the workplace and ongoing learning (Bachelor of Social Work – BSW).

Similarly, for the aspect of biculturalism, a unique attribute of Aotearoa/New Zealand, analysis of the documents identified the connections between graduate profile statements on biculturalism and the learning outcomes required to be completed through WIL. There was at least one graduate profile statement in each programme related to biculturalism. Examples include:

- Understand the relevance of the Treaty of Waitangi to applied management in Aotearoa (BAM).
- Develop and apply a cultural framework of practice reflective of the New Zealand context with particular consideration to the Treaty of Waitangi and Māori culture and protocol (Bachelor of Broadcasting Communication – BBC).

Learning outcomes with biculturalism themes from WIL-related courses were also present in all the programmes. Examples include:

- Understand childbirth as a normal life event which occurs within diverse social and cultural contexts (BMW).
- Critically analyse and articulate the identity, ethics, values and practice of social work in local and global contexts (BSW).

The narratives on WIL evolution and structure of each programme are summarised below.

## *Case Studies*

### **Bachelor in Applied Management (BAM)**

In 2001, Ara gained accreditation to offer the Bachelor of Applied Management (BAM), which is now offered at eight ITPs in New Zealand. This degree was designed to enable graduates to manage enterprises strategically, in dynamic and unpredictable environments. The BAM aims to produce graduates who have a sound understanding of the dynamic and changing environment managers require to operate in New Zealand and internationally. BAM graduate profiles state graduates are able to apply knowledge at both organisational and strategic levels in a range of industries and organisations. This knowledge and expertise is underpinned by a breadth of business expertise including a historical perspective of business development within New Zealand and an understanding of bi- and multicultural influences on business operation.

The first year of the BAM builds a foundation of business knowledge in multiple disciplines including knowledge of New Zealand business heritage, culture and sustainability. The second year develops subject specialist knowledge in either one or two majors (e.g. accounting, sales and marketing, project management). The final

year requires student to carry out a cooperative education project (CEP). This project is set in a workplace context where learning objectives are strongly influenced by current business practices. Students must secure an agreement from a collaborating organisation, prepare a 'research' proposal, collect and analyse data gathered, and complete a report and present their findings to a panel. Students also reflect on their learning experience in the workplace and prepare for full-time work through professional practice components completed prior and during the placement. Their performance at work is monitored, and remedial processes are implemented where necessary.

The CEP involves a substantial contract between the student, the institution and industry. The students complete 400 work hours and spend an additional 200 h applying theoretical knowledge to solve a business problem related to their major.<sup>5</sup> Support of all stakeholders is pivotal to CEP's success. To ensure success, the course is resourced with four key roles: course supervisor, academic supervisor, industry placement coordinators and the workplace-based organisation supervisor. The course supervisor has overall responsibility for the course. All student proposals are negotiated with the organisational and academic supervisor but ultimately signed off by the course supervisor. The course supervisor is responsible for obtaining School of Business Research Committee approval for the research projects undertaken. They mark all submitted industry projects to maintain consistency and standards. Each student has an academic supervisor who is a subject matter expert in the students' major. Academic supervisors make contact with employers and discuss research proposals to ensure the scope of the work is appropriate. The industry placement coordinators play a pivotal role in finding placements and coordinating with employers and students. They conduct appraisals of the student work experience which they are required to reflect upon. Each employer is required to have an organisational supervisor to support the student. This person becomes a direct contact for the student at the organisation.

The CEP is the capstone of the Bachelor of Applied Management, aimed at developing capabilities related to a chosen area of specialisation, in a 'hands-on' immersion in industry practice. It enables students to apply their learning, test the relevance of academic theories to the workplace and reflect critically on this relationship between their academic study and industry practice. The need to apply their knowledge in a workplace makes it desirable that students have completed the majority of their studies prior to commencing their project. The pedagogical underpinnings of this WIL element include the provision of active learning experience. This experience follows an authentic learning constructivist approach. Students are provided with opportunities to form their own knowledge through engaging in self-directed inquiry, problem-solving, critical thinking and reflections within real-world contexts.

In summary, in comparison to the other programmes reported in this chapter, WIL in the BAM programme consists of three unique dimensions. Firstly, WIL is

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<sup>5</sup>Students select a field of study (e.g. accountancy, marketing, management, etc.). Courses in the major at each level (5, 6 and 7) are required to be completed.



structured to be the capstone course undertaken by students at the end of their programme. Secondly, the integration of a WIL project into the course provides returns to the workplace in the form of the findings from a 'research' project and for the student through affordances to authentic learning. Thirdly, a comprehensive academic support team is established to assist students and workplaces to ensure the objectives of each student's WIL are met.

### **Bachelor of Broadcasting Communication (BBC)**

From its inception as an applied degree in 1992, the BBC offered by the New Zealand Broadcasting School (New Zealand BS) has focused on producing radio, journalism and screen graduates who are able, amongst other criteria, to 'function effectively and creatively within modern interactive media and media organisations' and 'work independently and collaboratively in a range of existing and emerging industries'. Course content necessitates an awareness of the audience, which in Aotearoa/New Zealand means understanding biculturalism. Students engage in Te Tiriti o Waitangi workshops, observe Maori protocol whilst overnighting on a marae (Maori meeting house), learn correct pronunciation and reflect on representation of minorities in the local media. These values of respecting biculturalism are practiced throughout the degree, ensuring graduates meet industry expectations. Indeed, it is essential for students to be 'work ready' when they graduate; therefore, WIL is a key component of the pedagogy to develop capability (Stephenson 1998) at NZBS (B. Pauling, personal communication, 24 Feb 2016).

All courses in the BBC foster the technical and attitudinal skills required for a student to thrive in the media industry. For example, second year radio students pitch station profiles to a panel including academic staff and industry representatives and students sell commercials to local businesses aligned with the successful radio brand or service and produce and run the station as part of their coursework. However, there are two courses specifically aimed at giving the students experience of the mediascape they will ultimately enter: a second year group project and a third year internship.

The second year group project was introduced in 2015 as a new component of the revised degree. This course brings radio, journalism and screen students together in small groups of 4–5 students to work on a client-based project. Upon consultation with their client, typically a start-up business or not-for-profit entity, each group establishes a contract whereby students create media products reflecting the client's brand and requirements. Outputs always include audio-visual content, but often extend to social media promotions, podcasts, text and website management as requested by the client. Learning outcomes associated with this course include working successfully in a team – a key skill required by industry. Key stakeholders who are entities within broadcasting-related industries in Aotearoa/New Zealand advise New Zealand BS that the skills of being able to work in a team and the ability to apply existing knowledge to new situations are fundamental for success in the current fast-changing media environment. Bringing students from the different

crafts together in the group project facilitates peer-to-peer learning and replicates the emerging commercial media environment in which professionals, with varying talents, are brought together to provide a complete solution for a client's marketing needs. Scaffolded learning is provided for students in a relatively supportive learning environment before the commencement of students' individual internships.

In the third year, each student must successfully complete a 24-week internship in which they conduct themselves according to industry standards. Each workplace provider defines the role (e.g. a journalist for a national radio station, an editor for a television production company or a member of a radio promotions team) and supports the students in honing their skill set and meeting industry expectations. Upon completion of the internship period, the students write an essay reflecting on their personal and professional learning in the workplace, contextualising their individual experience in the national and global mediascape.

The NZBS's long-standing relationship with the industry is essential to the success of the BBC. The industry supports NZBS and its students in various ways including as guest speakers, broadcasting via NZBS facilities, supervising individual projects, mentoring, offering part-time work and one-off project experiences. Consequently, 'the broadcasters of today educate the broadcasters of tomorrow' (Pauling, pers comm 24 Feb 2016). Annual Industry Advisory Meetings are another significant part of the relationship between industry and NZBS. Feedback from key stakeholders is solicited at these meetings and considered when revising content delivery and conducting regular full-scale strategic reviews. Therefore regular feedback (formal and informal) ensures the degree continues 'to meet the needs of both industry and the students' (BBC programme Handbook 2015, p. 4) and may help account for the high employment rate for graduates, with 97% of interns completing by July 2015 taking on permanent roles in related employment at the end of their internships (ref. Creative Industries Handbook<sup>6</sup>).

A distinct feature of the BBC WIL is the timing and length of the internship, covering the entire third year of the degree. This total immersion provides opportunities for students to become part of work teams, form relationships with their WIL organisation and network with the wider New Zealand/Aotearoa broadcasting community. A majority of students are therefore able to gain employment at graduation with their host WIL organisation, or with similar organisations through networking opportunities.

### **Bachelor of Midwifery (BMW)**

The BMW degree at Ara was launched in 1998 and redeveloped extensively in 2009 as a collaborative venture with the School of Midwifery at Otago Polytechnic. The redesign was driven by workforce shortages, increasing accessibility to midwifery education outside the main centres and the introduction of midwifery education

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<sup>6</sup>All Ara programmes are required to provide a programme handbook to students. The handbook details academic, organisational and logistical details and requirements of the programme.

standards developed by the Midwifery Council of New Zealand (2007). The most significant requirement of the new standards was for the equivalent of a 4-year programme of study to be delivered over 3 years. The main reason for the increase in programme hours was to increase midwifery practice opportunities through WIL for students, thereby strengthening the competence and confidence of graduates. The current programme uses a blended delivery model enabling students to both study and gain practice experience whilst still resident in their own communities. Students access the programme from home through learning methodologies including online resources, virtual classroom tutorials, face-to-face sessions and participation with midwifery practice in a variety of settings.

The programme seeks to improve access to midwifery practice opportunities for students and to build partnerships and a community of practice between students, educators and practitioners. The Ara cohort has students across the Northern half of the South Island of New Zealand which includes Christchurch and satellite groups in Nelson/Marlborough (over 500 km away from Christchurch), the West Coast (250 km away from Christchurch) and South Canterbury (between 100 and 250 km away from Christchurch), and these are supported by locally based kaiako (i.e. teacher and refers to midwifery lecturers).

The practical WIL components are provided through a range of practice placements integral to each midwifery theory and practice course. Practice-based assessments increase across the years of the programme to scaffold students' skills and knowledge. In the first year of study, the students provide support for pregnant women who have consented to a student 'following through' their maternity experience. The 'follow through' involves the student visiting the woman and her family and accompanying the woman to antenatal appointments, being on call for and attending during labour and birth and attending postnatal visits with caregivers and visiting the woman, her new baby and the family through to 6 weeks after the birth. The students also carry out placement in maternity facilities developing proficiency and competency in performing identified midwifery skills. At all times, the student is supervised by a registered midwife or other qualified health practitioner.

Second year students' work with a lead maternity carer (LMC) midwife to access women who have consented to student involvement in their childbirth experiences. The student works with the woman and the midwife in whichever setting is relevant including home, community and maternity facilities. The student also works alongside other health practitioners such as child health nurses, family planning clinics and lactation consultants to gain understanding of the role and scope of practice of these allied practitioners. In the second half of the second year, the students work in secondary and tertiary maternity facilities, in 'shifts' of 8–12 h, and under the supervision of midwives. These placements enable students to gain experience in the provision of antenatal, labour, birth, postnatal care and care of the sick newborn. In these placements, students also work with other practitioners such as obstetricians, paediatricians and anaesthetists.

Into their final year, students work for extensive periods under the supervision of LMC midwives focusing on the integration of knowledge and practice, consolidating practice skills and demonstrating competence for entry into the midwifery reg-

ister. This third year includes shifts in hospital facilities under the supervision of midwives allowing students to work more extensively with other practitioners.

Work-integrated learning in the BMW degree is an example of a scaffolded and structured introduction, entry and establishment of novices into a complex work environment and fulfilling profession. The BMW programme also exemplifies 'distributed blended learning' through support of students and LMCs who are geographically dispersed and with workplaces which are diverse in their approaches (Kensington et al. 2017).

### **Bachelor Nursing (BN)**

Work-integrated learning has always been a feature of nursing education in New Zealand. From 1901, New Zealand hospital-based training programmes utilised an apprenticeship model of learning which allowed students (who were employees of the hospital) to learn required skills 'on the job' with some classroom-based learning of relevant theory, for example, the theory of wound healing. From 1973, training was transferred to the tertiary sector, whereby nursing students enrolled into diplomas and later bachelor degree programmes.

The contemporary Bachelor Nursing programme is underpinned by the important concepts of safety for the public and the need for the students to demonstrate ongoing competence. A graduate is expected to meet the Nursing Council of New Zealand (NCNZ) competencies for the registered nurse scope of practice, practise safely and effectively, and to be a competent nurse on commencement as registered nurses. The BN programme, which is approved by the NCNZ, endorses and acknowledges the concepts of biculturalism, Te Tiriti o Waitangi and cultural safety as key threads throughout the curriculum. Teaching pedagogy is framed by adult learning principles. The curriculum is designed to develop knowledge, as well as skill acquisition, by integrating theory from biomedical (e.g. pathology) and social sciences (e.g. psychology), in classroom-based learning settings complimented by simulation sessions replicating the 'real world'. Simulation sessions occur in a clinical practice unit fully equipped with current workplace technology and equipment, as well as the administrative requirements of the workplace. This 'institution-based' theory-practice integration is designed to prepare students to be work ready prior to their clinical placements.

Throughout the programme, students are also exposed to a range of clinical areas such as aged care, mental health, acute care and community care. Work-integrated learning occurs across the health sector in a diverse range of settings, for example, prison, operating theatre, intensive care, rehabilitation, general practice, brain injury and rural health. Students' progress from dependence on teaching and clinical staff to becoming 'work-ready' independent practitioners. Students are supported in clinical practice by experienced Ara clinical lecturers and workplace-based clinicians. Clinical placements range from 4 to 10 weeks. In 2008, Ara moved from only using the preceptorship model (i.e. apprenticeship) of teaching and learning (Jamieson et al. 2008) for clinical practice placements to the more contemporary, dedicated

education unit model (DEU). The DEU model is a key feature of the Ara Bachelor Nursing programme. A catalyst for change was preceptorship fatigue due to the requirement to work one-on-one with student nurses throughout the work-integrated learning programme (Jamieson et al. 2008). The DEU model is based on the collaboration of Ara staff, and the workplace, working together to support and assess students. Several students are allocated at one time to a workplace (e.g. an acute hospital ward) where all nursing staff take responsibility to work with, teach, support and assess the student. This has resulted in more engaged students and more staff willing to support students. Additionally, employers have reported graduate nurses are better prepared to enter the workforce, according to practice programme coordinator of nurses.

The Bachelor Nursing programme provides an example of continually developing work-integrated learning approaches to meet the learning needs of students and the logistical/organisational challenges of WIL. From ‘apprenticeship’ hospital training roots, the BN programme has evolved to the provision of authentic WIL for nursing students through the DEU model. As with the Bachelor of Midwifery, Bachelor Nursing students are supported in their learning from novice to practitioner through carefully scaffolded WIL experiences. DEU-based WIL is therefore ‘customised’ to allow students to meet learning outcomes rather than dependent on the dynamic ‘enacted curriculum’ of health workplaces and organisations.

### **Bachelor of Social Work (BSW)**

Ara began providing social work education in 1998, and 260-day practice placements have always been a component of the programme. Work-integrated learning is the cornerstone of successful social work education (Dick et al. 2002), the key pedagogical process for teaching students to integrate theory and practice, and the central method of socialisation into the profession (Council of Social Work Education 2008). Local social service employers have also emphasised the importance of WIL and encouraged the teaching team at Ara to go beyond the minimum requirements of the Social Workers Registration Board (2015). In response to this feedback, the programme has increasingly incorporated additional WIL opportunities, culminating in the structure developed for the revised 4-year Bachelor of Social Work (BSW), which commenced delivery in 2016.

The Bachelor of Social Work is an integrated model incorporating WIL as the central component of the programme. All courses provide learning for assessment in the practice context, and students are required to integrate their practice experiences into classroom learning and assessment. Field education is based on the pedagogical concepts of apprenticeship and experiential learning and involves students in the interlinking processes of critical reflection and linking theory to practice (Wayne et al. 2010). An example of this reflection and linking is the requirement that students demonstrate the development of competence in bicultural practice across each of their practice placements. Bicultural practice is therefore not simply

seen as an individual course but is woven throughout all course learning outcomes, both those taught in the classroom and in the field.

The BSW includes five key WIL opportunities. All students are required to be engaged in social service work experience throughout their first year. This work experience is arranged by students under the direction of teaching staff to ensure learning opportunities are appropriate to support the completion of an assessment involving personal reflection and description of the social work role. In the second semester of their first year, staff arrange for all students to spend 1 week observing a social worker. The social workers who are engaged in this process are asked to allow the student to observe as many of their normal work activities as possible but not to organise any special tasks just because they are being observed. The aim of both of these WIL experiences is to provide opportunities for students to develop their professional identity and to enhance their ability to articulate the roles, tasks and values of the profession through exposure to the reality of practice in a variety of contexts.

In the second year, students work in groups to complete community development projects on behalf of local non-government agencies. The objectives of these projects are established by the agencies, and students are responsible for regular reports on progress and for identifying how goals have been met by delivering a team presentation at the conclusion of the project. Students are mentored by an academic staff member but organise their own work plan, which represents a minimum of 75 h work over approximately 12 weeks. The aim of these WIL projects is to provide students with the opportunity to develop skills in collaborative practice both as a team and through working with a specific community.

Through the final 2 years of the programme, students complete 60-day practice placements annually, working full-time with an experienced practitioner. During these placements, students develop increasing independence in the social work role and the skills required to critically analyse practice. All students receive weekly supervision and at least three liaison contacts from academic staff to check on progress and provide support. The final practice placement is the point at which competence to practice social work is assessed, as required of all social work programmes, but at Ara, it is the final step in the process of WIL that began at the commencement of the student's journey towards professionalism.

The BSW provides for two forms of exemplary WIL provision. Firstly, students are scaffolded and guided through learning about and then becoming part of the social work profession through carefully structured WIL at each year of the programme. Secondly, strong stakeholder engagement and support is deployed to ensure both the workplace, workplace-based social workers, and student social workers are well assisted through each WIL module/course.

## Discussion

In this section, the various themes arising from the comparative analysis of the WIL component in the programmes are presented and discussed. Convergences and divergences and their implications are posed. The various aspects are then synthesised to form recommendations for improvement in future development of WIL.

### *Convergences*

#### **Authentic Learning**

All of the programmes deployed WIL to provide students with authentic learning experiences. As argued by Billett (2015) and drawing from seminal work on the advantages of ‘situated learning’ (Lave and Wenger 1991) and communities of practice (Wenger 1998), authentic learning contributes important learning legacies to learners. Authentic learning whereby the learner participates in work tasks assists learners to understand how an occupation engages in the world of work, develop the connections between the knowledge required to carry out work and the actual enactment of the work in particular contexts and apply learnt knowledge to practical problem finding and solving (Billett 2015). Supporting, scaffolding and enabling learner reflection on WIL experiences were common objectives across all the programmes reported in this chapter.

#### **Biculturalism**

In all of the programmes, graduate profile statements on biculturalism were present. Of importance is the ability for graduates to understand (Bachelor in Applied Management), develop and apply a cultural framework of reflective practice (Bachelor of Broadcasting Communication), appraise the responsibilities implicit in (Bachelor of Midwifery), recognise place of and practice in a culturally safe manner (Bachelor of Midwifery) and apply knowledge of (Bachelor of Social Work) biculturalism and principles of Te Tiriti o Waitangi with respect to each specialist occupational discipline. In the learning outcomes related to WIL components in each programme, integration of bicultural practice is embedded, as with other themes woven into the entire programme of study. Therefore, the ‘braided rivers’ (MacFarlane et al. 2015) approach is an apt metaphor depicting the integration of biculturalism.

In newer programmes of study approved since 2014, graduate profiles are connected to learning outcomes in various courses, and these are embedded in a graduate profile map. In the Bachelor of Social Work which was reviewed and approved in 2015, the graduate profile statements include the following: (i) apply knowledge

of biculturalism to social work practice and apply knowledge of different cultural contexts to cross-cultural social work practice, (ii) apply anti-oppressive social values and knowledge, (iii) apply skills in complex individual/personal and social situations and intervene to stimulate personal and social change and (iv) articulate the knowledge of the origins, purpose and development of Aotearoa/New Zealand social work within a global context. These graduate profile requirements are matched with the learning outcomes of the 'integrated learning'/WIL components. These learning outcomes are exemplified by statements including the following: demonstrate professional behaviours, values and ethics of the profession, demonstrate the integrated application of knowledge and skills for practice, analyse the concept of social justice for social work practice and critically analyse and articulate the identity, ethics, values and practice of social work in local and global contexts. Hence, graduate profiles require students to meet Te Tiriti o Waitangi commitments by application to practice, albeit in a guided form.

### **Crucial Stakeholder/Workplace Involvement and Support**

As advocated by Atkinson (2016) on the importance of relationships between employers and institutions, there was indication from all the programmes of close relationships with organisations/employers able to provide WIL experiences for students. Without the support of workplaces, students would not have access to authentic learning. All the programmes identified workplace situated coordinators, facilitators or 'supervisors' to ensure students had someone in the workplace they could access for support. Students were also assigned an academic coordinator, academic staff or support person they could make contact with at Ara. Therefore, WIL was, with many programmes, resourced jointly by Ara and the workplace.

### ***Divergences***

#### **WIL Organisation**

Structures included deploying WIL as a 'capstone' or 'industry project' in the last year of programmes and incorporating WIL through the entirety of the programme, with extensive authentic learning opportunities through work attachments and cooperative industry-led or community service projects. The duration and sequencing of WIL in each programme was different. Some of the variances are a result of learning design of the programme of study (i.e. the intended curriculum), and some sequencing of WIL may be traced to historical WIL associations. WIL preparing learners for specialist careers (i.e. broadcasting, midwifery, nursing and social work) was interspersed through the programme, with 'courses' partially or totally composed of WIL. These programmes arose from historical associations with work-based training programmes. Hence, when these programmes became the



responsibility of an ITP, WIL components were included as major components of the intended curriculum.

The WIL component of specialist careers was also a ‘scaffolded’ means to introduce learners to the practice communities. Therefore, WIL experiences to support occupational identity formation (Chan 2013) and provide opportunities for students to practice as professionals and attain professional identity (Trede 2012) were introduced and consolidated through the 3 years of the degree. First year students were not expected to be fully ‘work-ready’. Learning outcomes for year one WIL indicate the role of students to be mainly ‘observers’ rather than ‘workers’. In the second year, students were provided with supervised and guided WIL experiences. By the last year of study, most WIL ‘courses’ required students to either contribute to productive work in the workplace or undertake a project that would provide some returns to the workplace they were attached to.

The Bachelor of Applied Management was the only programme reported in this chapter, with WIL as a capstone course. Essentially, business students undertook study for 2.5 years before embarking on a ‘project’. The project was to allow students the opportunity to contribute to a workplace in a way above and beyond their actual workplace role. Business ‘interns’ were engaged in entry level business work roles. However, their project required gathering, evaluation or analysis and consolidation of critical thinking elements. Hence, a developmental learning aspect (Eames and Cates 2011) framed this WIL approach.

Learning theories deployed to support WIL include capability (Stephenson 1998), novice to expert (Daley 1999) and occupational identity formation (Chan 2011). Each WIL approach matched to the relevant learning approaches as the programmes matured across time and experience. Specific ‘signature disciplines’ (Chick et al. 2012) as understood by subject matter experts were also deployed as the intended curriculum developed and the enacted curriculum evolved.

The next two sections discuss the aspect of the historical traditions impinging on WIL deployment of programmes of studies for specialist careers.

### **Political Directives and Industry-/Discipline-Specific Directions: Historical Legacies**

Siebert and Walsh (2013) write the balance between the needs of vocational education and the individual agency of learners with the requirements of registration, ‘becoming something’ and the pressures of occupational conformity. With three of the programmes described in this chapter, the requirements set by professional/industry bodies must be met, often above and beyond the completion of the degree. The New Zealand College of Midwives, Nursing Council of New Zealand and Social Workers Registration Board all require professional competencies, the majority of which are gained through completion of the appropriate bachelor degree, to be completed before final registration.

Nursing and midwifery had a history of ‘apprenticeship’ training, and this legacy was reflected in the engagement of ‘preceptors’ when BN programmes were first

offered in the 1970s. However, the model shifted as the needs of nursing students extended to be replaced with the DEU concept. Broadcasters and social workers were traditionally trained in the workplace. The sociocultural approaches for bringing novices into the profession in broadcasting, nursing, midwifery and social work organisations are therefore shared notions amongst these professional communities. A corpus of research undertaken in the last 25 years has revealed workplace learning to be a challenging environment (Billett 2001). The discipline areas discussed in this section have had similar challenges (see Jamieson et al. 2008). Thus, even though workplaces have a long history of workplace training and common perspectives on the role of the workplace in training newcomers to the discipline, provision of WIL to students is still not the prime organisational work objective. Structures, exemplified by the DEU concept, set up by ITPs and other educational institutes to support students on WIL are required to ensure WIL is effective in assisting students to meet learning outcomes.

## *Improving Provision of WIL*

### **Clarification of WIL Learning Outcomes**

In the main, learning outcomes for WIL courses reflect either operational requirements to be learnt by students and applied to practice or the recording and reporting of the reflective WIL process. The need to align learning outcomes, WIL activities and assessment to graduate profile outcomes through a programme with constructive alignment (Biggs and Tang 2011) may have caused WIL learning outcomes to become focused on an aspect of WIL (i.e. skills vs reflective learning). The integrative aspects of occupational identity formation, subsumed into the graduate profile statements and allocated as component parts to various courses or modules, are therefore less visible if only the WIL course learning outcomes are examined. Therefore, there is a need to acknowledge the role of WIL in future course development. In particular to ensure the opportunities for applying learning to practice and better understanding, the complexities of work are easily discernable (see work of Billett 2015 here for guidelines).

### **Extending WIL to Cover the Variants in Practice Communities**

Given the relatively long WIL deployment time periods in participating programmes, comparative analysis has revealed strong sociohistorical-political influences impinging on WIL structure and objectives. Work-integrated learning as offered at Ara is particularly strong in providing students with authentic learning opportunities which are appropriate and relevant to the professional practice community students aspired to enter. However, there is a need to also assist students to appreciate wider industry variations on practice and provide opportunities to reflect

on practice beyond those experienced in their WIL sites. Billett (2015) argues the provision of opportunities for students to compare WIL across different workplace contexts as learning through and at work creates context-based perspectives which may be difficult to ‘transfer’ across workplaces, even within the same discipline area. For example, within the health sector, health workers working in public sector rural and urban environments experience different emphasis/priorities, require specific skill sets and experience different interactions with patients due to different demographical composition and ethos. Each workplace’s practice community is intrinsically unique due to each workplace’s distinct environment. The provision of some programmes with multiple sites for WIL (e.g. the BMW, BN and BSW) assists students to scaffold their skills development through a range of different workplaces. However, not all programmes are structured to provide students with opportunities to experience a range of workplaces or are able to place students in a wide range of workplaces. Therefore, it is important to provide opportunities for students to deconstruct their experiences. In so doing, students gather the salient learning they may then draw on and apply to similar circumstances in the different settings they will encounter through their working lives.

### *Caveats*

This chapter reports the evolution of one New Zealand ITP’s experience. Social, political and historical forces through government policies, industry/discipline development and shifts in pedagogical approaches (i.e. from teacher-led content to learner-led constructivist approaches) mean the programmes of study reported in this chapter have undergone developments distinctive to each programme circumstances. However, the challenges presented to the programme reported in this chapter represent coherence in the ways each have encompassed New Zealand’s unique sociocultural-political landscape. Accordingly, elements reported in this chapter may be useful in informing other institutions about structuring WIL modules, attuned to the needs of discipline/industry and the challenges presented by preparing learners for the challenges of twenty-first century work, in particular the integration of tertiary providers’ support to ameliorate the challenges of workplace affordances for learning.

### **Conclusions**

In this chapter, the specific sociohistorical contexts of a selected number of programmes representative of an urban ITP in Aotearoa/New Zealand is presented, analysed and discussed. As also determined by Coll et al. (2009), in their study of Aotearoa/New Zealand work-integrated learning in higher education, there are no consistent structures across WIL programmes. WIL approaches arise and develop

through sociohistorical forces experienced by various programmes as they develop and evolve. In particular, localised contexts contribute to the ways WIL is enacted. Local forces intrinsic to variables including political directives, employer availability, student mobility and economic climate, all impinge on how WIL is constituted. The aspects presented, evaluated and discussed in this chapter provide an overview of one New Zealand/Aotearoa ITPs WIL approaches.

## References

- Ara. (2015). *Policy for the design, development, review and approval of programmes*. Christchurch: Ara Institute of Canterbury.
- Atkinson, G. (2016). *Work-based learning and work-integrated learning: Fostering engagement with employers*. Adelaide: National Centre for Vocational Education Research.
- BBC Programme Handbook. (2015). New Zealand: Ara Institute of Canterbury.
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Maidenhead: Open University Press.
- Billett, S. (2001). Learning at work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, 13(5), 209–214.
- Billett, S. (2015). *Integrating practice-based experiences into higher education*. Dordrecht: Springer.
- Billett, S. (2018). Student readiness and the integration of experiences in practice and educational settings. In S. Choy, G.-B. Wärvik, & V. Lindberg (Eds.), *Integration of vocational education and training experiences* (pp. xx–xx). Singapore: Springer.
- Chan, S. (2011). *Belonging to a workplace, becoming and being a baker: The role and processes of apprenticeship*. Unpublished PhD thesis. Griffith University. <https://akoaooteaoroa.ac.nz/download/ng/file/group-3988/belonging-becoming-and-being-a-baker-the-role-and-processes-of-apprenticeship-phd-thesis.pdf>
- Chan, S. (2013). Learning through apprenticeship: Belonging to the workplace, becoming and being. *Vocations and Learning: Studies in Vocational and Professional Education*, 6(3), 367–383. <https://doi.org/10.1007/s12186-013-9100-x>.
- Chick, N. L., Haynie, A., & Gurung, R. A. R. (Eds.). (2012). *Exploring more signature pedagogies: Approaches to teaching disciplinary habits of mind*. Sterling: Stylus.
- Choy, S. (2018). Integration of learning in educational institutions and workplaces: An Australian case study. In S. Choy, G.-B. Wärvik, & V. Lindberg (Eds.), *Integration of vocational education and training experiences* (pp. xx–xx). Singapore: Springer.
- Coll, R. K., Eames, C., Paku, L., Lay, M., Hodges, D., Bhat, R., Ram, S., Ayling, D., Fleming, J., Ferkins, L., & Wiersma, C. (2009). An exploration of the pedagogies employed to integrate knowledge in work-integrated learning. *Journal of Cooperative Education and Internships*, 43(1), 14–35.
- Collier, D. (2011). Understanding process tracing. *PS: Political Science and Politics*, 44(4), 823–830.
- Council on Social Work Education. (2008). *Educational policy and accreditation standards*. Author. Retrieved on February 27th, 2016 from the CSWE website <http://www.cswe.org/File.aspx?id=13780>
- Daley, B. (1999). Novice to expert: An exploration of how professionals learn. *Adult Education Quarterly*, 49(4), 133–143.
- Dick, E., Headrick, D., & Scott, M. (2002). *Practice learning for professional skills: A literature review*. *Scottish executive*. Retrieved February 27th, 2016 from the Scottish Executive website <http://www.gov.scot/resource/doc/1135/0010021.doc>

- Eames, C., & Cates, C. L. (2011). Theories of learning in cooperative and work-integrated education. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative and work-integrated education* (2nd ed., pp. 41–52). Lowell: World Association for Cooperative Education.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, 50(1), 25–32.
- Gherardi, S. (2010). Community of practice or practices of a community? In S. J. Armstrong & C. V. Fukami (Eds.), *The SAGE handbook on management, learning, education and development* (pp. 514–530). Thousand Oaks: Sage Publications.
- Jamieson, I., Hale, J., Sims, D., Casey, M., Whittle, R., & Kilkenny, T. (2008). *Establishing dedicated education units for undergraduate nursing students: Pilot project summation report*. Christchurch: CPIT Publishing Unit.
- Kensington, M., Davies, L., Daellenbach, R., Deery, R., & Richards, J. (2017). Using small tutorial groups within a blended bachelor of midwifery programme. Bridging the theory-practice divide. *New Zealand College of Midwives Journal*, 53, 38–44.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge/New York: Cambridge University Press.
- MacFarlane, S., Macfarlane, A., & Gillon, G. (2015). Sharing the food baskets of knowledge: Creating space for a blending of streams. In A. Macfarlane, S. Macfarlane, & M. Webber (Eds.), *Sociocultural realities: Exploring new horizons*. Christchurch: Canterbury University Press.
- Martin, A., & Hughes, H. (2011). *How to make the most of work-integrated learning*. Wellington: Ako Aotearoa. <https://ako.aotearoa.ac.nz/new-zealand/wil>
- New Zealand Association of Cooperative Education (NZACE). (2016). <https://New Zealand.ac.nz/New Zealand/>
- New Zealand Qualifications Authority. (2014). *Degrees and related qualifications – Guidelines for programme approval and accreditation to provide programmes*. <http://www.New Zealand qa.govt.nz/assets/Providers-and-partners/Registration-and-accreditation/guidelines-degree-approval-and-accreditation.pdf>
- Productivity Commission. (2015). *New models of tertiary education: Issues paper*. <http://www.productivity.govt.nz/sites/default/files/tertiary-education-issues-paper.pdf>
- Siebert, S., & Walsh, A. (2013). Reflection in work-based learning. *Self-regulation or self-liberation Teaching in Higher Education*, 18(2), 167–178. <https://doi.org/10.1080/13562517.2012.696539>.
- Social Workers Registration Board. (2015). *The process for recognition/re-recognition of social work qualifications in New Zealand: A policy statement*. Author. Retrieved February 27, 2016 from the SWRB website <http://www.swrb.govt.nz/policy>
- Social Workers Registration Board. <http://www.swrb.govt.nz/>
- Stephenson, J. (1998). The concept of capability and its importance in higher education. In J. Stephenson & M. Yorke (Eds.), *Capability and quality in higher education* (pp. 1–13). London: Kogan Page.
- Tertiary Education Commission (TEC). (2015). *Tertiary education strategy 2014–2019*. <http://www.education.govt.nz/further-education/policies-and-strategies/tertiary-education-strategy/>
- Trede, F. (2012). The role of work-integrated learning to develop professionalism and professional identity. *Asia-Pacific Journal of Cooperative Education*, 13(3), 159–167.
- Wayne, J., Raskin, M., & Bogo, M. (2010). Field education as the signature pedagogy of social work education. *Journal of Social Work Education*, 46(3), 327–339. <https://doi.org/10.5175/JSWE.2010.200900043>.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge/New York: Cambridge University Press.
- Wilson, J. (Ed.). (2009). *A good practice guide for placement and other work-based learning opportunities in higher education* (Vol. 2, pp. 1–12). Sheffield: ASET. [http://i2agora.odl.unimiskolc.hu/i2agora\\_home/data/ASETCodeofPractice-Version2.1\\_000.pdf](http://i2agora.odl.unimiskolc.hu/i2agora_home/data/ASETCodeofPractice-Version2.1_000.pdf)

# Chapter 10

## Even Better than the Real Thing: Practice-Based Learning and Vocational Thresholds at Work



Karen Vaughan

**Abstract** This chapter considers the distinctive contribution of practice-based learning to New Zealand’s vocational education system. It contends that examining the way apprenticeship-like arrangements combine theoretical knowledge and practice competence is particularly useful for addressing questions about the kinds of knowledge, skills, and dispositions needed for 21st life and work and how they are best developed.

The chapter draws on research with general practice (GP) registrars, carpentry apprentices, engineering technician cadets, and their workplace teachers and mentors, exploring “vocational threshold” experiences that act as a portal to new levels of practice capability (Vaughan, Bonne, Eyre, *Knowing practice: Vocational thresholds for GPs, carpenters, and engineering technicians*. Wellington, New Zealand Council for Educational Research and Ako Aotearoa, 2015). The vocational thresholds that learner-practitioners must cross – developing expertise with uncertainty (GPs), reframing technical know-how with craft values (carpenters), and developing a social eye (engineering technicians) – are notably dispositional in nature. This underscores the critical role of ontology (nature of being), as well as epistemology (nature of knowing), in capability development. The chapter argues that this makes the inherently integrated approach of practice-based learning apposite for a knowledge society requiring attentive, proactive, and wise practitioners.

**Keywords** Apprenticeship · Practice-based learning · Professional learning · Vocational education and training · Work-integrated learning · Threshold concepts · Identity

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## Introduction

This chapter considers distinctive contributions of practice-based learning to New Zealand's vocational education system. Practice-based learning is sometimes seen as being to professional occupations what apprenticeship is to technical and craft occupations. However, there is a good case for using practice-based learning more broadly – to indicate apprenticeship-like, on-the-job, structured learning arrangements to integrate a combination of theoretical knowledge and practice competence. New Zealand, like other countries, is currently looking to strengthen its current and future workforce by resituating aspects of pre-industrial and industrial age craft apprenticeship within a globalised knowledge society (Guile and Young 2003; Lanning 2011). Apprenticeship is now to be regarded as a learning journey open to knowledge workers and extending beyond initial certification (Fuller and Unwin 2010). Hence, the idea that education should be “practice-facing” is being taken seriously across a wider range of fields than ever before.

The chapter draws particular attention to practice-based learning and its contributions to ontological (being) as well as epistemological (knowing) dimensions of capability development through vocational education. It uses insights from research in practice-based learning which takes a “vocational threshold” lens to capability development in general practice (GP) medicine, carpentry, and technical engineering (Vaughan et al. 2015). The idea of vocational thresholds was developed to deepen understanding of learner-practitioners' (referring to practitioners in teaching) most transformational learning experiences, especially where these experiences led to a “vocational threshold crossing” and a shift to a more holistic picture of their role and an impetus to practise differently. These learning experiences, centred in everyday work, were central to learner-practitioners' sense of being a capable practitioner – not simply technically proficient but attentive, proactive, and wise.

Practice-based learning is distinct from co-operative and work-integrated education (CWIE) – the accepted New Zealand term for what is known in the United States as cooperative education, in Australia as work-integrated learning, and in the United Kingdom as sandwich degrees. CWIE typically incorporates limited duration work placements into tertiary education institution programmes, varying according to purpose (Cooper et al. 2011). Preceptorship and practicum have long been important to practitioner development in fields such as nursing, teaching, midwifery, and law. CWIE has more recently expanded, for example, to the promotion of university staff and student engagement with the community,<sup>1</sup> work experience in advanced degree programmes in order to assist with students' career decision-making,<sup>2</sup> and workplace-based capstone projects in areas such as computer science, engineering, and business. These latter approaches can be understood as a tertiary

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<sup>1</sup>For example, the University of Canterbury's community hub which builds on the “Student Volunteer Army” Facebook campaign to respond to community needs following the 2010 and 2011 Canterbury earthquakes.

<sup>2</sup>For example, the University of Auckland's Career Development Centre PhD internships pilot.

education institution response to the challenge of remaining viable and relevant in a globalised knowledge society and labour market (Pavlova and Maclean 2013).

It is the nature of the relationship with the workplace and industry that differentiates practice-based learning from CWIE. The extent to which CWIE arrangements position employers as supportive parties or collaborative partners with input into the overall programme varies. Programmes with time-honoured ties to regulated occupations are the most collaborative. More recent forms of CWIE without such ties are framed and led by the tertiary education institution, making employer buy-in harder to come by. In these CWIE arrangements, workplace knowledge and experiences are used to (re)enthusiasm learners, introduce them to employment and “soft skills”, and help them apply the theory. Practice-based learning on the other hand aims to maximise knowledge learned in the workplace – a setting that is taken as a rich learning environment in its own right (Billett 2008, 2011). The workplace’s social relations, shared meanings, and membership of a “community of practice” (Lave and Wenger 1991) make for emotionally powerful and effective structured learning.

Practice-based learning therefore has the facility to decentre the classroom (or lecture theatre) and disrupt the transmission model of learning associated with a heavy reliance on the classroom. This is an important facility in light of the sweeping twenty-first-century changes (e.g. disruptive technologies, climate change, mass migration) which are impacting on the nature of work and forcing a re-examination of the purposes of education. Barnett (2004) argues that this greater uncertainty has implications for education that are ontological. He suggests that pedagogy move away from a focus on knowledge and skills and become a “pedagogy for human being”, designed to help learners engage with the uncertainty in their fields “as persons, not merely knowers” (p. 257).

Practice-based learning positions and enables people to engage with their field as persons, not just knowers, by virtue of making workplace experiences central to practitioner development. Appropriately, workplace-centred approach locates practice-based learning within the vocational education system.

## **Practice-Based Learning and Vocational Education in New Zealand**

New Zealand’s vocational education system traverses both secondary and tertiary education sectors. Unusually, there are no policy or funding provision distinctions made between further education and higher education at tertiary level. There is also no distinction between general education and vocational education at secondary level in terms of streams or institutions. The New Zealand Ministry of Education sets policy and strategic direction for all education sectors – early childhood, primary, secondary, and tertiary. One centralised body, the Tertiary Education Commission, oversees the funding and monitoring for all tertiary education



organisations (TEOs). New Zealand is also unusual, formally defining TEO characteristics and core activities, including academic freedom, in legislation.<sup>3</sup>

There are no separate academic and vocational streams in secondary schools. Students have the option of doing “courses of a vocational nature” (Ministry of Education [n.d.](#)) such as equine care, automotive workshop, and horticulture. A few schools have trades or health sciences academies, which operate with assistance from external partner organisations. Secondary schools also offer access to some tertiary-level vocational education courses through the Secondary Tertiary Alignment Resource (STAR) and the Gateway Programme which have recently come under the auspices of the Youth Guarantee: a suite of approaches to providing clearer transition pathways and education-employment connections. The new Vocational Pathways initiative – a framework for aligning school programmes with specified industry skills and making explicit related pathways and careers – provides schools with more impetus in relation to vocational education.

The tertiary education sector covers all post-compulsory education – community education, foundation education, vocational education, and higher education. Vocational education is defined as delivering applied research and supporting individuals to gain the skills needed by industry (Ministry of Education and Ministry of Business Innovation and Employment [2014](#)). Vocational education programmes and arrangements lead to qualifications in technical areas at levels 2–7 on the 1–10 level New Zealand Qualifications Framework.

While vocational education is not mapped directly to specific tertiary education organisations (TEOs), it is more closely associated with some, such as institutes of technology and polytechnics (ITPs), private training establishments (PTEs), and industry training organisations (ITOs), than others, such as universities and wānanga.<sup>4</sup> New Zealand’s 18 ITPs have close industry ties for their programmes which are mainly at certificate, diploma, and degree level (levels 3–7). The 11 ITOs are standards- and qualification-setting bodies for industry. Unlike other TEOs, they are not education providers, instead acting as brokers of training (including apprenticeships) which is mainly delivered by employers.

Vocational education at secondary and tertiary levels is widely understood to be technical, “hands-on”, and/or closely identified with disengaged learners. The widely held association between vocational education and less esteemed pathways and occupations is well established, dating from the organisation of earlier societies and industrial economies (Winch [2013](#)) and their conceptualisation in terms of dualisms such as mind/body and theory/practice (Dewey [1916](#)). In New Zealand, which has no tradition of esteemed apprenticeships or strong links between education and labour markets, it means that pathways from school to university are highly regarded. A lack of understanding about vocational education knowledge and pedagogical traditions, similar to that found in Australia (Beddie [2014](#); Karmel [2011](#)), compounds

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<sup>3</sup>See the Education Act 1989, the Industry Training Act 1992, the Industry Training and Apprenticeships Amendment Act 2014.

<sup>4</sup>Wānanga is TEOs established under the Education Act 1989 by New Zealand’s indigenous Māori people.

the lack of esteem. It also hardens a semantic confusion between “career education” and “vocational education” (Watts 2006). That confusion has contributed to ongoing inability of many schools to provide career education that is accurate, meaningful, effective, and fit for purpose in a contemporary sense (Vaughan 2011). The career education predicament particularly disadvantages school leavers who are not heading to university but who, according to Ministry of Education statistics (Ministry of Education 2012), actually constitute more than 70% of school leavers.

For these reasons, there have been recent initiatives and marketing campaigns to raise the profile of vocational education. These are likely to have generated greater awareness about certain pathways and occupations without addressing the persistent view that these are for less able learners and refer to the trades. Vocation-specific education for professional occupations (e.g. in medicine) is not seen as vocational education, but “hands-on” education for other technical fields are.

## Capability Development Through Practice-Based Learning

### *Practice-Based Learning in Three Different Fields*

The recently completed Knowing Practice project (Vaughan et al. 2015) provides an example of the distinctive role of practice-based learning in work-learning integration within the vocational education system. Knowing Practice explored the development of vocational capability through three fields with pathways spanning different parts of the tertiary education sector and different levels of the New Zealand Qualifications Framework. Forty-one general practice (GP) registrars, carpentry apprentices, and engineering technician cadets (the “learner-practitioners”) took part in the project, along with many of their respective workplace teachers and mentors. Practice-based learning arrangements in each field involved practice immersion, deliberate practice, reflective space, and a range of designated mentors and teachers.

Learner-practitioners were observed in business-as-usual teaching or mentoring sessions with an on-the-job teacher or mentor, and then both were interviewed. Researchers also observed some of the support sessions for contextual familiarity but not ITP classes which were already familiar. The interviews explored perspectives on the practice-based learning arrangements, including the session observed, and particularly significant learning experiences related to being a GP, carpenter, or engineering technician. The interviews with mentor/teacher focused on experiences they thought would lead to significant learning for learner-practitioners. Researchers reinterviewed learners approximately 10 months later, further probing for significant learning experiences, as well as perspectives on the characteristics of recognisably good or not-so-good practitioners in their field. The main report (Vaughan et al. 2015) provides more detail about the approach and methods.

Qualification pathways and learning arrangements for the participants are shown in Table 10.1. All learning arrangements were embedded within daily work or in designated on-job sessions unless noted with an asterisk and italics. A brief description of each pathway and the learning arrangements follows.

**Table 10.1** Knowing Practice practice-based learning arrangements and participants

	GP medicine	Carpentry	Engineering
Learning and qualifications	RNZCGP's GP education programme Fellowship and vocational registration	BCITO's managed apprenticeships National Certificate in Carpentry, level 4	Cadetships via IPENZ's Futureintech initiative National Diploma in Engineering (civil), level 6
Learner-practitioners	14 registrars	15 apprentices	12 cadets
Teachers and mentors	6 GP teachers 3 medical educators	14 trainers 4BCITO training advisors	8 mentors 3 tech/team leaders <i>* ITP tutors</i>
Support sessions	Teaching sessions (weekly) <i>* Learning groups (weekly for 1st year registrars, 6-weekly for 2nd and 3rd year registrars)</i> <i>* Seminars from visiting clinicians(weekly and for 1st year registrars only)</i>	Training advisor visits and assessment team meetings (at least quarterly; more frequently as required) Team meetings (as required)	Mentoring meetings (usually monthly) Team meetings (as required) <i>* ITP classes</i>
	<i>* Off-site provision</i>		

### ***GP Vocational Immersion***

The general practice education programme (GPEP), run by the Royal New Zealand College of General Practitioners (RNZCGP), offers qualified doctors a 3-year full-time equivalent “vocational immersion” training path to become vocationally registered as GPs and as a fellow of the college. Registrars are qualified doctors on entry, with several years of hospital experience, while GPEP registrars are considered “novice experts” in an advanced apprenticeship. GP teachers hold a weekly supervision session with their registrar to review patient cases and engage in deliberate practice related to areas of weakness or anxiety identified by teacher and/or registrar (e.g. breaking bad news to patients). Registrars also engage in off-the-job, cohort-based activities such as knowledge-centred seminars and collegial, reflective practice groups. The intensity and frequency of GPEP activities reduce sharply after the first year. Registrars are assessed mainly through feedback from GP teachers, medical educators, assignments, and annual examinations.

### ***Carpentry Apprenticeship***

Becoming a qualified carpenter is a crucial first step towards becoming a fully fledged builder in New Zealand. The Building and Construction Industry Training Organisation (BCITO) provides managed apprenticeships, including assessment of training for carpentry apprentices who are trained by their employer and sometimes by a site supervisor. Apprentice progress is competency- rather than time-based, but it typically takes 3–4 years to complete the National Certificate in Carpentry. The apprenticeship is designed as a partnership cohering around an “assessment team” with specific and complementary roles. The BCITO training advisor has oversight of the apprenticeship, assesses competence, and provides learning support with regular on-site visits. The employer provides training through everyday work and verifies evidence of the apprentice’s competence to support the training advisor’s judgements. The apprentice proactively and regularly collects evidence of their learning and discusses it with the training advisor.

### ***Engineering Cadetship***

Engineering technicians solve well-defined engineering problems using a combination of practical know-how and analytic techniques. The role is positioned to complement the work of professional engineers. Engineering technician cadetships are offered by firms associated with the Institute of Professional Engineers of New Zealand’s (IPENZ) *Futureintech* initiative. Cadets work towards a level 6 New Zealand Diploma in Engineering (NZDE) which typically takes 5–6 years to complete on a part-time basis. The cadetship, a mixed on-the-job and off-the-job learning with cadets, usually rotates through a range of different work teams within a company and includes attending weekly lectures on an ITP campus. A designated mentor in the company, deliberately located outside of the cadet’s immediate work team(s), provides career development support. Project team leaders provide technical support.

## **Using Vocational Thresholds to Understand the Contribution of Practice-Based Learning**

During the interviews learner-practitioners provided accounts of their most significant learning experiences,<sup>5</sup> especially if these gave learner-practitioners a greater sense of what it meant to be a GP, carpenter, or engineering technician. Unsurprisingly,

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<sup>5</sup>The interview question was adapted from Grossman et al. (2009) and another question in a study about tertiary education courses and experiences prior to entering careers in clinical psychology, the clergy, and teaching (Grossman et al. 2009).

the responses were quite specific to their field of practice. However, there were remarkably similar high-level themes that were common. The most significant learning experiences integrated a “big picture” of practice, connecting it to theory. The experiences were often personally and professionally challenging. They frequently involved quite painful lessons or realisations that seemed counterintuitive to earlier understandings of their field of practice. Once learner-practitioners had these “new ways of seeing”, there was no going back to how they had previously seen things. They seemed to have passed through a portal to a different world.

### ***Threshold Concepts: Vocational Thresholds***

Researchers developed the idea of “vocational thresholds” to understand these experiences and the role they played in developing capability. The idea of vocational threshold was built on Meyer and Land’s “threshold concepts” (Meyer and Land 2003) that are characteristically transformative in perception and perspective, often irreversible and unlikely to be forgotten, integrative of different and previously hidden aspects, sometimes bounded conceptually, and possibly troublesome in relation to previous beliefs.

The epistemological (knowledge-related) dimension of Meyer and Land’s work has been particularly embraced by tertiary educators to identify disciplinary concepts that act as a gateway to students’ understanding. It has also been used to isolate points at which students may have particular difficulty and require additional support (Meyer et al. 2015). This has resulted in a downplaying of the ontological or “way of being” demands placed on learners and an impression that threshold concepts best lend themselves to “hard” disciplines like science and economics, rather than “softer” or more applied like teaching (Atherton et al. 2008).

However, a few studies in those “softer” areas have brought to light a combination of epistemological and ontological dimensions in the threshold concept idea for educational facilitators developing reflexivity (Timmermans 2014) and university teachers learning about reciprocity (Harrison and Clayton 2012). The threshold concept emphasis in these cases was epistemological – people were required to know and understand things differently. However, there was also an ontological dimension in that people had to “be” different and understand themselves within their work differently, in order to develop the capabilities required.

The idea of vocational thresholds builds on threshold concepts but is distinguished in three main ways. Firstly, vocational thresholds arise out of experience through authentic, everyday practice rather than a classroom or lecture theatre. Secondly there may be multiple vocational thresholds to be crossed by practitioners at different times, rather than a single conceptual transformation. Finally crossing a vocational threshold leads to a transformation that is primarily *how to be*, as it frames the action possibilities of knowledge and skills. Vocational threshold demand on learners is an ontological and identity-related one which is most likely to be encountered during work in the field and through workplace setting. The following

sections explore the nature of these vocational thresholds for each of the three fields in Knowing Practice.

## GPs Working with Uncertainty

The GP registrars in Knowing Practice experienced a sharp surge in the level of uncertainty in their work as they moved from a hospital context (a prerequisite to their GP training) to a community context. The characteristic complexity and instability of general practice medicine (van de Wiel et al. 2010) emerged through a relationship-centred nature of work. Registrars now had individual responsibility for patients and their continuity of care – both over time and in collaboration with other healthcare professionals. They had no direct access to hospital-level diagnostic testing and only 15–30 min for a consultation with a patient for whom treatment plans could not be imposed.

The difference between medical school and community health work is not simply a contextual distinction; caring for patients in the community challenges many routine practices and ideas for effective application of clinical knowledge. The essence of medicine in the community is the patient-doctor relationship. Developing empathy for this is no easy task for doctors who have come into general practice with a wealth of existing knowledge and (hospital) experience. The model of practice-based learning repositions their existing (clinical) knowledge to new and different demands of general practice, casting the building of expertise in different terms.

Registrars felt both excited and daunted by the responsibility of “being *it*” as the key person in the community context. Their learning was driven by, and embedded within, the idea of patient care. However, they struggled with the more negotiated, relationship-centred model of this in a community context, particularly when they found themselves “just” listening to patients or “being there” for them. For registrars who enjoyed the technical, problem-solving challenges of medicine, this was disturbing, prompting some to report a sense of inadequacy. Others found a new and rewarding dimension to medical practice in listening well and constructing *with* the patient what the problems were, which to pursue, and how to do so.

In hospital I learned to address a problem and give the medicine. Here, I am trying to change lifestyle. When I get positive feedback, that it has clicked, and [the patient] wants to change, that makes me a GP. In hospital we could not change anything. We could diagnose really good stuff...But here, there’s a satisfaction in looking after a *man*. (Kendrick, GP registrar)

Given this focus on problem-finding, a vocational threshold in general practice relates to the integration of clinical and relationship knowledge. What may first present as a possible clinical problem – someone is sick, a diagnosis is difficult, prognosis is poor, pain needs management – can turn out to be much more than a set of clinical issues and GPs have a central role in uncovering this.

The GP ethics of care also required registrars to pay attention to caring for themselves, in order to be fully available to patients. Their expertise now had to derive from a very different kind of knowing – and management – about their own strengths, frailties, and anxieties, and the nature of their (ongoing) relationships with patients. Using relationship as a basis for patient care changed who GPs were as people – not just at work but at home too. Registrars highlighted the relationship with the patient and continuity of care over time. But what often changed was not so much the relationship with the patient but the relationship with the self. Our registrars referred to experiences they saw as making them variously more or less cynical, more self-aware, less certain, and less opinionated.

Looking back, I was quite volatile ... I find that I'm a little bit gentler when it comes to everyday situations or when my wife is telling me [about her work], whereas in the past I would have had a strong opinion. I'm not quite like that anymore ... in a hospital you can afford to have strong opinions and stand your ground because you're fairly anonymous ... Whereas in general practice, they're always coming back. You have to maintain a relationship. (Tamati, GP registrar)

## **Carpenters Crafting Solutions**

At first, carpentry apprentices learn by watching and working alongside others to develop and practise individual skills, under supervision. As their competence develops, they begin to work independently, taking on responsibility for the quality of their own work. Alongside this, they build complementary knowledge of theoretical aspects of building through self-directed study and discussions with their employer and co-workers.

Apprentices may work for residential or commercial builders and on a variety of jobs from small renovations to full house builds or large-scale commercial projects. They must learn how to apply their skills and knowledge in complex situations in order to problem-solve and meet building challenges. Over the course of their apprenticeship, they learn not only the discrete skills needed to complete each part of the job but also how to draw these skills together to produce a finished product of a high standard. This involves internalising standards associated with excellent workmanship so as to complete work that is recognised as being of high standard, that meets industry and regulatory requirements, and that is valued by clients.

Practical knowledge and skills, therefore, are not sufficient for an apprentice to cross their vocational thresholds. They must also learn how to “be” carpenters – to have the disposition that will enable them to eventually become a carpentry professional who is respected by others and recognised for the quality of their work. These attitudes and values include an appreciation of what makes high-quality work, personal pride and satisfaction in producing work that is valued by clients and recognised as high standard by other builders, and an ability to form positive working relationships with others. They must learn how to work with their own team but also with a range of people outside that immediate team, including architects, clients,

and subcontractors such as electricians and plumbers. If apprentices wish to become professional builders, they will need to develop organisational, relationship-building, and communication skills in order to coordinate between people on-site and ensure the project is completed in a timely and effective manner.

Carpentry apprentices also described an increasingly sophisticated interplay between their minds, their bodies, and their physical environment of tools and materials. Building became less straightforward as the complexities involved in a project revealed themselves. This steered apprentices away from the idea of there being one right method towards an increasing skilfulness in *sensing* the different possibilities and enacting the mind-body-environment interplay. As they were entrusted with opportunities to solve more complex problems, they began to enjoy the respect of their co-workers and clients. This was an important aspect of becoming a builder.

As soon as you've done a good job and you look back at it and *you* think it's a good job, and then someone else comes along and sees it finished and you can see it in *them*. They say: 'That looks awesome, mate'. It feels amazing. (Pete, carpentry apprentice, original emphasis)

While technical building prowess was important to apprentices (and to their employers), they referred in particular to the development of attitudes and values such as pride, craftsmanship, and independence. Being able to independently identify and correct mistakes was a key aspect of their learning, developing a carpenter's "eye" and building "nous" and a craftsperson-like character. Apprentices' experiences drew attention to a commonplace tendency in education to think about values as distinct from individual cognitive processing and technical skill. Yet carpentry apprentices' experiences demonstrated that aesthetic and craft values could direct their choice of tool, material, and technique, as well as stimulate their problem-solving and problem-finding approaches to work (Rose 2005, p. 205).

## Engineering with a Social Eye

Engineering technician cadets have a range of related but discrete roles, including surveyor and draftsman. They work in different areas of civil engineering: geotech, roading, and environmental. Collectively, these experiences are intended to provide the cadet with opportunities to develop the range of skills, knowledge, and judgement needed to practise as an engineering technician to solve problems that are less well-defined. The tasks a cadet undertakes early in their cadetship are more well-defined and closely controlled than the tasks they are expected to undertake towards the end of their cadetship.

Engineering technician cadets described an important shift in their focus. Much of their work involved intense devotion to detail – physical measurement, symbolic notation, computer-aided plan drafting, and precise calculation. Cadets were charged with ensuring accuracy of those details, to which they were deliberately



restricted as learners, so they would not be overwhelmed. However, this meant they sometimes struggled to appreciate the place of their work within a project and team.

Their significant learning experiences made visible what their measurements and drawings, a small aspect of a project, enabled for the rest of the team and for the project overall. Experiences interacting with other members of the team, or people in mentoring roles, helped cadets lift their gaze, reinforce diligence, and understand their contribution as fundamental rather than trivial. They were not just taking soil samples or using a theodolite. They were *engineering* solutions, making things possible.

When they begin to use judgement about which of their repertoire of skills and knowledge to draw on to solve a given problem, they undergo an ontological shift that can be thought of as crossing a vocational identity threshold into *being* an engineering technician. One cadet summed up his early sense of such a shift:

Something that you don't think can happen, but actually you can engineer it, make it happen ... [We] had to move 3000 litres but the pumps had to stay where they were. The fire engineer said, 'You can't do it' ... I went to our water engineers and they had ideas: 'here's the equations'. I thought: wow. That's the first time I realised the power of engineering. You can go from 'no, you can't' to 'yes, you can'. (Dylan, engineering cadet)

The definition of what was possible was not simply a technical one. As part of the design process, they were faced with considering how people would engage with the results of their (and their team's) labour, including that the work could be contested by different groups or had differential impacts in the world. Cadets found that engineering was not just a physical-technical enterprise; it was social one. They needed to recognise engineering and project teamwork as socio-scientific (Patil and Eijkman 2012).

[A slip] knocked out half the road for a good hundred metres and...contractors had built a temporary road around it, but [the speed limit] was still down to 30 kilometres...I did the drawings for that and it made me think how important some of the work that we do is – that it doesn't just affect us and the Motor Trade Association and the council; it actually affects a lot of people...it's encouraging me to think about it more than just drawing it. (Kane, engineering technician cadet)

## Teachers and Mentors in a Practice Landscape

The vocational threshold lens draws attention to the significance of immersion in practice where the learning agenda is driven by a combination of everyday work and disciplinary knowledge that is “recontextualised” and reorganised for vocational purposes (Barnett 2006). Learning necessarily involves deep engagement and experience. To cast it in terms of Perkins' little league baseball metaphor for learning, practice immersion allowed GP registrars, carpentry apprentices, and engineering cadets to move beyond isolated bits of theory and practice and “play a junior version of the whole game” (Perkins 2009). They were still developing as practitioners, but they had a holistic and authentic sense of what being good would be like.

Building on Nussbaum's work of three-dimensional model of capability (knowing, doing, and being) (Scherrer 2014), capability was a collectively situated affair, residing in the complexities of daily practice and reconstruction of knowledge through relationships and interactions. Learner-practitioners were engaging with a dynamic "landscape of practice", involving a range of different "communities of practice", each with their own associations, histories, and regimes of competence (Wenger-Trayner and Wenger-Trayner 2015).

Engineering mentors and team leaders, carpentry training advisors and trainers, and GP teachers and medical educators played a key role in helping learner-practitioners develop the necessarily "proactive knowledge" for deployment to a range of situations that cannot be fully known in advance (Perkins 2008). They did this by moving beyond transmission of knowledge to acting as co-constructors of competence (Hodge 2010), repositioning each field's "curriculum". GP teachers modelled collegiality to help registrars develop a way of practicing that counterbalanced the tendency to become isolated and overwhelmed, which ultimately would affect patients. They described "turning theory into people" and encouraging registrars to focus on the case before them first, with clinical knowledge cohering around that. Many GP teachers also led weekly or monthly reflective practice groups where registrars could focus on aspects of work that seemed personally and/or professionally troublesome.

Carpentry trainers pushed apprentices to take responsibility for important parts of projects and to do "perk" jobs (paid or unpaid work for friends and relatives) so they would develop a sense of autonomy and need less supervision on-site. Apprentices had formal reflective space with their ITO training advisors who provided oversight of progress and development plans during visits which took a formative approach to assessment and were deliberately providing "windows on episodes of practice" (Eraut and Hirsch 2007, p. 17) through conversations about learning. Engineering technician cadets' regular meetings with their designated mentor (outside of their project team) were used to discuss engineering mind-set and career progress. Technical team debriefings focused on approaches that had or had not worked and where improvements could be made. Discussions with peers in weekly off-site classes at an institute may also have provided some reflective opportunities and a chance to step back from everyday work.

Workplace teachers and mentors showed that knowledge was not just what was contained in textbooks or competence specifications but what was embodied in the practitioners themselves, who represented the vitality and evolution of practice and "inhabited the landscape" (Wenger-Trayner and Wenger-Trayner 2015). The focus on dispositional development through practice-based learning is intimately connected to the development of vocational identities as the negotiated fit between self-perception and occupational perception (Klotz et al. 2014). Identity development is central, rather than an optional extra.

## Dispositional Development

Notably the vocational thresholds being crossed by learner-practitioners were dispositional ones, highlighting dispositions as an “affective and cultural filter” for “turning knowledge and skill into action” (Carr et al. 2010, p. 15). GPs did not just learn about patient relationships; they attentively established and maintained them. They had to develop a willingness to do so, understanding that relationships lie at the heart of good general practice work. Carpenters did not work with simple recipes or without reference to others; they interpreted references on plans and followed it through, coordinating their activities with those of other people in different roles on-site. They had to become sensitive to the work, and take a sense of pride in it, similar to the way an architect’s design might be sympathetic to a site. Engineering technicians’ work did not reside solely in the symbolic realm, such as when making traffic flow calculations. The work also involved understanding where those calculations or notation elements fitted within the work of the wider team and where the project as a whole was located within the idea of public works. It required an inclination to read the situation as social and see the bigger picture of public understanding and road safety.

In short, learner-practitioners cared, and they learned the most about what they cared the most about. That care for practice was partly shaped by individual workplaces as the “dispositional milieu” and “affordance networks” (Carr et al. 2010). Many GP clinics held weekly staff meetings involving nurses, administrators and managers, and social workers and had “open door” consultation policies to facilitate a networked approach to patient management. Carpentry apprentices worked on building sites with a constant flow of clients, subcontractors, co-workers, suppliers, and inspectors – all occasions for joint problem-solving, physical challenge, and humour. Engineering teams, together with work role rotation, provided cadets with opportunities to function in different capacities and see where and how their tasks contributed to something greater.

Workplace structures were not only the basis for field-specific dispositions but for an overarching or meta-disposition of the kind described by Rooney et al. (2015) as agility. They argue that agile learners are “open to, and seek out, opportunities to learn and relearn, as well as make judgements about their learning” and agile practitioners “can appreciate professional practice and react (in sometimes unanticipated ways) as it unfolds” (p. 270). Notably agility is common to both identities – learner and practitioner – and not something to be developed later on attaining expert status.

## Conclusion

Practice-based learning offers an authenticity and relevance that is very difficult to replicate or approximate in other kinds of learning arrangements. It has the potential to address concerns about the segmentation of tertiary education course content and

the way it cuts across the development of expertise (Eraut 2004). By being centred in, and driven by, the practice context, this form of integration makes a crucial contribution to vocational education in the form of dispositional development. It shows that disposition, at both field-specific and meta-level, is important to capability. This insight about disposition provides an interesting counterpoint to the concerns of governments everywhere that the shortages and mismatches are about skills and that skills are what vocational education should deliver.

This does not mean that practice-based learning can do everything for everyone. For one thing, inherent tension between production and learning imperatives has to be managed. Learning is dependent on the quality of workplace affordances – the “action possibilities posed by objects or features in the environment” (Gee 2008, p. 81) and the readiness of workplace to afford genuine opportunities for learners to engage (Billett 2001). In the case of GP registrars, carpentry apprentices, and engineering cadets, it was crucial to have deliberate learning structures connected to business-as-usual and designated teachers and mentors to support learner-practitioners. It is also significant that all three groups were closely connected to industry and professional organisations and regulatory bodies that do not just emphasise labour market purposes but also educational and career progression (Wheelahan and Moodie [undated](#)).

It is therefore important not to confuse workplace imperatives with the kind of knowledge, skills, and dispositions that learner-practitioners need. The former can end up being part of an instrumental, competency-based training regime which short-changes learners with skills that are only applicable to immediate workplace tasks and roles (Wheelahan 2010). Instead we might think about the ways in which the actual exercise of any skill emerges from more wide-ranging knowledge, skills, and dispositions (Wheelahan and Moodie [undated](#)), as the experiences of GP registrars, carpentry apprentices, and engineering cadets showed. Crossing vocational thresholds to develop capability depends on context and an understanding of the purposes of their work and learning.

There is an argument that different forms of knowledge require development in different settings (Eraut 2004; Young 2010) and that vocational education “face both ways” to the discipline and to practice (Barnett 2006). This would also ensure that practice-based learning did not simply become a conflation of experience with learning. Avoiding this conflation can be seen as part of an argument for educational institutions to handle “the theory”. However, it may be more fruitful to think in terms of how integrative pedagogies can be developed to facilitate learners’ ability to make connections across the various knowledges they learn (Griffiths and Guile 2003; Veillard 2012). This might mean more collaboration between educational institutions and workplaces in certain areas, allowing each to play to their strengths without being reduced to them. That is, workplaces need to be seen as educative and practice understood as generating knowledge, not just supplementing theory that seems to have developed outside of it. It becomes important to revisit the purposes of educational institutions. Young questions, “why would a society want specialised educational institutions...if all they offered were just additional experiences?” (Young 2010, p. 17). But this is not to say that practice-based learning offers only

experience in contrast. The pressures on tertiary education, including more recent vocationalisation, have opened the door to ask questions about the kinds of knowledge, skills, and dispositions needed for twenty-first-century life and work and how they are best developed. Recognising the contribution of practice-based learning is therefore fitting for any consideration of effective systems for integrating work and learning in vocational education systems.

## References

- Atherton, J., Hadfield, P., & Meyers, R. (2008). *Threshold concepts in the wild*. Presented at the threshold concepts: From theory to practice conference.
- Barnett, R. (2004). Learning for an unknown future. *Higher Education Research and Development*, 23(3), 247–260.
- Barnett, R. (2006). Vocational knowledge and vocational pedagogy. In M. Young & J. Gamble (Eds.), *Knowledge, curriculum and qualifications for South African further education* (pp. 143–157). Cape Town: HSRC Press.
- Beddie, F. (2014). *A differentiated model for tertiary education: Past ideas, contemporary policy and future possibilities*. Adelaide: NCVER.
- Billett, S. (2001). Learning through work: Workplace affordances and individual engagement. *Journal of Workplace Learning*, 13(5), 209–214.
- Billett, S. (2008). Emerging perspectives on workplace learning. In S. Billett, C. Harteis, & A. Etelapelto (Eds.), *Emerging perspectives on workplace learning* (pp. 1–16). Rotterdam: Sense Publishers.
- Billett, S. (2011). Integrating experiences in workplace and university settings: A conceptual perspective. In S. Billett & A. Henderson (Eds.), *Developing learning professionals: Integrating experiences in university and practice settings* (pp. 21–40). London: Springer.
- Carr, M., Smith, A. B., Duncan, J., Jones, C., Lee, W., & Marshall, K. (2010). *Learning in the making. Disposition and design in early childhood*. Rotterdam: Sense Publishers.
- Cooper, L., Orrell, J., & Bowden, M. (Eds.). (2011). *Work integrated learning: A guide to effective practice*. Oxon/New York: Routledge.
- Dewey, J. (1916). *Democracy and education. An introduction to the philosophy of education*. Los Angeles: Indo-European Publishing.
- Eraut, M. (2004). Transfer of knowledge between education and workplace settings. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 113–136). London: Routledge.
- Eraut, M., & Hirsch, W. (2007). *The significance of workplace learning for individuals, groups and organisations*. Oxford: ESRC Centre on Skills, Knowledge and Organisational Performance (SKOPE).
- Fuller, A., & Unwin, L. (2010). ‘Knowledge workers’ as the new apprentices: The influence of organisational autonomy, goals and values on the nurturing of expertise. *Vocations and Learning*, 3, 203–222.
- Gee, J. (2008). A sociocultural perspective on opportunity to learn. In D. P. P. Moss, J. Gee, E. Haertel, & L. Young (Eds.), *Assessment, equity and opportunity to learn* (pp. 76–108). Cambridge: Cambridge University Press.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), 56.
- Grossman, P., Compton, C., Igra, D., Ronfeldt, M., Shahan, E., & Williamson, P. W. (2009). Teaching practice: A cross-professional perspective. *Teachers College Record*, 111(9), 2055–2100.

- Guile, D., & Young, M. (2003). Transfer and transition in vocational education. In T. Tuomi-Gröhn & Y. Engeström (Eds.), *Between work and school: New perspectives on transfer and boundary-crossing*. Oxford: Elsevier Science Ltd.
- Harrison, B., & Clayton, P. H. (2012). Reciprocity as a threshold concept for faculty who are learning to teach with service-learning. *Journal of Faculty Development*, 26(3), 29–33.
- Hodge, S. (2010). Trainers and transformation: Facilitating the ‘dark side’ of vocational learning. *International Journal of Training Research*, 8, 53–62.
- Karmel, T. (2011). *As clear as mud: Defining vocational education and training*. Presented at the TAFE Governance and Regulations Forum, Adelaide: NCVER.
- Klotz, V. K., Billett, S., & Winther, E. (2014). Promoting workforce excellence: Formation and relevance of vocational identity for vocational educational training. *Empirical Research in Vocational Education and Training*, 6(6), 1–20.
- Lanning, T. (2011). Why rethink apprenticeships? In T. Dolphin & T. Lanning (Eds.), *Rethinking apprenticeships* (pp. 6–16). London: Institute for Public Policy Research.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, MA: Cambridge University Press.
- Meyer, J. H. F., & Land, R. (2003). *Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines*. London: Economic and Social Research Council.
- Meyer, J. H. F., Knight, D. B., Callaghan, D. P., & Baldock, T. E. (2015). An empirical exploration of metacognitive assessment activities in a third-year civil engineering hydraulics course. *European Journal of Engineering Education*, 40(3), 309–327.
- Ministry of Education. (2012, December 11). *Transition from school to tertiary*. Retrieved 10 May 2016, from <http://www.educationcounts.gov.nz/statistics/tertiary-education/transition-from-school-to-tertiary>
- Ministry of Education. (n.d.) *New Zealand education system overview*. Ministry of Education.
- Ministry of Education & Ministry of Business Innovation and Employment. (2014). *Tertiary education strategy 2014–2019*. Wellington: Ministry of Education and Ministry of Business, Innovation and Employment.
- Patil, A., & Eijkman, H. (2012). Megatrends in engineering and technology education: A call for the communicative imagination. In A. Patil, H. Eijkman, & E. Bhattacharyya (Eds.), *New media communication skills for engineers and IT professionals: Trans-national and trans-cultural demands* (pp. 1–8). Hershey: IGI Global.
- Pavlova, M., & Maclean, R. (2013). Vocationalisation of secondary and tertiary education: Challenges and possible future directions. In *Skills development for inclusive and sustainable growth in developing Asia-Pacific, technical and vocational education and training: Issues, concerns and prospects* (pp. 43–66). Asia Development Bank.
- Perkins, D. (2008). Beyond understanding. In R. Land, J. Meyer, & J. Smith (Eds.), *Threshold concepts within the disciplines*. Rotterdam: Sense Publishing.
- Perkins, D. (2009). *Making learning whole: How seven principles of teaching can transform education*. San Francisco: Jossey-Bass.
- Rooney, D., Hopwood, N., Boud, D., & Kelly, M. (2015). The role of simulation in pedagogies of higher education for the health professions: Through a practice-based lens. *Vocations and Learning*, 8, 269–285.
- Rose, M. (2005). *The mind at work: Valuing the intelligence of the American worker*. New York: Penguin Books.
- Scherrer, J. (2014). The role of the intellectual in eliminating the effects of poverty: A response to Tierney. *Educational Researcher*, 43(4), 201–207.
- Timmermans, J. A. (2014). Identifying threshold concepts in the careers of educational developers. *International Journal for Academic Development*, 19(4), 305–317.
- van de Wiel, M. W. J., van den Bossche, P., Janssen, S., & Jossberger, H. (2010). Exploring deliberate practice in medicine: How do physicians learn in the workplace? *Advances in Health Science Education*, 16(1), 81–95.

- Vaughan, K. (2011). The potential of career management competencies for renewed focus and direction in career education. *New Zealand Annual Review of Education*, 20(2010), 24–51.
- Vaughan, K., Bonne, L., & Eyre, J. (2015). *Knowing practice: Vocational thresholds for GPs, carpenters, and engineering technicians*. Wellington: New Zealand Council for Educational Research and Ako Aotearoa.
- Veillard, L. (2012). Transfer of learning as a specific case of transition between learning contexts in a French work-integrated learning programme. *Vocations and Learning*, 5(3), 251–276.
- Watts, A. G. (2006). *Career development learning and employability* (Learning and employability). Heslington: The Higher Education Academy.
- Wenger-Trayner, E., & Wenger-Trayner, B. (2015). Learning in a landscape of practice: A framework. In E. Wenger-Trayner, M. Fenton-O’Creevy, S. Hutchinson, C. Kubiak, & B. Wenger-Trayner (Eds.), *Learning in landscapes of practice. Boundaries, identity, and knowledgeability in practice-based learning* (pp. 13–30). Oxon: Routledge.
- Wheelahan, L. (2010). The problem with CBT (and why constructivism makes things worse). *Journal of Education & Work*, 22(3), 227–242.
- Wheelahan, L., & Moodie, G. (undated). *What should vocational qualifications look like if the links between qualifications and jobs are so weak?*
- Winch, C. (2013). The attractiveness of TVET. In *Revisiting global trends in TVET: Reflections on theory and practice* (pp. 86–122). Bonn: UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.
- Young, M. (2010, December). Why educators must differentiate knowledge from experience. *Journal of the Pacific Circle for Education*, 22(1), 9–20.

# Chapter 11

## ePortfolios as Hybrid Learning Arenas in Vocational Education and Training



Leif Christian Lahn and Hæge Nore

**Abstract** The use of ePortfolios has become a common integrating element of vocational education and training (VET) in many countries (Attwell G, Pumilia P, Data Sci J 6(3):S211–S219, 2007). They serve different purposes but are often recommended as an effective tool for the documentation and assessment of learning and experiences (Cambridge D, Eportfolios for lifelong learning and assessment. Wiley, New York, 2010). Schools have claimed that this technology could bridge the gap between school and work in VET and stimulate the articulation and reflection of “tacit” knowledge, experience, and learning (Rauner F, MacLean R, Handbook of technical and vocational education and training research, vol 49. Springer, Dordrecht, 2008). In this article, we introduce the concept of *hybrid learning arenas*, derived from hybrid qualifications in VET, which refers to a combination of general and vocational learning (outcomes) (Davey G, Fuller A, Sociol Res Online 18(1):1–10, 2013). Within the Norwegian dual VET system, we add an institutional dimension by positioning the ePortfolio systems as a liaison device between apprentices, training offices, schools, and companies by analyzing to what extent this tool supports innovative apprenticeship (Deitmer L, Hauschildt U, Rauner F, Zelloth H, The architecture of innovative apprenticeship, vol 18. Springer, Dordrecht, 2012). Based on a study of ePortfolios in Norwegian VET, our discussion is guided by two research questions: In what ways do ePortfolios represent a new structure that could be characterized as a hybrid learning arena? What kind of learning processes take place in these arenas?

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Our study is based on interviews with 47 apprentices and 58 in-company trainers and staff from 11 training offices in 3 different vocations: plumbing, industrial mechanics, and sales. The interview data were validated and elaborated by documentary evidence from ePortfolios, local training plans, task descriptions, assignments, assessment schemes, and other reports submitted to the training offices by the apprentices or trainers.

Findings from these data show that ePortfolios are used very differently across the vocations observed. This also goes for their ability to mediate or integrate between the different institutions in the dual model.

**Keywords** ePortfolio · Vocational education and boundary crossing · Hybrid learning arenas

## Introduction

A number of studies conclude that apprentices struggle with making school knowledge relevant for their practice (Finch et al. 2007) and vice versa – in order to make their work-based knowledge an asset in educational contexts (Akkerman and Bakker 2012). There is a growing recognition that the integration and mutual transfer of knowledge and skills need support from institutional and/or technological systems that mediate the relationship between school and work and that enable boundary crossing (Tuomi-Gröhn et al. 2003). The influence of cultural differences between these sectors is a recurrent discussion point. Recent international reviews in VET systems have identified new intermediary structures that intersect between schools, workplaces, and other actors in this field (Rauner and Smith 2010). Preliminary studies indicate that these structures differ markedly along various dimensions depending on the key characteristics of the national VET systems – notably in the way they organize the school-work relationship (Rauner and MacLean 2008). To advance our understanding of structures, institutions, or agents in the integration of learning across VET systems, there is an urgent need for comparative studies, as proposed by Davey and Fuller (2013).

In this chapter, we confine ourselves to a study of training offices in the Norwegian VET system and their extensive use of ePortfolio as a bridging device. However, we argue that such a case would have a broader interest to an international audience for two reasons. First, the Norwegian training offices are characterized as pioneering the development of new structures in VET that are being considered as models by several other countries (Høst and Michelsen 2014; Smith 2010; Onstenk 2010). Second, ePortfolio systems, or a large family of similar technologies, are considered spearheads in affording innovative ways of bringing together school and work for apprenticeships (Attwell and Pumilia 2007). Many scholars highlight the boundary crossing potential of such artifacts (Daunert and Price 2014). They assume that a combination of authentic experiences and scholastic reflection will support the development of higher-order skills such as a deeper understanding of work pro-

cesses and learning to learn (Elsholz and Knutzen 2010). To what extent these goals are achieved when implementing ePortfolio technology in apprenticeship is one of our guiding questions, along with issues on different forms of structural integration.

The chapter first includes a short overview of the Norwegian VET system, with a sharper eye on the emergence of intermediary structures like the training offices. We then use this ecology as a contextual background when elaborating a conceptual framework that could support a triangulation of different perspectives on the issues raised. We explore the concept of “hybrid learning arena” and contrast it with similar ones such as “hybrid learning environments” (Zitter et al. 2016) and “hybrid organizations” (Haigh and Hoffman 2012). The literature on ePortfolio and learning is discussed in terms of a “boundary object” (Leigh Star 2010) and “boundary crossing” (Akkerman and Bakker 2011). Our inquiry into these issues is supported by 3 different studies of ePortfolio systems and practices with data collected from surveys, interviews, and documents from apprentices in approximately 25 training offices.

## **Apprenticeship Training Offices in the Norwegian VET System**

Vocational education and training (VET) in Norway is a dual system conducted in schools and enterprises. The main model comprises 2 years as a student in upper secondary school, followed by 2 years of apprenticeship in a public or private training company approved by the educational authorities at the county level. In 1994, in-company training of apprentices became part of the formal education system, and a number of apprenticeship training offices were established. The offices were approved as training companies but are owned and operated by a community of companies that are either trade-specific or interdisciplinary. Their tasks are to recruit apprentices and training enterprises and network with enterprises, schools, and branch organization; establish quality systems, including ePortfolios; follow up apprentices and secure training in one or more of the member companies; deliver courses and training material; organize sessions for apprentices; and follow up and secure the training of the trainers.

In the Norwegian VET system, apprentices sign a temporary employment contract with a training company plus a training contract, which for 75–80% of the apprentices is with a training office (Deichman-Sørensen 2007; Michelsen and Høst 2013). Hence, apprenticeship training offices play an essential role in the Norwegian VET system, and these institutions have received growing international attention (Helms Jørgensen and Juul 2009). To help support their work, the offices organize various networks (Havn et al. 2009; Høst and Michelsen 2014) between:

- Companies as owners and members of the office
- Member companies and schools on a local/regional level

- Apprenticeship training offices (cross-sectional), together with representatives from educational authorities at the county level
- Apprenticeship training offices and the branch organizations on a national level
- Apprenticeship training offices and ePortfolio system developers

Training offices represent a new structure that radically influences work-based learning characteristics of traditional apprenticeship regimes and its ideology. The Norwegian educational reform in 2006 (the *Knowledge Promotion*) introduced common competence goals for school-based and company-based parts of VET. Trainers are expected to develop local plans, content, and activities based on a state-regulated curriculum and to ensure that the objectives are realized through holistic assessment schemes and practices. This is what Rauner et al. (2010) call an integrated output model, although there seems to be a tension between the old apprenticeship regime and such a model, which can serve as a driver for innovative apprenticeship (Grollmann and Rauner 2007). A common aim of all the actors in the Norwegian VET system seems to be high-quality education and training. However, to the extent that companies and school authorities outsource key functions in apprenticeship recruitment and training to the training offices and networks, the reintegration of these functions in structural terms, and in the learning trajectories of apprentices, becomes an important issue. Does the expansion of an intermediate structure widen the cultural, organizational, and spatiotemporal distance between school and work? Or is this a “third space” (Gutierrez et al. 1995) established as a rich learning environment for the apprentices? To what extent can ePortfolio systems support the latter construction? These questions are addressed in the ensuing sections.

## **ePortfolios in Apprenticeship as a Hybrid Learning Arena**

An electronic portfolio system, called ePortfolio, is a repository management system that supports the articulation and representation of experiences, achievements, and learning. In educational contexts, different uses have been foregrounded, to capture and store evidence in assessment, to demonstrate practice, to provide and receive feedback, to monitor progress and review plans or goals, and to present personal or collective evidence to others. Similarly, a number of pedagogical opportunities are attributed to this technology, such as reflection on individual and social learning, engagement in self-produced material, personalization of training, the sharing of experiences, knowledge and skills, self-regulation, and contextual awareness. The input may be text, electronic audio and video files, images, hyperlinks, etc. and represents evidence of different types like assignments, the documentation of work, assessment sheets, essays, and the recordings of events (Bryant and Chittum 2013).

Research on ePortfolio has tended to prioritize its use in higher education (Gikandi and Morrow 2011), in which a common objective is to strengthen the reflection on practice during internship periods. In primary and secondary schools,

major efforts have been made to improve assessments based on this technology (Barrett 2007). If we look into the literature on ePortfolio in VET addressing the learning of students or apprentices and not VET teachers' professional development, research is sparse and scattered and lacks a systematic review (Nore and Lahn 2014). Often the prospects for apprenticeship are shadowed by evidence from higher education and general ideas about authentic learning and the integration and transfer of competence between school and work. Attwell and Elferink (2008) identify five major potentials for the VET sector. These are:

1. ePortfolios bring together learning from different contexts and thereby facilitate coherence in curricular goals and pedagogy.
2. Reflection on one's own learning processes in a social/institutional context.
3. Authentic multimedia feedback and assessment of competence development in work processes and task performance.
4. Support for career planning and motivation in a lifelong learning scheme.
5. The networking and sharing of competence in formal and informal settings.

Researchers have referred to ePortfolios and similar technology as "boundary objects" (Akkerman and Bakker 2012). Although several definitions of this concept are in circulation, Akkerman and Bakker (2011) contend that it represents the co-construction of artifacts that bridge the structural and strategic distance between institutions. These objects facilitate learning processes through "boundary crossing" that enrich the social context for competence development. Hybridization takes place when different organizations or groups interact in new ways through horizontal linkages (ibid., p. 17). ePortfolios as "boundary objects" are challenged by Leigh Star's (2010) discussion on how actors and stakeholders act toward, and with, boundary objects in different work arrangements locally situated (e.g., in a training office). Consensus about boundary objects seems difficult, though a movement toward standardized systems might start a new cycle of establishing new boundary objects. Below, we introduce concepts that transpose these dimensions to the interface between school and work.

Zitter and Hoeve (2012) have launched a model of "hybrid learning environments," which prescribes how to merge learning and work that will advance knowledge integration and transformation. They accentuate that both learning through participation and acquisition take place in environments that are constructed (e.g., classrooms, labs...) or realistic (e.g., workplace, simulators...). Although the authors do not explicitly address ePortfolios, this technology could potentially play a privileged role in the design of hybrid learning environments that concentrate on work process and authentic tasks intertwined by learning processes and the "blending" of technologies (Butz and Stubinsky 2016).

The term *hybrid learning arena* was used by Nore (2015) to describe the complexities challenging actors who participate in the Norwegian apprenticeship system. A similar complexity characterizes VET in countries that are loyal to dual models or that go through various structural transitions (Gessler and Freund 2015). It seeks to integrate elements from the term "hybrid organization" that have become increasingly popular and present a new organizational form that mixes both various

heterogeneous components, and responds to different institutional logics, for example, business strategies and social responsibility (Haigh and Hoffman 2012). This concept amplifies the quality of ambidexterity that claimed to be imperative for the survival of modern organizations, although Raisch and Birkinshaw (2008) argue that they must at the same time operate efficiently and innovatively to meet changing strategic demands. To what extent apprenticeship systems presuppose or strengthen such an ability among participating actors, schools, companies, training offices, and government agencies is an issue that needs attention. The concept of “hybrid learning arenas” takes into account that the learning by apprentices takes place in different locations and along various trajectories, which challenges coherence, integration, and transfer. From an instrumental perspective (Häcker 2005) a number of tools and artifacts can bind together different elements into productive wholes. One of these is the ePortfolio system. However, their boundary crossing potential seems to be dependent on the ambidextrous capacity of the different actors in the hybrid learning arena. German and Swiss studies on ePortfolios in apprenticeship indicate that the lack of institutional collaboration between schools and companies somewhat restricts the bridging effects of this technology. Of course working with ePortfolios along these lines may promote an understanding and meta-reflection on individual performance and interaction within various learning contexts (Häcker 2005; Schwendimann et al. 2015). The training offices in Norwegian VET have only recently implemented ePortfolios as a tool for reflecting on and elaborating the experiences and feedback between apprentices, the training establishment, and the training offices. Its use has spread rapidly after a trial period albeit with skepticism among key stakeholders. At present, the different ePortfolio systems are versions of learning management systems (LMS). A study by Høst et al. (2012) has identified a tension between the use of these systems to document the quality of work performance on the one side and the achievement of apprentices according to curricular objectives on the other. Additionally, branch organizations and trade unions radically differ in what they expect from the systems – ranging from the technical trades that emphasize their documentary function to the prioritization of reflection by the associations of health-care workers. Consequently, the question of parallel and integrated structures has to include these contingencies.

Our preference for the concept “hybrid learning arenas” rather than “hybrid learning environments” is partly due to the inter-organizational dimensions introduced by the former. In addition, reference to “learning arenas” may bring to the fore a differentiation of vocational and epistemic fields that has a preference for distinct pedagogies. A theoretical backing for such an assumption would be Bernstein’s (1996) conceptual framework of epistemic classification and framing of discourses and pedagogical practices. As pointed out in a study by Høst et al. (2012), the appropriation of ePortfolios may be quite different across clusters of vocations where the health-care sector has a tradition of counseling and collegial reflection on practical cases, which is not shared by technical trades. These distinctions may construe “hybrid learning environments” and the design of boundary objects along epistemic boundaries (or fields) that go unnoticed if we assume a uniform hybridization. The discourse on boundary crossing in VET (Akkerman and Bakker

2012) has not thematized the extent to which the integration of school and work manifest itself as quite distinct patterns when we study the full spectrum of vocations and educational traditions. This diversity has also not taken into account in the design of prevalent ePortfolio systems.

## Research Method

The empirical material presented here is a subset of a longitudinal qualitative study that interviewed a cohort of 115 upper secondary students at two points in their program – the first time in their second year at school and the second after one-and-a-half years of apprenticeship. The overall theme of the broader project was on quality assessment in VET along four subthemes: (1) learning environments, completion, and dropout; (2) content and assessment practices; (3) quality assurance, quality management, and quality assessment; and (4) VET as a gateway to employment. This article is based on research related to subtheme 2, which concentrates on how training establishments and training offices work together on defining content, implementing curricula, and building assessment practices for apprentices in three different trades: plumbing, industrial mechanics, and sales. Whereas the apprenticeship training offices for plumbing are trade-specific, the training offices for industrial mechanics cover a wide range of technical and industrial trades. Training offices for sales are often interdisciplinary, e.g., together with cooks, waiters, and receptionists. The term “assessment practices” refers to “arrays of human activities” conceived as interwoven and embodied, which are materially mediated (Schatzki 2005, p. 11). Their functions are defined by their contexts of use that often contradict the prescribed operations. Thus, even if ePortfolios in Norwegian VET are not meant to support assessment in a strict sense, apprentices, the training offices, and instructors may be concerned with how documented practice compares with curricular standards and job effectiveness.

The present chapter draws its data from the second phase after one-and-a-half years of apprenticeship. Semi-structured personal interviews were conducted with 47 apprentices and 58 in-company trainers/training managers and representatives from 11 training offices. The purposeful quota sampling of three contrasting trades was extended to include three regions in Norway that varied in occupational structure and training traditions. All interviews were recorded, transcribed, and subjected to thematic analysis (Braun and Clarke 2006), and a data set of interviews with 20 apprentices from other trades (floristry, healthcare, logistics, carpentry, and automation) was added.

The interview data was triangulated by collecting documentary evidence for ePortfolios, local training plans, task descriptions, assignments, assessment schemes, and other reports given to the training offices by the apprentices or the trainers. The main analytical dimensions guiding the structuring of these data were the use of curricular guidelines, the organization of content, learning processes, and

assessment practices. Specific categories were developed for in-depth inquiries about various aspects of ePortfolio use and provisions.

A separate data set from a survey of apprentices' assessment of the learning environments in companies and vocational identities was generated by selecting the scores of 150 apprentices in three trades: healthcare workers, industrial mechanics, and electricians. The questions focused on their communication with the training offices and the use of ePortfolios.

## **ePortfolios in Norwegian VET**

Two general observations from our data frame the following review of our findings:

1. The use of ePortfolios in Norwegian apprenticeship has increased rapidly thereby illustrating the influence of dominant actors on the profile of these systems as learning arenas. This is hardly surprising since their introduction is closely linked to the rise of training offices as intermediary institutions partly withheld from strong governmental control. Their strong dependency on respective sectors and trades has run against a uniform configuration of the ePortfolio systems.
2. Although there are some variations in the pedagogical potential of these ePortfolio systems, they tend to support a restrictive and not expansive type of learning (Fuller and Unwin 2010), prioritizing documentation and quality control over reflection on learning. The next sections will provide nuances to this generalized picture by pursuing three main themes: (i) the way dominant actors influence the profile of the learning arenas, (ii) the use of ePortfolios by apprentices, and (iii) the systems as a vehicle for interaction between different actors in Norwegian VET.

## **Dominant Actors, Vocational Fields, and a Profile of ePortfolio Systems**

The hybridization of the VET learning arenas is shaped by dominant actors, which has an impact on the profile of ePortfolio systems (see Table 11.1).

One could distinguish in our findings that ePortfolios were aligned with a “workplace curriculum,” and those that primarily met the requirements were defined by the national educational curricula. In the first case, the branch organizations in plumbing and electrical installation were dominant actors in the development of the systems. These were systems designed to certify that the training met trade-specific requirements, provided the opportunity for the apprentices to register their fulfillment of time allocated or spent for core tasks, participated in obligatory courses,

**Table 11.1** Dominant actors, objectives of ePortfolios, and pedagogical functions

Dominant actor in developing ePortfolio systems	Main objective with ePortfolio	Pedagogical function
Branch organization	Documentation of trade-defined requirements	Self-monitoring of task achievement
Training offices	Transparency between different learning arenas	Integration of practice and theory (learning objectives)
System developers	Assessment of apprentices' progression	Learning management
Mixed initiatives	Supporting the guidance of apprentices	Work-related guidance

and acquired certifications. Thus, the purpose of these ePortfolios was to document the amount of practice to meet branch-specific standards in line with a logic of accountancy that often underlies quality assurance systems. In contrast, we found that networks of training offices have cooperated in the development of ePortfolios, taking the national VET curricula as a foundation, but with a strong emphasis on strengthening transparency between different learning arenas – linking the apprentices' documentation of work performance with fulfilled courses and written assignments. In addition, a variety of resources for e-learning are included. The intention is to provide data that may support the training offices in following-up apprentices and instructors in training companies. A third cluster of ePortfolio systems was constructed by commercial system developers in collaboration with other actors, by refining and updating former quality systems in VET. Essentially, they supported the assessment of apprentices' progression against the learning outcomes described by the national curriculum. Finally, we identified a fourth group of ePortfolio systems that could not be traced back to initiatives taken by specific actors, although the training offices tended to play an important role. These versions supported a number of pedagogical functions in combining the documentation of apprentices' learning processes and their reflection on practice. Moreover, they provided arenas for cooperation between the apprentice, the in-company trainers, course instructors, and the training office. Many of our interviewees looked upon ePortfolios as quality assessment tools, as was also observed by Høst et al. (2014). Often, the stored records of apprentices' performance were a co-reference when organizing the obligatory half-year talks and reviews of apprentices' progression and learning processes.

## Apprentices' Use of ePortfolios

In this section, we will first present the trade-specific contexts where ePortfolios played a key role. Then we extract the observations that refer to dimensions such as content, format, location, frequency of use, and pedagogical significance.



**Health Care** Apprentices in this vocation write reports on caring for patients, diagnoses, and caring procedures. They use the ePortfolio to document specific assignments and progress on learning according to the national curriculum, as well as filing and editing patient records in hospital- or community care-specific data systems. Apprentices reported more learning from the work-specific system because of the close relation to patient care and in-house procedures. Additionally, ePortfolios included more reflection on ethics and written explanations for a broader understanding of key vocational concepts and diagnoses. There was no technological interface between the ePortfolios and the medical information system, both because of privacy policy and different institutional ownership.

**Industrial Mechanics** Industrial mechanics use ePortfolios to record their performance and describe risk analyses on health and safety including deviation reports. The planning and fulfillment of work operations are documented to a larger extent than work processes/production systems or work organization. In this trade, it is more common to use pictures and drawings, for example, to show a situation before and after repair and maintenance. Even though the ePortfolio is linked to the curriculum goals, the apprentices commonly report on performed work and very little on learning. For example, a second year apprentice in industrial mechanics reported 11 work tasks to show his ability to disassemble, repair, assemble, and function-test mechanical components in the production (one of the competency goals in the curriculum). All reports were like the example below.

Installed motor in a fan house and made a new closure plate. When all were assembled and ready to be installed, my instructor accidentally found an imbalance in the fan, which I fixed by welding two pieces of steel flat bar on one side of the fan.

Discussions between the apprentice and instructor take place in real work situations, and not based on ePortfolio documentations.

**Plumbing** Whereas industrial mechanics mostly fill out predefined forms on safety and risk management, plumbers register the hours used on core tasks predefined by the branch. The system has built-in self-assessment, as well as trainers' assessments. Table 11.2 shows details completed by an apprentice in this vocation.

The percentages refer to the number of hours he has worked on a task in relation to the minimum branch requirement. This ePortfolio system gives him and his trainer an overview of the work operations, in which the apprentice obviously needs more training on central heating and cooling systems.

**Sales** Apprentices in this trade may contribute to product marketing, prepare for campaigns, or write economic reports. In the ePortfolios, apprentices primarily document their work in accordance with the national curriculum goals through standardized assignments defined by the training office networks. The example below is from one of five sub-assignments given to the apprentice to show his/her ability according to the competency goal: perform customer care by customizing service delivery to customers and users. This specific sub-task asks the apprentice to

**Table 11.2** An illustration of how Per, a plumbing apprentice, has filled out a form in the ePortfolio

Practical work on core tasks	Hours used	Self-assessment	% performed
Drain pipe	424	High achievement	100
Assemble/connect sanitary equipment	343	Medium/high achievement	92
Fill up and start central heating	15	Medium/low achievement	67
Service on cooling equipment	0		0

describe how she performs a customer conversation with an opening, negotiation, and ending according to clearly defined norms:

At the moment, I work in the reception area, where it is extremely important to be polite and nice to customers and salesmen. I open all conversations with: What can I do for you? (2nd year apprentice in sales)

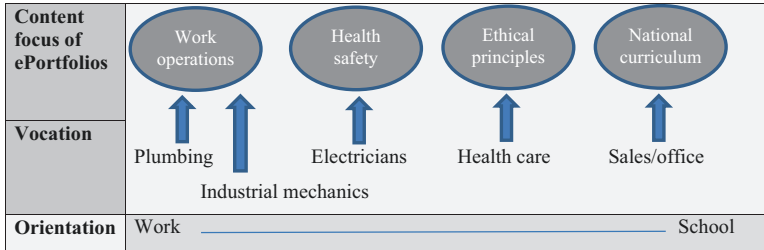
The ePortfolio system in sales did not necessarily have a productive role. For example, the assignments instructed the apprentices to use much of their training time documenting these tasks, and not on everyday issues that would be relevant for work-based learning and discussions with the in-company trainers.

**Comparing the Trades** The variations in learning activities represent historical differences between trades. Plumbers, industrial mechanics, and electricians have long traditions of apprenticeship combined with school-based teaching and learning, mostly focusing on performance and with little written accounts. Sales and healthcare are newcomers in Norwegian VET and still struggle with what is apprenticeship (Hagen et al. 2010). Being more familiar with general education, teachers and trainers in this field seem to primarily focus on written assignments and reflections linked to formal requirements in the curricula. Different educational traditions are also reflected in the different uses of ePortfolios like a “tick off” practice for industrial mechanics and electricians and the widespread use of reflections on actions in healthcare.

These short glimpses into the various trade-specific arenas may serve as a casuistic framing of how the ePortfolio systems are configured along a number of dimensions: content, format, location, frequency of use, and pedagogical significance.

**Content** As pointed out above, the ePortfolio in Norwegian VET has a different focus on contributions to vocational content. In Fig. 11.1, we have indicated how content focus (in ellipses) varies with five main vocations in our study. It synthesizes different sources (digital logs, documents, interviews) and pinpoints a focus in each trade. The last row suggests a gradient in terms of orientation – from work-based to school-based.

Because of their importance for innovative apprenticeship (Rauner and Smith 2010), work processes and generic knowledge may be added to the content focus in Fig. 11.1, even though they were not integrated into the use of ePortfolios included here. According to Guile and Griffiths (2001), there is more to work experience than traditional work task performance. This also includes work process knowledge: a



**Fig. 11.1** Main content focus of ePortfolios for five vocations in our study

broadier understanding of work roles, tasks, and responsibilities in a work organization, as well as an ability to operate in new work contexts using a combination of theoretical and practical knowledge. Furthermore, they include work experience as an opportunity for key skill assessment (generic knowledge).

**Format** The literature on ePortfolio in VET has pointed out how multimedia application may strongly improve the authenticity of feedback that apprentices need in their off-the-site (work) guidance, for example, in VET schools or at the training office (Schwendimann et al. 2015). In our study, we found evidence of documentation submitted as photos, drawings, and sketches, but not the use of video. However, the dominant formats were text-based and nearly exclusively so, which is somewhat surprising given the potential richness of alternative media. To a large extent, such a variation was restricted by the systems and no requirements from trainers and training offices for other forms of evidence.

**Location** In line with ideas about “community of practice,” several authors have claimed that ePortfolio systems should facilitate the exchange of experiences and knowledge between apprentices from different companies (Attwell and Elferink 2008) – in a virtual learning arena. Although some of the interviewees from training companies talked favorably about the merits of such a platform, there were very few examples of the piloting or implementation of provisions for involving apprentices in collaborative or interactive learning. Most of the communication took place individually between apprentices and consultants at the training offices. In-company trainers seem to rely on the follow-up by training offices and do not request apprentices’ use of ePortfolios or discuss their documentation during busy workdays. On the other hand, training offices consider ePortfolios to be a crucial tool for their follow-up of both apprentices and training establishments, hence supporting the transparency of apprentices’ work tasks and vocational development. All actors refer to the ePortfolios ahead of the half-year review meetings. A typical example of communication and feedback to learners and training companies visualizes the role of training offices as quality controllers:

E-learning to be fulfilled. Work on self-assessment. Discuss the need for more practical training with your trainer. Prepare for journeyman's certificate. Take the welding course and the wet room course. Secure that all parts of the curriculum are covered. (Training office's comment to an apprentice and a training establishment in plumbing after half-year review)

**Frequency of Use** The apprentices' use of ePortfolios varied from documentation on a daily basis to periodically reporting on specific events. In many cases, their online activity was initiated as preparation for the half-year review organized by the training offices. If ePortfolios are introduced in order to facilitate formative assessment or feedback (Mason et al. 2004), there should be guidelines about how often and in what format such processes are structured to be productive. This is a blind spot in the international literature and was not articulated as a theme in our interviews with different stakeholders. The ePortfolios have possibilities as self-evaluation tools if regularly used for discussions or assessments for learning and on request from trainers and training offices (Burchert and Schulte 2011). The context in which the ePortfolios are embedded focuses more on the formal half-year review often conducted by the training office in cooperation with the in-company trainer(s) and the apprentice. As such, it is a pedagogical challenge for trainers and training offices to expand the use of ePortfolios as an assessment for a learning tool on a more regular/weekly basis and to encourage apprentices' reflections and self-assessment, in addition to their ability to learn how to learn.

**Pedagogical Functions** As pointed out above, ePortfolios have the potential to meet a number of pedagogical demands. A general comment from many apprentices on the learning effects of purely doing the documentation of work activities was that it developed an explicitness about the tasks that helped to articulate professional understanding – even if these reflections were not textually elaborated. To the extent that written assignments were included, the apprentices found this helpful in forcing them to justify their solutions to work challenges – to help identify and explain their choice of methods, procedures, etc. – and thereby linking theory to practice. Thus, working with the ePortfolio could be a good preparation for the Norwegian trade or journeyman's examination that emphasizes the ability to plan, justify, perform, and document work tasks. At the more school-based end of this dimension, we find that the systems were mainly tools for learning management. They provided access to branch-specific e-learning programs with required certifications and reports to the ePortfolio systems about the completion of courses.

At the end of the apprenticeship period, such functions included gap analyses that compared the documented achievements of the apprentices with the expected learning outcomes in the curricula and/or the specific requirements for skilled workers in a trade. In the literature on ePortfolios, there are frequent references to programs that are supposed to strengthen self-directed learning among apprentices and students (Chang et al. 2016). This issue is connected to arrangements that would support formative assessments integrating school and work. At this point, precise directions on the use of ePortfolios in Norway are not clear.

## Discussion

Based on our study, we identify four main configurations of ePortfolio systems reflecting different assessment practices in Norwegian VET:

1. *Developmental ePortfolios*, which require the apprentices in vocations like plumbing and industrial mechanics to log their engagement with specific work tasks. These tools may sensitize them toward important aspects of the “work-place curriculum” and enable an understanding of personal progression in competence development.
2. *ePortfolios as accounting devices* are the institutional counterpart to the previous configuration, since it supports the training companies and training offices in their statutory obligation to report to regional authorities on local (company-based) training plans and half-year reviews in relation to the national quality system. It includes the archiving of branch-specific requirements such as tests and certificates, which are validated in relation to the national curricula.
3. *ePortfolios as assessment tools* encompass the functions, in which apprentices may compare their skills and competences with the national curricula on the one side, and the in-company standards on the other. As pointed out above, this configuration may not provide the continuous feedback needed for the self-evaluation of authentic work performance.
4. *Learning management through ePortfolios* – The built-in standard assignments in some systems could prevent the apprentices from using authentic tasks as objects of reflection, while the logistic functions giving access to e-learning courses, etc. were understood in isolation but did not promote self-directed learning.

Compared to the five major potential benefits listed by Attwell and Pumilia (2007), the Norwegian ePortfolios in VET fall short on at least three of them. To some degree, they facilitate coherence in curricular goals between training establishments and the national educational standards. In addition, systems for logging the progress of apprentices may support career planning and motivation. Although a few of our interviewees maintained that assignments and routine documentation of work helped them reflect on their learning process, such a design feature was not put in the foreground in the various platforms. We also found few instances where multimedia had been used to promote a feedback and assessment that is more authentic. Lastly, the absence of network learning and the sharing of competence among apprentices were somewhat surprising when we reviewed the ePortfolios.

In short, the ePortfolios embedded in the services provided by the Norwegian training offices generate a hybrid learning arena in the sense that apprentices work on tasks that both reflect elements of their practice in companies, the branch-specific standards and the national curricula. In this way, ePortfolios are seen as a useful tool for the integration of learning in different settings. However, on the basis of our material, we have found it fruitful to distinguish between three types of hybrid learning arenas:

1. *Work documentation* with training companies and offices as dominant actors. This is most frequent in trades like industrial mechanics, plumbing, and logistics.
2. *Learning management* with training offices, branch organizations, and regional educational authorities as central stakeholders. This is often found in trades such as sales and electric installation.
3. *Mixed* with the apprentices' preparations for half-year reviews and progression in relation to trade examination as key concerns. The training offices had a prominent position in this type of setup. Given the variation described here, it seems more apt to use hybrid learning arenas in plural, since it also indicates that the apprentices working on the ePortfolio must act in relation to different actors, different requirements, and a variety of hybridizations. This exemplifies a more comprehensive account of integration.

Following Akkerman and Bakker's (2011) definition of "hybridization," such processes involve horizontal interactions in new ways between organizations. Our Norwegian case would qualify if we followed these criteria, although the degree of innovation could be debated. The ePortfolio systems certainly introduce new ways of communicating and working, but the technological or socio-technical potential of these tools has not exploited or developed. There is of course always a lag between invention and use, but we want to problematize to what extent the ePortfolio systems could be conceptualized as "boundary objects" that mobilize actors from different arenas and help facilitate the crossing of institutional boundaries. Did they erect new boundaries or restructure existing boundaries?

We have no conclusive evidence that can answer this question, but we observed that ePortfolio solutions made it easier for training companies to outsource recruitment and training functions to the training offices, thus possibly reducing the capacity of the workplace to handle this type of developmental work. In our study, we only made sporadic visits to companies in order to pursue this theme. Further studies are therefore needed for systematic scrutiny. If on-the-job training of apprentices is vital for their sustainable growth and the strengthening of their ambidexterity, the delegation of these functions to intermediaries may be a poor strategy. Conversely, educational authorities and VET schools have outsourced tasks, for example, in the recruitment of training companies that could have broadened their collaboration with branch organizations and industry. Here, we need to add that the educational system has adopted learning management platforms that do not communicate with the ePortfolio solutions of the training offices.

The distinctions between acquisition/participation and constructed/authentic made by Zitter and Hoeve (2012) in their discussion of "hybrid learning environment" do not fit very well with the types we generated on the basis of our findings. The documentation of work performance, preparations for half-year reviews, etc. represent combinations of the categories used by Dutch researchers. Instead, we could characterize the Norwegian hybrid learning arenas as promoting restrictive and not expansive learning (Fuller and Unwin 2010). The apprentices were able to develop a more explicit awareness of work tasks, technology, procedures, and so

forth, though we did not find evidence of situations or learning designs that stimulated higher-order skills and collective knowledge creation (Häcker 2005). In this respect, the differences between the trades were quite distinct and supported the idea that a strong differentiation is made between epistemic fields (Bernstein 1996). To what extent does the ePortfolio strengthen such boundaries? Although the different technological platforms were reflecting regional patterns, assessment practices spread within trades across different geographical demarcations.

Compared with international studies of ePortfolios in VET (Attwell and Pumilia 2007), the Norwegian systems seem to be split rather than hybridized – with an emphasis on work operations on the one side and a national trade-specific curriculum on the other. The German debate about work process knowledge as essential for the design of competency-based curricula highlights ePortfolio as supportive of such an achievement. However, the Norwegian versions at present do not provide resources that would facilitate apprentices' understanding of these relationships, and as such, ePortfolios do not support a full integration of learning experiences across sites.

## Conclusion

We introduced this chapter by highlighting the rise of intermediaries between work and school in international VET systems. To a large degree, this trend has escaped the attention of researchers. A few scholars (e.g., Høst and Michelsen 2014; Leemann et al. 2015) have referred to the Norwegian training offices as a model for similar institutions in other countries. Their evolution has been a rather silent and gradual process, which has had a major impact on the national apprenticeship system without ever being proclaimed as a reform in VET. The ePortfolio technology has played a significant role in the growth of these institutions, which means that nearly all apprentices (approximately 40,000) in Norway use these tools in their training. Although the systems represent established variants of Learning Management Systems (LMS), the extensive distribution of ePortfolios makes them an interesting object of study and redesign.

When we conclude that the ePortfolios by and large support learning processes that are restrictive, we indicate that there is a potential for improvement that has not been realized for a number of reasons. An important factor is the tacitly regulated or self-imposed focus on individual training with few provisions for networked learning. Furthermore, there is also a priority of documentation functions in preference to an engagement with innovative assessment. Nonetheless, several of the training offices are now recognizing more apprentices socializing and working online, thereby challenging established boundaries for learning in both time and space (Tapscott 2009; Pedró 2006; Brown 2008). Although we have only scattered observations addressing this theme, there seems to be a pattern of differentiation between trades. Examples of versatile pedagogy with ePortfolios were observed in the trades of health-care workers, florists, and logistics. One could ask whether this variation

is so significant that it is more correct to talk about several VET systems than a single one in our context. These questions need to be more systematically explored.

In this chapter, we have used the concept of “hybrid learning arena” in order to highlight how ePortfolios and mediated assessment practices are dependent on their position in an institutional context with different mixes of dominant actors. Compared with international intermediaries in VET, the training offices in Norway are closely linked to companies and work-based learning through the companies’ ownership of the offices. Consequently, training offices are part of the tripartite system (social partners and government/county educational authorities) that forms VET in Norway. We expected ePortfolios to harmonize the differences in terms of assessment practices between trades, but this process was not very clear-cut. We also expected the actors to focus on the learning potential of ePortfolios, in contrast to the more restrictive use for documentation, quality control, and to some extent standardization across trades. As only then can the potential of ePortfolios as a tool for integration be extended for its pedagogical and learning management contributions. Such tensions need to be studied by drawing on a larger number of trades and international comparisons. In VET, the integration of school and work comes with many faces.

## References

- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169.
- Akkerman, S. F., & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning, 5*(2), 153–173.
- Attwell, G., & Elferink, E. (2008). *Developing tools to support work based competence development: ePortfolios and apprenticeship*. Network of innovative apprenticeship. <http://www.pontydysgu.org/wp-content/uploads/2008/02/toolsforapprenticeship.pdf>
- Attwell, G., & Pumilia, P. (2007). The new pedagogy of open content: Bringing together production, knowledge, development, and learning. *Data Science Journal, 6*(3), S211–S219. <http://dsj.codataweb.org>
- Barrett, H. C. (2007). Researching electronic portfolios and learner engagement: The REFLECT initiative. *Journal of Adolescent & Adult Literacy, 50*(2), 436–450.
- Bernstein, B. (1996). *Pedagogy, symbolic control and identity*. London: Taylor and Francis.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.
- Brown, J. S. (2008). How to connect technology and passion in the service of learning. *The Chronicle of Higher Education, 55*(8), A99.
- Bryant, L. H., & Chittum, J. R. (2013). ePortfolio effectiveness: A(n Ill-Fated) search for empirical support. *International Journal of ePortfolio, 3* (2), 189–198. <http://www.theijep.com>, ISSN 2157-622X.
- Burchert, J., & Schulte, S. (2011). Qualität in der beruflichen Bildung—Ansatz und Ziel der Reflexion von Berichtshefteinträgen. *bwp@ Berufs-und Wirtschaftspädagogik-Online, Ausgabe, 21*.
- Butz, N. T., & Stubinsky, R. H. (2016). A mixed methods study of graduate students’ self-determined motivation in synchronous hybrid learning environments. *The Internet and Higher Education, 28*(1), 85–95.
- Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment*. New York: Wiley.



- Chang, C. C., Liang, C., Shu, K. M., Tseng, K. H., & Lin, C. Y. (2016). Does using e-portfolios for reflective writing enhance high school students' self-regulated learning? *Technology, Pedagogy and Education*, 25(3), 317–336.
- Daunert, A. L., & Price, L. (2014). E-portfolio: A practical tool for self-directed, reflective, and collaborative professional learning. In C. Harteis et al. (Eds.), *Discourses on professional learning* (pp. 231–251). Dordrecht: Springer Netherlands.
- Davey, G., & Fuller, A. (2013). Hybrid qualifications, institutional expectations and youth transitions: A case of swimming with or against the tide. *Sociological Research Online*, 18(1), 1–10.
- Deichman-Sørensen, T. (2007). *Mot en ny infrastruktur for læring og kontroll. Kvalitetsvurdering i fag- og yrkesopplæringen*. Rapport fra evaluering av Nasjonalt kvalitetsvurderingssystem i grunnopplæringen. Oslo: Arbeidsforskningsinstituttet. AFI-rapport 3/2007.
- Deitmer, L., Hauschildt, U., Rauner, F., & Zelloth, H. (Eds.). (2012). *The architecture of innovative apprenticeship* (Vol. 18). Dordrecht: Springer.
- Elsholz, U., & Knutzen, S. (2010). Der Einsatz von E-portfolios in der Berufsausbildung-Konzeption und Potenziale. *MedienPädagogik: Zeitschrift für Theorie und Praxis der Medienbildung*, 18, 1–16.
- Finch, C., Mulder, M., Attwell, G., & Streumer, J. (2007). International comparisons of school to work transitions. *European Education Research Association Journal*, 3(2), 3–15.
- Fuller, A., & Unwin, L. (2010). Can apprenticeship be innovative? Reconceptualising the learning journey in the knowledge economy. In F. Rauner & E. Smith (Eds.), *Rediscovering apprenticeship. Research findings of the international network on innovative apprenticeship (INAP)*. Dordrecht: Springer.
- Gessler, M., & Freund, L. (Eds.). (2015). *Crossing boundaries in vocational education and training: Innovative concepts for the 21st century, Evaluate Europe handbook series volume 6*. Bremen: University of Bremen. ISSN 1861-6828.
- Gikandi, J. W., & Morrow, D. (2011). Online formative assessment in higher education: A review of the literature. *Computers and Education*, 57, 2333–2351. <https://doi.org/10.1016/j.compedu.2011.06.004>.
- Grollmann, P., & Rauner, F. (2007). Exploring innovative apprenticeship: Quality and costs. *Education and Training*, 49(6), 431–446.
- Guile, D., & Griffiths, T. (2001). Learning through work experience. *Journal of Education and Work*, 14(1), 113–131.
- Gutierrez, K., Rymes, B., & Larson, J. (1995). Script, counterscript, and underlife in the classroom: James Brown versus Brown v. Board of education. *Harvard Educational Review*, 65(3), 445–472.
- Häcker, T. (2005). Portfolio als Instrument der Kompetenzdarstellung und reflexiven Lernprozesssteuerung. *Beruf – und Wirtschaftspädagogik – online*. [www.bwpat.de/bwp@Nr.8](http://www.bwpat.de/bwp@Nr.8); ISSN 1618-8543 1.
- Hagen, A., Nadim, M., & Nyen, T. (2010). *Fagopplæring på nye felt. En kartlegging av virksomhetenes holdninger til nyere fag i tjenesteytende virksomhet*. Oslo: Fafo-rapport 2010:12.
- Haigh, N., & Hoffman, A. J. (2012). Hybrid organizations: The next chapter of sustainable business. *Organizational Dynamics*, 41(1), 126–134.
- Havn, V., Kvalsvik Teige, B., Buland, T., Tønseth, C., Finbak, L., Lian, R., & Hybertsen Lysø, I. (2009). *Første delrapport for prosjektet Kunnskapsløftet – et løft også for fag- og yrkesopplæringen*. Trondheim: SINTEF Rapport A8578.
- Helms Jørgensen, C., & Juul, I. (2009). *Bedre samspill mellom skolepraktik og ordinær virksomhetspraktik*. Kbh: Undervisningsministeriets centrale analyse og prognosevirksomhed for erhvervsuddannelserne 2009–10. <http://www.pontydysgu.org/wp-content/uploads/2008/02/toolsforapprenticeship.pdf>
- Høst, H., & Michelsen, S. (2014). Opplæringskontorenes rolle i kvalitetsarbeidet. In H. Høst (Ed.), *Kvalitet i fag- og yrkesopplæringen. Fokus på opplæringen i bedrift*. Rapport 3 Forskning på kvalitet i fag- og yrkesopplæringen. Oslo: NIFU Rapport 12/2014.

- Høst, H., Skålholt, A., Nore, H., & Tønder, A. H. (2012). *Gjennomgående dokumentasjon, eller opplæringsboka i ny form? Evaluering av forsøket med gjennomgående dokumentasjon i fag- og yrkesopplæringen*. Oslo: NIFU. Rapport 16/2012.
- Høst, H., Skålholt, A., Reiling, R. B., & Gjerustad, C. (2014). *Opplæringskontorene i fag- og yrkesopplæringen—avgjørende bindeledd eller institusjon utenfor kontroll?* Oslo: NIFU Rapport 51/2014.
- Leemann, R. J., Da Rin, S., & Imdorf, C. (2015). Training networks in VET as innovative concepts—reasons and boundaries for training companies to participate. In M. Gessler & L. Freund (Eds.), *Crossing boundaries in vocational education and training: Innovative concepts for the 21st century* (Vol 6, pp. 123–127). Conference proceedings. Bremen: Evaluate Europe Handbook Series.
- Leigh Star, S. (2010). This is not a boundary object: Reflections on the origin of a concept. *Science, Technology, & Human Values*, 35(5), 601–617.
- Mason, R., Pegler, C., & Weller, M. (2004). E-portfolios: An assessment tool for online courses. *British Journal of Learning Technology*, 35(6), 717–727.
- Michelsen, S., & Høst, H. (2013). Nasjonalt system og lokalt arbeid: Om kvalitet i fag- og yrkesopplæringen. In H. Høst (Ed.), *Kvalitet i fag- og yrkesopplæringen. Fokus på skoleopplæringen. Rapport 2 Forskning på kvalitet i fag- og yrkesopplæringen*. Oslo: NIFU rapport 21/2013.
- Nore, H. (2015). Re-contextualizing vocational didactics in Norwegian vocational education and training. *International Journal for Research in Vocational Education and Training (IJRVET)*, 2(3, Special Issue), 182–194. <https://doi.org/10.13152/IJRVET.2.3.4>.
- Nore, H., & Lahn, L. C. (2014). Bridging the gap between work and education in vocational education and training. A study of Norwegian apprenticeship training offices and E-portfolio systems. *International Journal for Research in Vocational Education and Training*, 1(1), 21–34. <https://doi.org/10.13152/IJRVET.1.1.2>.
- Onstenk, J. (2010). Coaching and collaborative work-based learning in Dutch VET: The “TEAMstages’ project”. In F. Rauner & E. Smith (Eds.), *Rediscovering apprenticeship. Research findings of the International Network on Innovative Apprenticeship (INAP)* (pp. 161–170). Dordrecht: Springer.
- Pedró, F. (2006). *The new millennium learners: Challenging our view on ICT and learning*. Paris: OECD-CERI.
- Raisch, S., & Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management*, 34, 375–410. <https://doi.org/10.1177/0149206308316058>.
- Rauner, F., & Maclean, R. (Eds.). (2008). *Handbook of technical and vocational education and training research* (Vol. 49). Dordrecht: Springer.
- Rauner, F., & Smith, E. (Eds.). (2010). *Rediscovering apprenticeship, technical and vocational education and training: Issues, concerns and prospects* (Vol. 11). Dordrecht: Springer. [https://doi.org/10.1007/978-90-481-3116-7\\_10](https://doi.org/10.1007/978-90-481-3116-7_10).
- Rauner, F., Wittig, W., & Deitmer, L. (2010). Plural administration in dual systems in selected European countries. In F. Rauner & E. Smith (Eds.), *Rediscovering apprenticeship* (pp. 31–43). Dordrecht: Springer.
- Schatzki, T. (2005). Introduction: Practice theory. In K. K. Cetina, T. R. Schatzki, & E. von Savigny (Eds.), *The practice turn in contemporary theory* (pp. 10–23). London: Routledge.
- Schwendimann, B. A., Cattaneo, A. A., Dehler Zufferey, J., Gurtner, J. L., Bétrancourt, M., & Dillenbourg, P. (2015). The ‘Erfahrraum’: A pedagogical model for designing educational technologies in dual vocational systems. *Journal of Vocational Education & Training*, 67(3), 367–396. <https://doi.org/10.1080/13636820.2015.1061041>.
- Smith, E. (2010). We’re here to help: Agencies dealing with apprenticeships in Australia. In F. Rauner & E. Smith (Eds.), *Rediscovering apprenticeship. Research findings of the International Network on Innovative Apprenticeship (INAP)*. Dordrecht: Springer.
- Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world*. New York: McGraw-Hill.

- Tuomi-Gröhn, T., Engeström, Y., & Young, M. (2003). From transfer to boundary-crossing between school and work as a tool for developing vocational education: An introduction. In T. Tuomi-Gröhn et al. (Eds.), *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 1–15). Oxford: Elsevier Science Ltd.
- Zitter, I. & Hoeve, A. (2012). *Hybrid learning environments: Merging learning and work processes to facilitate knowledge integration and transitions* (Education working papers, Vol. 81). Paris: OECD Publishing <https://doi.org/10.1787/5k97785xwdfv-en>.
- Zitter, I., Hoeve, A., & de Bruijn, E. (2016). A design perspective on the school-work boundary: A hybrid curriculum model. *Vocations and Learning*, 9(1), 111–131. <https://doi.org/10.1007/s12186-016-9150-y>.

# Chapter 12

## Development of Vocational Skills Through Integration of Practical Training Periods in School Based Vocational Education in Norway



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**Abstract** In this chapter, we discuss how vocational learning is influenced by different ways of integrating practical training periods in vocational education and training (VET). Our theoretical perspective – learning as participation and gradual integration in a community of practice – is inspired by situated learning theory (Lave J, and Wenger E. *Situated learning: legitimate peripheral participation*. Cambridge University Press, Cambridge, 1991). Taking part in daily work in a workplace is central to the development of vocational skills and a vocational identity. However, a high degree of exposure to occupational challenges and real-life demands does not necessarily stimulate the development of vocational skills and a vocational identity in all situations. We identify four different models of practical training, differentiated on the basis of two main dimensions. The first dimension is related to the degree of shielding from demands and expectations from real customers and users, and the second relates to the experienced relevance of practical training to the particular vocation the student is pursuing. The empirical context of our discussion is initial VET at the upper-secondary level in Norway. Within the so-called ‘2 + 2’ model, 2 years of school-based education is followed by 2 years of apprenticeship training. The focus of the chapter is on the organisation of practical training during the first and second school-based years in VET (which are known by the acronyms Vg1 and Vg2). Structural changes in upper-secondary VET in Norway, following the introduction of the Knowledge Promotion Reform in 2006, have led to fewer and broader VET programmes and increased the distance between the vocational courses offered in schools and the occupations that students will later practise in the workplace (Nyen T, and Tønder AH, *Fleksibilitet eller faglighet? En studie av innføringen av faget prosjekt til fordypning i Kunnskapsløftet*. Fafo-

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rapport 2012:47, Fafo, Oslo, 2012). A new school subject introduced with the reform, the ‘in-depth study project’ (renamed since 2016 – and referred to in this chapter – as ‘vocational specialisation’) was intended to provide opportunities for vocational specialisation within the broad courses offered in schools. Our chapter is based on a longitudinal qualitative study of the development of vocational skills, identity and motivation and how these factors are influenced by experiences from practical training received through the subject ‘vocational specialisation’. The longitudinal study is supplemented by survey data about training practices within school-based VET.

**Keywords** VET · Workplace learning · Vocational specialisation · Dual system · Vocational skills

## Introduction

Vocational skills can be developed in different learning settings, in school and in the workplace. Workplace training positions learners in social and institutional contexts that are different from those accessed through school-based education, with possible effects on the learner that cannot be isolated to particular learning activities. Learning can be conceived of as the acquisition of abstract knowledge or as participation in social practices (Sfard 1998). Participation in communities of practice can be conducive to the development of skills, identity and motivation, even without intentional training activities (Lave and Wenger 1991). However, learning in the workplace is not an automatic process. How practical training affects the development of vocational skills, identity and motivation for learning depends on a number of social, institutional and individual factors. Here we will focus on one particular factor – the *organisation of practical training*. The main research question to be addressed is: how does the integration of practical training in VET programmes affect the development of vocational skills, identity and motivation for learning?

## Theories on the Development of Vocational Skills Through Practice

In principle, vocational skills can be developed either in schools or in the workplace. In practice, most VET systems are based on a combination of the two. Schools and workplaces each have their strengths and limitations. Schools may provide the best context for the development of abstract or theoretical knowledge. Training and experience at the workplace, on the other hand, may be more important for the development of vocational identities and practical skills through participation in communities of practice (Lave and Wenger 1991). Put simply, the challenge is to

find a good balance or blend – to integrate theory and practice, technical knowledge and practical skills, and learning in schools and in the workplace (Ryan 2012).

When Lave and Wenger published their book on situated learning in 1991, their aim was to shift the analytic focus from the concept of cognitive processes to a view of learning as social practice (Lave and Wenger 1991: 43). The issue of school-based learning was, according to the authors, consciously left out of the discussion. An important point made in the book is that ‘learning through legitimate peripheral participation takes place no matter which educational form provides a context for learning, or whether there is any intentional educational form at all’ (Lave and Wenger 1991: 40). Lave and Wenger initially developed their conceptual framework based on observation of craft apprenticeships in traditional societies. According to their theory, a motivation to learn is stimulated when students or apprentices experience the gap between themselves and their expert colleagues in the workplace. Other researchers have criticised the authors’ generalised approach and called attention to large variation in learning processes due to differences in individual dispositions, as well as in social, economic and structural factors. The concepts of legitimate peripheral participation and communities of practice are useful in guiding our understanding of how students or apprentices learn and of workplace learning more generally. However, closer studies of learning processes in different contexts are needed in order to develop our understanding of issues concerning vocational learning and learning in general (Fuller et al. 2005).

Based on empirical evidence from the English steel industry, Fuller and Unwin (2003) offer a critique of Lave and Wenger’s (1991) conceptualisation of the apprenticeship journey from novice to expert when applied in contemporary industrialised settings. They find that the notion of expert varies according to the context. For instance, some novices may become experts very quickly, but may then become trapped in a position of narrow expertise, without the opportunity to develop broader and deeper vocational skills. They also find that the apprentices themselves may actively help their colleagues to learn, indicating that the relationship between novices and experts is more complex than conceived by Lave and Wenger. Building on the work of Yrjö Engeström, Fuller and Unwin (2003) introduce a conceptual framework for analysing different organisational learning cultures, ranging from restrictive to expansive. The expansive or restrictive nature of apprenticeship training is related to the form of participation in communities of practice, how personal development is facilitated and what institutional arrangements exist. An expansive approach is most likely to provide conditions that are more conducive to learning. Some of the characteristics of the expansive approach are participation in multiple communities of practice inside and outside the workplace; access to learning fostered by cross-company experiences; explicit institutional recognition of, and support for, apprentices’ statuses as learners; and opportunities for apprentices to broaden their vocational identity through ‘boundary crossing’ (Fuller and Unwin 2003: 411).

Situated learning theory and the framework of expansive and restrictive learning cultures are theoretical contributions that provide a conceptual framework for our analysis of the organisation of practical training and the development of vocational

skills. Here, we will focus on the relevance as well as the limitations of this conceptual framework when applied to the Norwegian context. One basic feature of the Norwegian VET model is that the training combines school-based education with apprenticeship training in workplaces. A major challenge within this kind of model is to connect and integrate learning across different learning sites. Situated learning theory and the framework of expansive and restrictive learning cultures focus mainly on apprenticeship training in the workplace. Our aim in this chapter is to analyse the potential for learning through a closer integration of school-based learning and company-based training.

## The Norwegian VET Model as a Hybrid Model

The role and effects of practical training need to be related to the context of the national education system. The literature on comparative skill-formation systems offers different typologies of national VET systems (Busemeyer and Trampusch 2012; Greinert 2004; Jørgensen 2009). Using Greinert's (2004) distinction between three VET models, it is possible to distinguish between a *liberal market model*, a *state-controlled model*, and a *dual-corporatist model*. The central features distinguishing the different models are who the main actors governing the VET systems are and what types of skills/competences that are developed. In a *liberal market model*, vocational skills are developed primarily in the workplace according to local skills needs, with little or no standardisation of training across companies, while the school system provides general education (generic skills) or narrower, vocational tracks. In the *state-controlled model*, government and education authorities govern vocational education. Vocational education is mainly school-based with shorter practical training periods in companies. It focuses on general and academic knowledge, with less emphasis on the matching of education to skills needs in particular occupations. In the *dual-corporatist model*, trades and occupations are central categories, and workplace training is based on apprenticeships. Training takes place in schools as well as in companies and follows standardised skill profiles and training regulations decided on jointly by a corporate structure of employers, trade unions and government bodies. Skills are formally certified with a trade certificate.

The current Norwegian VET model can be characterised as a hybrid model, with elements from different vocational skill-formation systems. It has been described as a combination of a state-controlled school model and a dual-corporatist model, with an apprenticeship system as an integrated part of the formal education system (Nyen and Tønder 2014, 2015; Olsen et al. 2008). On the one hand, vocational education and training are regulated by national curricula covering both school-based and workplace training. Within VET programmes, there are a substantial number of general subjects like mathematics, English and natural sciences. The vocational programmes are broad, and there is only a gradual specialisation towards a particular trade. There are tripartite corporate structures at the national and regional levels, but since 2004 these only have an advisory function. On the other hand,

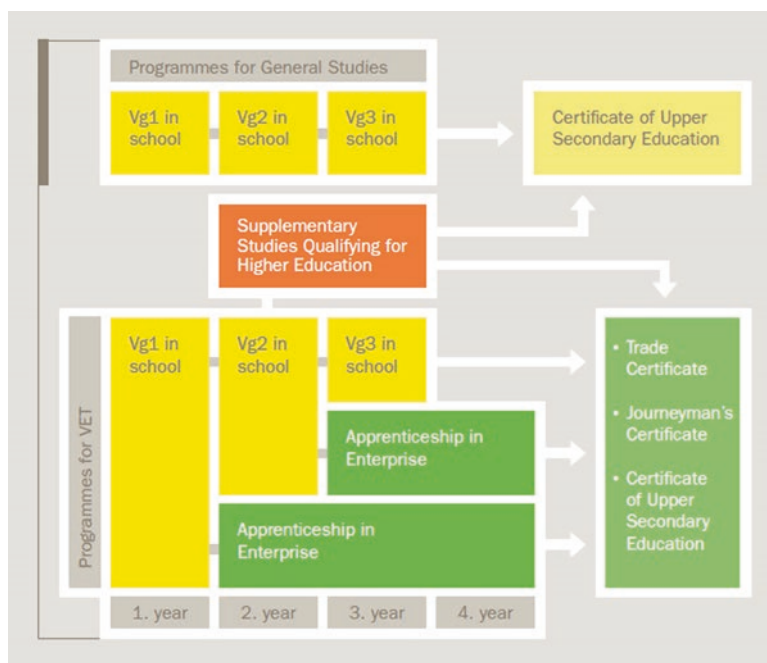


Fig. 12.1 Structure of upper-secondary education in Norway

apprenticeships are at the core of almost all VET programmes in Norway, and the goal is to provide students/apprentices with a trade certificate that corresponds to an occupation in the labour market. One of the fundamental challenges of the hybrid model is to balance the need for broad and general skills against the need for vocational specialisation. Another challenge is to integrate learning across the two learning sites – the school and the workplace.

The legal framework entitles all students who have completed primary and lower-secondary education in Norway to 3 years of upper-secondary education. Nearly all students (98%) enter upper-secondary education directly from compulsory education, following either a vocational programme or a general academic programme. From the year 2016/2017, eight vocational programmes have been offered. Almost half the students enter a vocational programme, while the other half enter a general academic programme. Figure 12.1 shows the structure of upper-secondary education in Norway.

The 2 + 2 model is the main training model in all vocational programmes. Apprenticeship training in the third and fourth year takes place in a company and follows a national curriculum. However, apprentices are employed by the company during the apprenticeship period, with wages for apprentices negotiated in collective agreements (Kuczera et al. 2008; Skule et al. 2002). The school is thus responsible for the first part of the training programme (years 1 and 2), while the second



part is the responsibility of the companies (years 3 and 4). In the training model, there is a need to balance general skills and broad vocational skills with vocational specialisation and to integrate school-based and workplace learning. This does not only apply to the integration of apprenticeships and school-based education and training but also to the integration of practical training periods within the school-based part of the VET programme. The focus of this chapter is on the role of practical training periods during the first two, school-based years.

## Vocational Specialisation Within the Norwegian VET Model

As mentioned above, the reform of Norwegian upper-secondary education in 2006 led to broader VET programmes. A new element first called the ‘in-depth study project’ and later renamed ‘vocational specialisation’ was introduced that specifically addresses the need for vocational specialisation within broader VET programmes. In the government white paper ‘Culture for learning’ (St.meld.nr. 30 [2003–2004]), it was argued that students who are interested in particular occupations should be offered an opportunity to start their vocational specialisation at an early stage in their training. A central assumption in the white paper is that the opportunity to be introduced to specific occupations at an early stage will increase student motivation and learning. The white paper also argues that the combination of broader programmes and opportunities for vocational specialisation is necessary in order to respond to skills needs in the workplace.

There are eight first-year vocational courses, corresponding to the eight vocational programmes in upper-secondary education. The first-year (Vg1) courses provide broad vocational competences. These courses branch out to more than 50 second-year (Vg2) courses, with increasing vocational specialisation. However, with a few exceptions, most second-year courses encompass several (or many) different trades. In most cases, vocational students do not choose a particular occupation before signing an apprenticeship contract at the end of the second year.

In the first and second years at school, the curricula for all programmes consist of three main elements: ‘common core subjects’, ‘common programme subjects’ and ‘vocational specialisation’. The common core subjects are the same for all VET programmes and include mathematics, Norwegian, English, natural science, social science and physical education. The common programme subjects are specific to each vocational programme. The purpose of the ‘vocational specialisation’ is to give students an opportunity for specialisation in or more in-depth knowledge about a particular trade. In the first year, the distribution of instruction hours is 34% in common core subjects, 49% in common programme subjects and 17% in ‘vocational specialisation’. In the second year, the distribution is 26% in common core subjects, 49% in common programme subjects and 26% in ‘vocational specialisation’. It should be noted that the common programme subjects also allow for some vocational specialisation. The fact that most first- and second-year courses encompass several trades means that individual schools and vocational teachers need to

find a balance between broad and trade-specific vocational skills and also to decide which trades to focus on in their own teaching. There are local variations in the content of a particular course, depending, among other things, on the competence of teachers and the skills needs in local labour markets (Høst 2015).

According to the national curriculum for the 2016–2017 academic year, in the first and second year, ‘vocational specialisation’ is to be used for training directed towards competence targets (specific to trades within the programme) from the curricula for the third and fourth year (i.e. targets from the apprenticeship part of the programme). The general-purpose formulation in the curriculum states that the subject shall provide students an opportunity to vary their learning sites and to experience realistic work situations and an introduction to the world of work. Furthermore, it offers students a basis for choosing a trade and the opportunity to establish contacts with potential apprenticeship companies. Students are to gain experience with the content, tasks and work methods of one or several trades in their programme and be able to direct their learning activities towards competence targets for the third and fourth year.

The general-purpose curriculum formulation mentioned above, and also in previous research, indicates that ‘vocational specialisation’ serves at least three different functions (Nyen and Tønder 2012). First, as the name implies, it may allow for vocational specialisation in a particular trade, through opportunities to work more intensively on tasks within that trade. Such opportunities are often provided through practical training within a ‘real’ work environment, and ideally, supervised by other skilled workers in the trade. Second, it may facilitate career orientation by introducing students to trades within the vocational programme, thus aiding the student in making a choice of apprenticeship trade. Third, it provides the student opportunities to establish contacts with companies that might offer an apprenticeship contract after the second year (Vg2). Both present and previous general-purpose formulations in the curricula clearly convey an expectation that the subject, to a large extent, should be used for practical training in companies. However, we find that practical training often takes place in school workshops or projects organised by the schools, especially in the first year (Vg1). This is partly due to a lack of available workplace training opportunities and partly because the students are not yet ready for a real work setting, according to the teachers.

## **The Potential for Integration of Learning in the Norwegian VET System**

The particular features of the Norwegian VET system, described above, condition the role of practical training and the possibilities for integration of learning across different learning sites. The VET system presents vocational students entering a workplace-based practical training period with different potential destinations. Some have already made a choice of a trade to specialise in; others use training periods to learn about different trades in order to make a more informed choice.

Although most workplace training periods are within major trades, there is no guarantee that students have had opportunities to be trained in a particular trade at school before beginning their practical training period in that trade in a workplace. In some cases, integration between school-based learning and practical training in a workplace may be difficult, or preparation for periods of practical training will tend to focus more on general 'skills', such as adherence to basic workplace norms, hygiene or health, safety and environment (HSE). The potential for integration will be different in a classic dual VET system, where students sign an apprenticeship contract within a particular trade at the start of (or early in) the programme and then move between the learning sites. In the Norwegian system, there is greater heterogeneity within student groups in a vocational programme. In this context, it is more challenging to systematically plan the integration of company-based training and school-based education and training. To some extent, integration may have to be planned for each individual student.

## Data

The empirical basis for our analysis is primarily a longitudinal qualitative study, where a number of Norwegian vocational students were interviewed several times during and after their vocational education and training. Surveys among apprentices, students and workplace trainers provide supplementary empirical data (Dæhlen and Hagen 2010; Dæhlen et al. 2008; Nyen and Tønder 2012).

The longitudinal study was conducted with vocational students who commenced upper-secondary vocational education in the autumn of 2006 and followed the main 2 + 2 model. The students entered their apprenticeships in the autumn of 2008 and acquired the trade certificate in 2010. The students interviewed were aiming for a trade certificate in one of four different trades: carpentry, health work, cookery or car mechanics. In each of the four trades/programmes, we chose respondents from five different counties in different parts of Norway, making a set of 20 'cases'. We interviewed students/apprentices three times, as students in 2007–2008, as apprentices in the winter of 2010 and a while after having passed the trade certificate test in 2011–2012. In the first round, we interviewed 20 groups of students, with an average of three students in each group. In the second round, we were able to interview 13 of these students for a second time (forming 13 cases). Then, in the third round, 12 of these students were interviewed for a third time. In addition to the students/apprentices in each case, we interviewed 20 vocational teachers, 13 headmasters, 5 school owners and 23 workplace trainers involved in the education and training of the students/apprentices.

The survey data used in this chapter are from general surveys conducted for several evaluation projects for the research-based evaluation of the Knowledge Promotion Reform. We use data from a survey of 400 apprentices, 5268 students and 200 workplace trainers, conducted in 2010–2011. All surveys were considered representative at an acceptable level (for further information – in Norwegian – see Nyen and Tønder 2012; Vibe 2011).

## **Different Models of Organising Practical Training During the First 2 Years**

Schools are given considerable local autonomy in shaping the content and organisation of the subject ‘vocational specialisation’. The national curriculum formulates multiple and partly inconsistent aims. One aim is to give students an opportunity to gain experience in the work practices and tasks that characterise different occupations within the relevant vocational programme. Students could acquire an early vocational specialisation, making them better prepared for the apprenticeship period. However, it is also possible for students to specialise in common core subjects, like English or mathematics, through ‘vocational specialisation’. Through this option, students could aim for an academic track instead of preparing for an apprenticeship. In other words, the aims and objectives are open and ambiguous. The interesting question is how the different actors at the local level interpret these objectives and how different interpretations are reflected in the organisation of the subject ‘vocational specialisation’.

The ambiguity in the curriculum is reflected in large variations in the implementation of the subject at the local level (Dæhlen and Hagen 2010; Dæhlen et al. 2008; Nyen and Tønder 2012). There is variation between education programmes and between the first and second school year in terms of how the subject ‘vocational specialisation’ is organised, and there are also differences between schools. The individual school, and, in practice, often the individual department or teacher, is responsible for the organisation of the subject. Some schools emphasise showing their students the breadth of different trades within the education programme; others choose to go into more depth on a few selected trades. The content of ‘vocational specialisation’ – and the common programme subjects – is to a large degree dependent on the professional background and competences of the teachers at each school. In some instances, ‘vocational specialisation’ takes place largely at school, while in other cases much of the training takes place in companies, even in the first year (Vg1). In some schools, practical training periods are organised as one day each week, in other schools as longer continuous periods.

While there is much variation, certain general patterns can also be identified. In Vg1, the emphasis is mostly on giving the students the opportunity to test and gain experience within several trades. The schools try to organise ‘vocational specialisation’ so that the students can learn about relevant trades and vocations within the broad education programme and gain experience with the content, tasks and work methods of these trades. This may give the students a better basis for choosing a vocational course in the second year and eventually a trade and occupation for their apprenticeship training. In the second year, ‘vocational specialisation’ is usually organised with a stronger emphasis on specialisation towards a particular trade, so that the subject prepares the student for an apprenticeship within this trade. In other words, there is a shift in emphasis from vocational orientation or guidance in the first year to a stronger vocational specialisation in the second year. A stronger emphasis on vocational specialisation goes along with increased use of practical training periods in companies in the second year. Many schools have chosen to

organise ‘vocational specialisation’ at school in the first year, whereas longer periods of practical training in companies are more common in the second year. In our nationwide survey, half of the students in vocational programmes reported that ‘vocational specialisation’ took place mostly at school in the first year. In the second year, at Vg2, two out of three students reported that ‘vocational specialisation’ took place mostly in the workplace or that the time was equally divided between school and companies. It should be added that these numbers reflect the situation in the first years following the implementation of the reform of 2006. It is likely that more students now have workplace training as part of ‘vocational specialisation’, particularly during the second year. This assumption is based on the fact that the curriculum now emphasises the importance of workplace training, partly in response to the initial evaluation report (Dæhlen et al. 2008).

An important argument for organising ‘vocational specialisation’ mainly at school in the first year is that many students are not sure about their choice of occupation when they enter upper-secondary school. According to school leaders and teachers, the majority of students in Vg1 need to be introduced to a broad range of trades before they are ready to specialise in a particular trade. However, postponing workplace training to the second year is also justified on the grounds of vocational learning. If students lack elementary trade competence and skills when entering the workplace, there is a danger that they will only be passive bystanders observing tasks being performed by experienced colleagues. Alternatively, they could be given routine tasks which do little to develop their vocational skills. Besides, many school leaders and teachers emphasise that practical training opportunities in companies are scarce and that they have chosen to give priority to second-year (Vg2) students.

Practical training in the workplace through ‘vocational specialisation’ does not necessarily contribute to stronger vocational skills or a stronger vocational identity. We have developed a typology of four main models of ‘vocational specialisation’. The four models are distinguished on the basis of two dimensions: the degree of *shielding* from external demands and expectations and the degree of *relevance* for the development of trade competence. A high degree of *shielding* means that the students are not exposed to demands and expectations from real customers and users. Errors and inadequate performance do not, in this case, have large consequences. The school kitchen and the school workshop are examples of learning sites where a high degree of *shielding* can be achieved. A high degree of *relevance* means that the students get to know and experience a trade, not only a narrow part of it. A vocational student who changes car tyres at a garage for 2 consecutive weeks is not shielded from real-life demands but is likely to experience a lack of progress in the development of vocational skills. He or she experiences only a minor, narrow part of the car mechanics trade. The same applies to a student in a practical training period in a restaurant kitchen who is assigned to cutting cabbage throughout this training. The student gains real work experience, but vocational learning is limited. Performing real tasks does, nonetheless, still expose the student to aspects of the trade that are not easily recreated in the classroom, school garage or school kitchen.

*Shielding* is more easily achieved at school than in a company/workplace, but at school the degree of trade *relevance* can vary. In some instances, ‘vocational

**Table 12.1** Four models of organising ‘vocational specialisation’ (previously called ‘in-depth study project’)

	Low <i>relevance</i>	High <i>relevance</i>
<i>Shielded</i>	(a) Classroom project	(b) Student enterprise/school workshop
Not <i>shielded</i>	(c) Work experience	(d) Vocational learning at work

specialisation’ has been organised in an ordinary classroom setting. Some vocational students report that vocational specialisation in the first year mainly consisted of written assignments and project work in class, which is quite detached from the work processes in the trades. In other cases, more relevant work situations were established at school. These work situations could be organised in the school workshop; they could be practical construction projects organised by the school or in the form of a ‘student enterprise’. In all these cases, students can gain realistic experience with work processes within the trade but still with a degree of *shielding*. The four models of organising the ‘vocational specialisation’ are summarised in Table 12.1.

Students who have had positive experiences through ‘vocational specialisation’ often describe in the interviews a learning process where they have had possibilities for trying tasks with high vocational *relevance*. At the same time, many students have preferred a degree of *shielding* from external demands and pressures, at least in the first part of their training. As the student establishes a certain degree of competence and confidence in his/her own skills, they are also more prepared to be exposed to the demands and expectations of customers or colleagues in the workplace. The shift in the organisation of ‘vocational specialisation’ from the first to the second year, where the emphasis changes from learning at school to learning in the workplace, may therefore also be seen as a natural progression that is desirable on the grounds of learning.

According to survey data, most students and teachers, and most workplace trainers, feel it is important that ‘vocational specialisation’ provides students with a more specialised and trade-specific competence. However, even those students who have made their choice of occupation before they enter upper-secondary education find it valuable to learn about other trades during the first year. Some students who had initially decided upon a trade reconsidered their choice when they were introduced to other trades. Other students find it useful to learn about ‘adjacent’ trades, for instance, other trades within construction. In the second year (at Vg2), however, there is a clear expectation among students that they can specialise in the trade within which they will eventually apply for an apprenticeship.

## Cooperation Between Schools and Workplaces

Through the subject ‘vocational specialisation’, most vocational students have longer or more frequent periods of practical training in the first 2 years than they would have had before the introduction of the Knowledge Promotion Reform in 2006.

Although periods of practical training were common in some vocational education programmes before the reform, the introduction of the new subject now makes such practice the norm for all education programmes. At the same time, the average number of days in practical training has increased. The effect is that the student now moves more frequently between school-based and workplace-based training in VET programmes. The increased use of workplaces as learning sites increases the need for cooperation between schools and companies in order to handle the practical aspects of these practical training periods. It may also make possible a closer cooperation on the content of training at the two learning sites. Our study shows that a majority of teachers feel that ‘vocational specialisation’ in the first and second year in upper-secondary education has led to increased cooperation between schools and workplaces (Nyen and Tønder 2012). A majority of workplace trainers in the companies also feel that they cooperate well with one or several local upper-secondary schools.

However, the picture that emerges through qualitative interviews with vocational school teachers and workplace trainers is that the cooperation primarily involves the practical dimensions of organising the training periods. Some teachers of students in the second year (Vg2) report that they had made local and individual plans for ‘vocational specialisation’ but that these had to be remade (or scrapped) when the students entered the company. The activities that take place in the companies during the practical training period create the basis for what the student will do and learn. One teacher puts it this way:

‘There are many grandiose words and theoretical approaches about curricula. We make it simple. We go to the companies and ask what they are working on’.

The main picture that emerges from our study is that there is little cooperation between schools and companies on the training content and the relationship between the school-based and workplace-based education and training. This weakens the possibility of establishing a strong connection between the learning that takes place in the two learning sites. Through ‘vocational specialisation’, new possibilities arise for better connecting the two learning sites. Our study suggests that these possibilities have been utilised to a low degree and that there is clear potential for further development in this respect.

## **Students’ and Apprentices’ Views on ‘Vocational Specialisation’**

For the students, ‘vocational specialisation’ is an important element of their vocational education. It is mainly through experiences in this new subject that the students learn to know the trades and vocations as they are practised in real life, before they enter apprenticeship training. Students are introduced to the trade, both physically and mentally. Through ‘vocational specialisation’, students have the chance to gradually develop a vocational identity. Our study shows that these experiences play a significant role in the students’ motivation and in their understanding of the

relationship between theory and practice. This understanding may contribute to increased motivation, also for school-based subjects.

A large majority (83%) of apprentices report that ‘vocational specialisation’ made them more motivated for completing upper-secondary education. This positive result is found in all education programmes. An equally high proportion of students also report that ‘vocational specialisation’ made it easier to understand the relationship between theory and practice. Students who have some practical training in a workplace as part of the subject ‘vocational specialisation’ are more motivated to complete upper-secondary education than those who only experience practical training organised at school. Even in the latter group, a clear majority of students report that practical training increased their motivation. Moreover, when it comes to understanding the relationship between theory and practice, we find it advantageous for the students to receive some company-based training in ‘vocational specialisation’.

Nine out of ten apprentices either fully or partially agree to a statement that ‘vocational specialisation’ in the first and second years provided them with a better basis for the choice of trade and vocation. Those who have had some company-based practical training report that they now have a better foundation for choosing a trade and vocation, compared to those who have had practical training only at school. A clear majority (78%) also feel that ‘vocational specialisation’ allowed a smoother transition to apprenticeship. Apprentices who have completed ‘vocational specialisation’ mostly at company workplaces have a very positive view on the effect of ‘vocational specialisation’ on the transition, while those who have been mostly at school are least positive.

## Concluding Analysis

The question guiding our analysis was: how does the integration of practical training in VET programmes affect the development of vocational skills, identity and motivation for learning? Our analysis has been inspired by theories of situated learning and the framework of expansive and restrictive learning cultures. These theoretical contributions have been useful in guiding our understanding of workplace learning. However, the theories have limitations when the aim is to understand the conditions needed for the integration of workplace learning and school-based education. In this chapter, we have explored the conditions for integrating workplace-based training periods in school-based vocational education. We developed a typology based on two main dimensions: the degree of *shielding* from demands and expectations in the world of work and the degree of *relevance* for the development of occupational skills.

The empirical context for our study was the introduction of a new subject in the first 2 years of initial VET in Norway. The ‘in-depth study project’, later renamed ‘vocational specialisation’, was introduced as part of the implementation of the Knowledge Promotion Reform of 2006. Ten years later, the initiative was renamed and is now referred to as ‘vocational specialisation’. At the system level, the new



initiative represents an institutional innovation in the hybrid model of Norwegian VET. Apprenticeship training constitutes an important part of initial VET in Norway. However, unlike the traditional dual system where students alternate between school-based education and apprenticeship training throughout their programme, the Norwegian model is characterised by a sharper institutional division between school-based education in the first part of the programme and apprenticeship training in the second part. The new subject introduces opportunities for more frequent switching between school and the workplace learning sites during the first 2 years, with practical training periods alternated with school-based education. At the system level then, it can be argued that the introduction of a new subject with more frequent switches between school-based and work-based learning and closer cooperation between schools and companies has the potential to strengthen the character of a dual system within the hybrid model in Norwegian VET.

At the individual level, our study shows that in the context of Norwegian VET, with broad vocational programmes and an emphasis on school-based education in the initial phase of the education, practical training periods can play an important role. 'Vocational specialisation' provides an opportunity for learning through participation in real work situations together with skilled workers. However, we also find that practical work experience is not always conducive to student learning and motivation. In the first year, many students are still uncertain about their choice of occupation. They need to be introduced to a number of trades in order to make a more informed choice. In this respect, practical training in school may be more suitable than training periods in companies that are primarily interested in recruiting new apprentices. Under these conditions, students may need to be shielded from real work situations in the first part of their education. Shielding may also be needed in order to develop basic vocational skills that can later be applied in the workplace. Students lacking basic skills can experience practical training in workplaces as restrictive in the sense that they are only allowed to perform simple, repetitive tasks or work activities that seem irrelevant to the trade that they are aiming at. Under these conditions, practical training in a workplace may provide work experience without necessarily fostering vocational learning.

In their second year, the majority of VET students are ready to choose a vocational specialisation and eventually to narrow down to a particular trade. In addition they have developed basic vocational skills. Most students now have more experience in using trade-specific tools; they know more about basic norms and rules in the world of work and are familiar with HSE issues. Under these conditions, we find that practical training in the workplace can have a positive impact on vocational learning in several ways. Learning in the workplace contributes to increased motivation among VET students, not only for practical work and apprenticeship training but also for school-based subjects. Furthermore, students report that practical training in a workplace makes it easier to connect theory and practice. In addition to the positive impacts on learning, practical training periods in companies are also an important way to connect students with companies providing apprenticeship training. Importantly, practical training in companies during the school-based part of their education facilitates the transition from school to apprenticeship training.

## References

- Busemeyer, M. R., & Trampusch, C. (2012). The comparative political economy of collective skill formation. In I. M. R. Busemeyer & C. Trampusch (Red.), *The political economy of collective skill formation* (s. 3–s. 38). Oxford: Oxford University Press.
- Dæhlen, M., & Hagen, A. (2010). *Prosjekt til fordypning – mellom skole og arbeidsliv. Delrapport 2. Fafo-notat 2010:23*. Oslo: Fafo.
- Dæhlen, M., Hagen, A., & Hertzberg, D. (2008). *Prosjekt til fordypning – mellom skole og arbeidsliv. Delrapport 1 Evalueringen av Kunnskapsløftet. Fafo-notat 2008:27*. Oslo: Fafo.
- Fuller, A., & Unwin, L. (2003). Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work*, 16(4), 407–426. <https://doi.org/10.1080/1363908032000093012>.
- Fuller, A., Hodkinson, H., Hodkinson, P., & Unwin, L. (2005). Learning as peripheral participation in communities of practice: A reassessment of key concepts in workplace learning. *British Educational Research Journal*, 31(1), 49–68. <https://doi.org/10.1080/0141192052000310029>.
- Greinert, W.-D. (2004). European vocational training “systems” – Some thoughts on the theoretical context of their historical development. *European Journal of Vocational Training*, 32, 18–25.
- Høst, H. (Red.). (2015). *Kvalitet i fag- og yrkesopplæringen. Sluttrapport. NIFU Rapport 14/2015*. Oslo: NIFU.
- Jørgensen, C. H. (2009). Fag mellom arbeide, organisation og uddannelse. Har fagene fremtiden bag sig? *Tidsskrift for Arbejdsliv*, 11(3), 13–31.
- Kuczera, M., Brunello, G., Field, S., & Hoffman, N. (2008). *Learning for jobs. OECD reviews of vocational education and training. Norway*. OECD.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Nyen, T., & Tønder, A. H. (2012). *Fleksibilitet eller faglighet? En studie av innføringen av faget prosjekt til fordypning i Kunnskapsløftet. Fafo-rapport 2012:47*. Oslo: Fafo.
- Nyen, T., & Tønder, A. H. (2014). *Yrkesfagene under press*. Oslo: Universitetsforlaget.
- Nyen, T., & Tønder, A. H. (2015). Cooperation and reform in vocational education and training. In I. F. Engelstad & A. Hagelund (Red.), *Cooperation and conflict the Nordic Way. work, welfare and institutional change in Scandinavia* (bind s. 201–s. 218). Berlin: De Gruyter Open.
- Olsen, O. J., Høst, H., & Michelsen, S. (2008). Veier fra yrkesopplæring til arbeidsliv. En studie av det norske overgangssystemets effektivitet. In I. J. Olofsson & A. Panican (Red.), *Ungdomars väg från skola till arbetsliv. Nordiska erfarenheter* (bind. TemaNord 2008: 584, s. 249–s. 332). København: Nordisk ministerråd.
- Ryan, P. (2012). Apprenticeship: Between theory and practice, school and workplace. In I. M. Pilz (Red.), *The future of vocational education and training in a changing world* (s. 403–s. 432): Wiesbaden: Springer.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4–13.
- Skule, S., Stuart, M., & Nyen, T. (2002). International briefing 12: Training and development in Norway. *International Journal of Training and Development*, 6(4), 263–276. <https://doi.org/10.1111/1468-2419.00164>.
- Vibe, N. (2011). *Fellesurvey II. Kunnskapsløftet. Dokumentasjonsrapport. NIFU Arbeidsnotat 8/2011*. Oslo: NIFU.

# Chapter 13

## Spaces and Spaces ‘In Between’ – Relations Through Pedagogical Tools and Learning



Helen Bound, Arthur Chia, and Lee Wee Chee

**Abstract** In 2015 policy changes in Singapore’s Continuing Education and Training (CET) sector (closely equivalent to vocational education and training (VET)) were introduced. These changes are creating spaces in the CET sector for different kinds of programmes and learning experiences, some remaining within a nationally recognised system and others specific to enterprise needs. This chapter provides two tales from the field illustrating the possibilities for the integration of learning experiences as part of work and for work. The first story, set in a retail setting, was enabled by the introduction of SkillsFuture and the Singapore Skills Framework. We do not comment on the specific policy changes except to explain their contribution to what is now a very different space for curriculum designers, training providers and employers than prior to 2015. Rather, our focus is on the integration of learning in and through different spaces and the intent, design and understanding of learning through and for work, evident not only in the retail setting but also in a course for leadership development for officer cadet firefighters. The authors use these stories to illustrate the possibilities afforded through and in different spaces of learning. With the policy shift, different purposes of learning, from a paper chase to developing ‘mastery’, a lifelong learning culture and empowering individuals to take charge of their careers (as stated in the SkillsFuture policy) requires different practices and understandings from CET practitioners.

**Keywords** Learning · Spaces · Pedagogy · Pedagogical tools · Spaces in between · VET practitioners · Knowing · Being · Educators · Practices

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## Introduction

In Singapore employers are increasingly claiming that they cannot afford the time to ‘send personnel for training’ outside the workplace. Yet, the assumption that ‘training’ or learning happens *only* outside of work has been debunked in a long tradition of workplace learning literature (e.g. Lave and Wenger 1991; Billett 2001; Solomon et al. 2006; Bound and Rushbrook 2015). Historically work and learning were not seen as integrated. Rather, learning was and still is often considered by many to take place in educational institutions and not at work. There is a separation, a delineation between the spaces of work and learning. In this chapter we use the idea of ‘spaces’ to consider the integration of learning between and within work and education institutional environments.

A number of researchers (e.g. Eraut 2004; Tennant 1999) in this field have considered learning in different spaces as separate and advocated processes for integration. Metaphors such as ‘transfer’ of knowledge and skills from classroom to the work setting are frequently used. Such metaphors assume the individual acquires knowledge that is understood as static and contained in individual minds. A more fluid metaphor is that of participation (Lave and Wenger 1991), accounting for relations between people in the work settings and thus the social interactivity for learning. The boundary crossing concept of learning applied to crossing over from educational institution to work and vice versa is indicative of relations between these spaces, but does not address precisely how the process of boundary crossing occurs (Mulcahy 2011). In addressing the issue of ‘transfer’ across and between different spaces, researchers such as Evans et al. (2010) focus on the processes of learning involved in moving across and between spaces. They use the terms ‘recontextualisation’ and ‘putting knowledge to work’, indicating the complexity and relational aspects of learning in and for different spaces. Mulcahy (2011) also uses a relational view of learning but from the lens of materiality and actor network theory. She explains that materiality acts as a connective between spaces, place and bodily affect which are integral to social and cultural practice. This perspective brings ‘into view *interstitial spaces* in which complex connections between the disparate worlds of work and learning arise’ (p. 209). ‘Knowledgeability’, states Nicolini (2011), ‘cannot be transferred like an object or substance [rather] it can be translated and tentatively reproduced elsewhere in time and space’ (p. 615). Increasingly in social science research, ‘space’ is considered as an influential enabler of learning and social relationships (Kersch 2015).

Conventionally, ‘space’ as a concept denotes the structures and power relations of organisational forms. Spatial theories direct attention to the *differences* between places/spaces and their interactions. Dominated by Marxist spatial theories,<sup>1</sup> the concept of space typically highlights the structural or capitalist production and

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<sup>1</sup>For example, Henri Lefebvre (1974) focuses on the reproduction of space in the quotidian, highlighting the dominance of a hegemonic class, and the experiences of alienation and non-reflexivity in everyday life which are articulated in the urban landscape or urban space.

homogenisation of spaces in which we live and form relationships with people and our environments. These theories provide the basis for conceptualising space as more or less unitary and distinct entities constituted by the politics of class, power and economic relations of production, whereas 'post-structural' and/or 'post-modern' approaches direct attention towards a relational concept of space, which focuses on micro-practices that highlight the mutuality and interstitial connections within and between spaces. For example, Mulcahy (2011) focuses on the micro-practice of PBL pedagogy and curriculum design – identifying patterns of relations and forms of interaction in order to rethink about education, learning and work 'commonly conceived in terms of...transfer, integration or boundary crossing' (ibid, p. 203). Post-structural approaches (e.g. by Mulcahy 2011 and Nicolini 2011) essentially problematise the imagined geographies of learning as distinct fields of the 'workplace' versus 'educational institution'.

The authors argue that it is useful to place a focus on learning as relational rather than as that which takes place in the commonly imagined geographies of *separate spaces* of educational institutions and the workplace. We do not reject the idea and importance of power relations, as asymmetries of power are an important aspect of relations of spaces. A relational view of work and learning gives consideration to the spaces in between (Bound and Lee 2014), the interstitial spaces and how learners use, learn and work in different spaces. Rather than considering learning as taking place in separate spaces (e.g. work, classroom, technology enabled), a relational view enables a framing of learning both in and also across the spaces and to appreciate the potential for what happens in the interstitial spaces. The power of integrating learning in and across spaces as a framing up for designing and facilitating learning is considerable, enabling the development of a sense of belonging (Wyn 2013), of being (Holland et al. 1998; Eteläpleto 2015) in a particular profession that includes a constant ability and sense of becoming.

We draw on data from two different research projects, one a practitioner project on learning at work and the other a semi-ethnographic investigation of assessment for the changing nature of work. Finally we explore the pedagogical tools that VET educators use when deliberately working across and in different spaces and what this means for learners' knowing and being.

In the following section, we further explore the concept of spaces for learning. This is followed by an explanation of the methodology for each of the research projects. We then draw on the data from these two projects to explore the contributions of spaces in between sites and how these enable or afford integration of workers' learning.

## The Spaces in Between

We commence this section by asking: How do relations in and between different productive work spaces and other learning environments such as classrooms and e-spaces afford different learning opportunities, activity and actions? What are the

**Table 13.1** Metaphors, interpretations and limitations

Metaphor	Interpretations	Limitations in relation to a spatial-relational contributions
Transfer	Emphasises institutional education knowledge and assumes learning is individual, cognitive and acquired	Different spaces are understood as discrete and static – not in terms of flows
Participation	Learner learns by active participation in the social participatory processes of communities of practice to achieve active membership	Focuses on learning within a context; attention is not given to movement of knowledge across spaces; knowledge is assumed to be constructed by learners in situ
Boundary crossing	Suggests relationship between educational learning and work	Does not address how the process of boundary crossing takes place. Boundary separates and unites

Summarised from Mulcahy (2011)

processes and relations inherent in these spaces that afford and constitute learning for those involved?

To address these questions, we need to employ approaches to learning that appreciate what constitutes spaces. We need a consideration of ‘space’ that moves beyond space as geometry, as containers of objects and flows of behaviour or a system of organisation. What is required is an emphasis on the social processes that give ‘space’ its meaning (Evans and Kersch 2016). We can understand space as constituting practices in which cultural, social, political, economic and historical activity is embedded, creating varying affordances and constraints for learning. We can also understand space as embodied in how we relate to and orient ourselves to different spaces physically and mentally (*ibid*). The relationship between space and learning is often referred to in the workplace learning literature with particular attention given to workplace contexts (see, e.g. Evans et al. 2013; Bound and Rushbrook 2015) and workplace affordances (Billett 2001), practices (Fenwick 2012; Manidis and Scheeres 2012) and learning conditions (Skule 2004). A range of different metaphors of learning that relate to space, e.g. transfer (Eraut 2004) and acquisition (Sfard 1998), participation (Lave and Wenger 1991; Sfard 1998) and boundary crossing (Engeström 2004), are also presented. The interpretations and limitations in terms of spatial-relational contributions to learning are presented in Table 13.1.

A practice approach understands spaces as being temporal and constituting ‘sayings, doings and relatings’ (Schartzi 2012). Examples of doings and sayings are typing on a keyboard or utterances of different kinds such as ‘your exam is beginning now’ and thinking that a sunset is beautiful (Schatzki 2012). Most doings and sayings are bodily activities. These examples are basic actions that are part of more complex activities (*ibid*). According to Schatzki, ‘Practice activities are organized by practical rules, understandings, teleoaffective structures and general understandings’ (*ibid*, p. 15).

Nicolini (2011) and Mulcahy (2011) take a socio-material approach to understand practices and constellations of practices within and across different spaces. For example, in discussing tele-nursing, Nicolini highlights the importance of the

therapy sheet that captures data from the nurse calling the patient, including drugs used, readings of heart function, blood pressure and weight across time and spaces. The routine and established dialogical process between nurse and patient are examples of what Mulcahy (2011) explains as particular entities forming particular patterns of relations. These patterns of relations exclude or include forms of interaction (Nicolini 2011), action and activity, creating or constraining affordances for learning. Thus there is constant change as individuals and collectives make often minute adaptations to established routines (for example), as they translate knowing and knowledgeability (ibid) to specific situations. As Nicolini (2011) explained in his article about practices of tele-nursing, 'knowing in practice is inherently a moving target' (p. 612); 'knowing when accountability is warranted or what to do when it is not is a critical dimension of practicing' (p. 611). The nurses were constantly making judgements and decisions that either reinforced the normative practices or deviated from them. Different spaces of classroom, work and e-spaces afford different performative practices (Mulchay 2011). In other words, the different patterns of relations, routines, type of work, forms of production and flow and design of the work and so on mediate performance and possibilities for learning and development.

Recognising that different spaces afford different approaches and performative practices is important as they mediate the way tools (e.g. pedagogical tools, mental models about learning and assessment) are used. Pedagogical tools in this chapter are understood as essentially learning and assessment activities (inclusive of making use of online/mobile platforms) designed to facilitate learning by leveraging on different spaces over time. The question is: how do we connect these different affordances and spaces? Pedagogical tools provide a means for this weaving of practices and approaches across and through the different spaces. We draw on two studies to highlight the contributions of 'in-between spaces' as an important feature for learning and performance. To provide the context of the two studies, we first introduce the Continuing Education and Training (CET) sector in Singapore; it is similar to the vocational education and training (VET) sector in other countries, but with some notable differences.

## **CET in Singapore**

Singapore demarcates its provision of education into pre-employment training (PET) and Continuing Education and Training (CET). PET is implemented and monitored by the Ministry of Education (MOE). CET previously came under the purview of the Workforce Development Agency, Ministry of Manpower, but with the recent SkillsFuture initiative is now under a newly formed statutory board under MOE called SkillsFuture Singapore (SSG). This merging of the PET and CET realms under the same parent ministry is meant to allow for greater alignment, fluidity and synergy across both systems. In the CET system the state funds programmes,

typically run by training providers of which most are private for profit. Learners are those who are in the workforce, re-entering the workforce or changing careers.

The major policy initiative of SkillsFuture introduced in 2015 has four key thrusts:

1. Help individuals make well-informed choices in education, training and careers.
2. Develop an integrated, high-quality system of education and training that responds to constantly evolving industry needs.
3. Promote employer recognition and career development based on skills and mastery.
4. Foster a culture that supports and celebrates lifelong learning.

The intent, claims the policy, is that individuals are empowered to take ownership for acquiring new skills and deepening skill sets throughout their careers and that employers invest in employee training and developing career progression pathways to benefit from a pipeline of skilled employees. The role of government is as the key enabler. To support these thrusts, there is now an emphasis on ‘workplace-based’ learning and the use of technology-enabled learning (Shanmugaratnam 2014). This marks a shift away from what was predominantly classroom-based delivery (Bound and Lin 2011) to include learning in other spaces, specifically in e-spaces and work spaces. Such a shift has required training providers and practitioners to think differently about the design of learning and learning spaces.

## The Two Studies

The first study is a practitioner project on learning at work, and the second is a semi-ethnographic investigation of assessment for the changing nature of work. In the first study, the aim was to understand the challenges and affordances for learning at work. The practitioner-researchers interviewed workers and supervisors and as participant-observers took extensive field notes of the dialogue and activities in which exchanges took place. Additionally data was gathered through interviews and observations on the physical and relational aspects of the different spaces. For the purposes of this chapter, we selected what is known in Singapore as a do-it-yourself (DIY) store where eight participant interviews and three sets of observations were recorded.

The second study is drawn from a research project that sought to understand how context mediates assessment practices and to identify the challenges and possibilities different stakeholders experienced with assessment. Of the six semi-ethnographic case studies undertaken in this project, we selected one on how officer cadet fire-fighters aspiring to become leaders or commanders (Rota commanders) learn to handle the uncertainties of various fire and/or emergency situations. For the study with Rota commanders, researchers observed two training exercises and one final assessment exercise and conducted two focus group sessions with four officer cadets in each session. Interviews were conducted with three facilitators/assessors and one curriculum designer. Observations, collection of curriculum documents for



analysis, semi-structured interviews and small focus group discussions constituted the data sources for this project. Data was triangulated from learners, facilitators, curriculum designers, assessors and, where appropriate, reporting officers at work.

Both studies generated field notes from participant observation; and interviews and focus group conversations which were digitally recorded then transcribed. The transcriptions, documents and field notes were imported into NVIVO (software to assist with organising and analysing qualitative data). This data was then coded thematically. The coding tree was refined and more detailed definitions of codes developed. The researchers in both studies met regularly to check interpretations and any emerging issues to maintain consistency in analysis.

We selected these two examples to highlight that the spaces and relations within them are vastly different to each other, to showcase the different practices and use of pedagogies and learning processes.

## **DIY Store**

DIY Ezy is a home-grown medium-sized enterprise specialising in do-it-yourself home improvement, with stores all over Singapore stocking products from various suppliers. This poses a challenge to the store sales staff, who not only have to be conversant in a wide range of products that range from paint to dehumidifiers but also be able to attend to queries from customers who have specific needs which might not be well articulated and which the staff often have to probe and visualise in order to understand.

The difficulty in providing precise advice to meet customers' needs often results in customers returning to the store to ask for refunds or an exchange for a more suitable product. The business and staff productivity suffers as a result of this wasted effort. DIY Ezy identified this as affecting business and recognised the importance of staff to be well versed in product knowledge so that they can advise the customers accurately and reduce the number of potential refunds.

To address this issue, DIY Ezy identified one particular store for a team of workplace learning specialists from the Institute for Adult Learning (IAL) and a DIY Ezy training department staff to design and implement a learning solution. The team recognised that there was a need to introduce content based on product knowledge that was to be delivered at the store itself instead of an off-site classroom, given the store could not release staff for training. The workplace learning specialist team conducted short 15 min learning sessions every day for a month, scheduled before the store opened at 10 am. Individual needs analysis was completed where staff self-assessed themselves on how much they knew about 20 most popular products and those on promotion. The learning intervention was designed by the IAL specialists and the DIY training department. The programme included a variety of pedagogical tools. These are summarised in Table 13.2.

DIY Ezy understood that while the store staff might not be knowledgeable in all the products, each of them has specific products which they are better acquainted

**Table 13.2** Pedagogical tools in different spaces

From workplace	The space in between		To classroom
	Possible actions of learner	Possible actions of facilitator or other supporting agents	
<i>Troubleshooting</i>	<i>Journal (text, photos and videos)</i>	<i>Peer learning through networks</i>	<i>Dialogue</i>
Noting recurring problems they encounter	Reflecting on and processing different experiences	Provide online space for sharing and/or documenting	Provision of sharing opportunities to further develop reflexivity and meta-cognitive skills
	Documenting this learning in and out of work time	Provide online space for peers to make suggestions	
	Asking work peers	Facilitate the discussions and note required learning needs <i>or</i>	
		<i>Sharing experiences</i> Ask learners to think of examples before the next session and be ready to share	

with. The project team decided hence to leverage on peer learning to deliver the content. Each staff was assigned a product and a morning slot to share the product features with staff, frequent questions asked by customers and a possible demonstration. This sharing was captured in a 3–5 min video on a smartphone and shared with staff on the store’s informal WhatsApp group. This facilitated instant documentation and sharing of learning and was especially useful for staff who were coming in only for the afternoon shift. The staff also continued to discuss after the sessions, as they now knew who to go to for different products.

These micro-learning sessions initially created stress for the staff who were not comfortable about presenting to their peers and being filmed. However, they began to relax as it became a routine, and they saw the value of learning from each other. The same self-assessment of product knowledge taken at the beginning of the process was administered at the end of the month, with staff posting improvements all round. The store supervisor commented that this workplace learning curriculum not only increased staff confidence and product knowledge, but it also led to stronger camaraderie, as it became a process to know and learn from each other.

### ***In-Between Spaces of the DIY Store***

In this example, staff were not sent off to training, but the space of the store and its products were used to establish new practices of presenting, sharing and building trust and confidence. What is interesting here is that the VET practitioners commenced their planning based on a participation approach, to successfully meet the

learning requirements of the store and to develop staff confidence. However, these practitioners implicitly worked with the affordances and practices that were a part of the space of the store, unconsciously understanding the relational nature of work and learning. The approach was successful with staff developing greater camaraderie and support for each other. The learning was integrated into the space of everyday work through continuous dialogue between staff, reference to the videos on their WhatsApp group and knowing who to go to about particular products. WhatsApp became another rich in-between learning space.

The profit imperative requires that staff understand and can confidently share their understanding of a wide range of products. This is an important purpose in the space of the DIY store, but prior to the learning intervention, the need for this knowledgeable ability did not result in it being developed and distributed across staff. Rather it took the learning intervention of the VET practitioners to create new practices, new social relations between staff and the learning tools (e.g. sharing of knowing through presentations and capturing this on video for uploading onto WhatsApp, enabling repeated access).

Such knowing is more than knowledge of the product; staff also need to understand the reason for the purchase, often achieved through a well-established structured series of questions that need adapting with each interaction with different customers. The VET practitioners built this into the presentations by asking staff to include the most frequently asked questions. This knowing of what the retail world calls 'product knowledge' and handling of customers constitute core practices in the store and reflect the small changes in the space as different customers with different needs are served. This knowledgeable ability also helps with greater efficiency during peak periods. Adaptations are made as staff serve different customers. These 'micro-learning sessions' built relations between individuals and between individuals and artefacts (the products) and in the process established new 'sayings, doings and relatings'. Examples include readily approaching peers who have expertise in specific products and peers sharing their experiences with customers. These changes were facilitated by selected pedagogical tools listed in Table 13.2.

The tools in Table 13.2 illustrate that acknowledging the different spaces within a programme concurrently indicates whose spaces they are, reflecting the different purposes and roles of the different actors. The left-hand column implies it is the role of the learner to note recurring problems. This hands responsibility to the learners. In the next column, we see that the VET practitioners provide learners with a variety of tools to capture the recurring problems they see. The work of capturing this information takes place in the 'space in between', meaning this 'work' can be done at work, in the in-between spaces such as described by Solomon et al. (2006) or outside of the work space. These authors identify different kinds of spaces in which, for example, there is a lessening of normal workplace hierarchy, including:

- Overlap periods where workers are not 'entirely' workers, such as lunch breaks
- Actual work spaces where productive work takes place

The space 'in between' is not only the where but also the opportunity to discuss and think further. What and how this thinking and dialogue is captured is mediated by the tools and resources provided by the facilitator in their 'space in between'.

The mini 15 min classes in the mornings were a space in which to present, share and exchange, pose questions and reflect further. As one workplace learner testified,

*For a new person like me, instead of approaching the staff and asking them “eh what is this for”, when there are customers around and things like that. So the 15 minute class conducted before the store opens every day has enabled me to learn more through the sharing of product knowledge which one can absorb bit by bit on a daily basis. Of course it’s very useful and it comes in handy. When customers enquire (about the product) I go “oh yeah my colleague has shared this product, its purpose and so on with me.” It’s good. [Mary, Part-time Sales Associate]*

Thinking of different pedagogical spaces and their in-between spaces is useful as it not only delineates roles, tasks and responsibilities but also prompts use of the relations between people artefacts, and the potential of the different ‘performative practices’ (Mulcahy 2011, p. 215) of each space.

## Rota Commanders

This 28-week programme is designed and delivered through the Civil Defence Academy (CDA). Officer cadets are taught fundamental skills, knowledge and strategies of firefighting; they familiarise themselves with the use of equipment and gain some exposure to the work of a Rota commander (unit leader) through table-top exercises, simulation drills, practices and field exercises and attachment to a fire station.

The programme is divided into three phases: general, professional and command terms. The example we use in this chapter takes place in the command term where ‘scenario packages’ or field exercises are used that put officer cadets into roles as Rota commander to manage ‘real’ fires in various scenarios and environments. Here, simulators where gas-managed fires can be turned up or down in intensity are used and assessors give ‘injects’ that require the Officer Cadets to bring together everything they have learnt over the course. Simulators include LPG bullet tank fire simulator, oil tank fire simulator and high-rise building fire simulator, affectionately called ‘the Furnace’. Putting officer cadets through these simulated exercises dealing with a variety of different types of fires involves allocating leadership roles to these officer cadets. Those in the roles are expected to lead by exercising effective command and control. This includes the ability to read the ground well, know what is happening at all times, be in control of the scene, make decisions promptly and convey them clearly and confidently.

Officer cadets learn to develop a sense for the problems and issues and the sensibilities for such work including a state of readiness, alertness and ability to handle evolving and/or dynamic situations on the ground.

### *Pedagogies in the Spaces of the Rota Commander Programme*

The officer cadets (Rota commanders in training) move across a range of different spaces, mostly within their academy, including classroom and different types of operating environment such as tunnel/underground, marine/offshore, road/traffic and buildings. The spaces they learn in also include various simulated fire and emergency situations such as firefighting, rescue and hazardous material or biochemical handling and containment; drill sessions to learn to use equipment effectively and efficiently, and occasionally responding to a real fire situation. The pedagogies employed are designed to develop basic firefighting skills that become 'automatic' – deeply embodied. A pedagogical tool used to achieve this is to keep redoing the exercise, for example, to pump water from the fire engine to the fire requires connecting the fire hose from hydrant to the fire engine in a set time limit. The exercise is repeated until tasks are completed at the required standards, within the set time. An officer described the situation as one where cadets are 'damn shagged... but when we do this in the final exercises, we actually got so used to it that... it is even faster than what we expected!' (Officer Cadet Kris).

Evans and Kersch (2016) make reference to how we relate mentally and physically to and within a space. Firefighting requires deeply embodied actions – as in the example above. Embodiment is also explicitly evident in practices of firefighting demanding a 'way of being' or what Desmond (2006) calls a 'habitus of action'. Practices (Schartzki 2012) constitute doings, such as fitting and laying hoses; sayings, and ways of thinking and being such as running towards a fire rather than away from it, dealing with physically and mentally demanding situations, and making decisions under pressure that have life and death implications. The moral penultimate to save lives in rapidly changing situations is a constant and explicit part of being a Rota commander.

The VET practitioners (many of whom are seasoned Rota commanders) employ pedagogical tools to develop ways of thinking and being a firefighter. Their practice involves constant transformation of learning from classroom, outdoor exercises, and different simulated experiences. VET practitioners implicitly understand the complex relationships between tools, procedures, the capabilities and physical limitations of firefighters and the constant often unpredictable changes within a fire setting and in different fire situations. Consequently they demand far more of the cadets learning and assessment in the simulations and their assessments than is captured in the curriculum documentation.

Other artefacts of the spaces of firefighting aside from handling the fire engine and the hoses include building components, fire protection systems and/or fire suppression systems. These are situated and experienced differently in different locations, demanding constant translation and transforming of knowledge by the Rota commanders and their team of firefighters. These artefacts are introduced to the

officer cadets in classroom settings, practised repetitively in drills and applied in simulation scenarios. The simulation scenarios in particular require the officer cadets to put fundamental knowledge and practised efficiency in skills that include decision-making and leadership into ‘real’ (simulation scenario) fire settings where individual officer cadets and the team begin to *know* through the process of ‘translation’ or establishing connections between what was learned and experienced in class and drills and putting together in simulation scenarios. Officer cadets continuously and gradually develop their learning, gain efficiency and acquire experiences in which they are transformed through the movement between the classroom, practice drills and simulation scenarios and the establishment of connections between these spaces (see also Nicolini 2011). The connections between these spaces are designed into the simulation exercises requiring officer cadets to bring together all that they have learnt so far. For example, what was learnt in the practice drills becomes a small but essential part of the whole exercise; communication processes, constant assessment of the fire, deployment of firefighters and strategies to fight the fire are experienced differently, when integrated into a holistic exercise. Each individual has to manage greater cognitive, emotional, sensory and physical loads. As a team they need to ‘look out’ for each other; those in the command roles need to assess the state of team members as part of managing their safety and at the same time ensure team members are responding with the required sense of ‘urgency’. The whole is far greater than the sum of the parts, resulting in a steep learning curve that offers rich possibilities for debriefing. The situational space for work and learning are so intricately intertwined and integrated that individuals do not see these as separate.

‘Knowing’ for these officer cadets also entails the experience and clarity of the standards required and the consequences of wrong or delayed decisions. After the exercises or during (if they are not going well), the instructors will bring the group together to debrief. This is an important pedagogical tool where – often following input from the instructor – officer cadets discuss what happened and what needs to be done. It is ‘in-between spaces’ like the debrief session that enables the ‘translation’ or making the connections between and collectively establishing understandings, doing and applying of their knowledge, skills and experiences into *knowing*, and where the consequences of wrong decisions and/or inappropriate actions are more deeply felt and embodied. The officer cadets develop their ability to make judgements (Bound et al. 2016), a critically important aspect of being a Rota commander.

Another pedagogical tool used to develop deep understanding and knowing is to take the officer cadets to real fire situations as explained by trainer Major Wasan.

*When there is a big incident the Control Room will be activated, and the trainees will be brought to the fire ground in the middle or later part (of the fire) to observe what’s happening. So it’s not just the ‘theory’ or watching a video. They are there so that they can smell the problem; see the magnitude (of the problem); realize how tired the men are; understand how difficult it is to control the entire scene, and how the division commander controls the ground, and ground control the men...stuff like that. (MAJ Wasan, trainer)*

The VET practitioners also used the pedagogical tool of teaching 'guiding principles' rather than breaking down the activity into tasks (typical of much competency-based training). Knowing principles, as opposed to simple how-to steps, provides learners with learning tools to use in and across different spaces.

*The same guiding principle will guide you to do another job not because I tell you to but because you have the principle and guideline. We are not trying to be prescriptive because it is not possible to cover all scenarios or situations, so we go into guidelines to guide what they should do as a commander. We can tell them but they still cannot prepare – like for example one of the requirements is the ability to think on their feet. (MAJ Tom, assessor)*

Guiding principles enable learners to evaluate circumstances and make their own judgements and decisions. This is an aspect of developing learners' capabilities for the future – being future oriented (Bound, et al. 2016).

There is a connectedness between learning, knowing and becoming in and across the different settings and the pedagogical tools used. The different settings such as classrooms, simulators and/or practice drills are distinguished and shaped by different purposes and outcomes of learning which then lend themselves to different pedagogical tools that vary in types and degrees of complexity. For example, learning a task like laying and connecting the fire hose to the pumper (or fire engine) is distinguished by the learning outcomes in the different settings: in a practice drill to gain efficiency by achieving a specific timing; in a classroom to achieve understanding of the physics and other fundamental knowledge; and in simulators to experience, apply and put things into practice. In simulators or simulated scenarios, the addition of situational variables, mission objectives and amalgamation of other tasks and processes, roles and responsibilities, systems and equipment all increase the complexity and standards in which the officer cadets increasingly developed their understanding, being and becoming a Rota commander. The simulation space therefore provides a safe environment with minimum risks and forms the bases for preparations to operate in the real space of fire emergency.

## Conclusion

The two very different examples used in this chapter illustrate the different possibilities and purposes within different spaces. These cases highlight the dynamic and constitutive nature of the work which requires store sales assistants to understand what each customer needs and firefighter commanders to make the right decisions in every emergency situation. Like the nurses in Nicolini's study (2011), the store sales assistant and firefighter commanders not only need the requisite knowledge, skills and standard operating procedures or protocols to do their work but also the ability to exercise judgements and make decisions in different and constantly evolving situations that either reinforce standard responses and procedures or deviate from them. The two case studies show how the 'in-between' spaces of the store and

simulation exercises bring all these things together to enable learning, knowing and becoming a competent store sales assistant or firefighter commander.

Occupational ways of being are enabled with appropriate pedagogical tools and recognition of and use of the affordances within and across different spaces. With greater 'product knowledge' and sources of knowledge (e.g. their peers), retail staff in the DIY store gained confidence through developing a spiral of knowing, building on what the learning intervention had introduced them to. Pedagogical tools used by the Rota commander instructors similarly built a spiral of knowing. The nature of this occupation leaves little or no room for error, requiring a deeply embodied knowing and certainty in order to facilitate the making of what can be life or death decisions. 'Knowing is to interact with and honour the world using knowledge as a tool... Knowledge and knowing are tied in a generative dance' (Cook and Brown 1999, p. 389 in Nicolini 2011, p. 604).

VET practitioners' understanding and use of relations and existing practices in the different spaces were key to building a spiral of knowing and growing confidence of staff. Pedagogical tools provide a means for weaving and developing ways of knowing and being across the different spaces. Different places and spaces of learning take on different thought patterns and ways of being; these are often accepted automatically, without reflection. Different spaces invite educators to find ways of making the affordances of different spaces explicit, deliberately setting out to cross-fertilise learning across and between different spaces. The role of the educator therefore is not to impart information but to initiate critical and reflective discourse where students learn to imagine and think of other possibilities. To develop knowledgeability requires learners to engage with knowledge, to use it and to 'put it to work' (Evans, et al. 2010).

It is thus important for VET practitioners to 'read' and 'know' the spaces in which their learners work in order to identify appropriate pedagogical tools. Such 'knowing' demands that we understand spaces as constituting far more than their physical geometry. Rather, spaces are made up of practices, the tools/artefacts (including ways of thinking, mental models) and the routines and processes embedded within them. The doings and sayings of practices contribute to cultures and are reflective of structures and power relations. Affordances and constraints for learning are mediated by practices, as well as the nature of the work and design of the job, the structure and flow of production/service delivery. Designing learning for work requires VET practitioners to develop and use pedagogical tools in the different spaces that contribute to shaping and knowing the spaces learners work and learn in. More than that, the ability to critique and be future oriented is also important as these capabilities enable learners to better handle transitions, an aspect of the dynamic, changing relations in different spaces and transitions across spaces.

These aspects of spaces contribute to the different performative practices (Mulcahy 2011) in the different spaces; as in, different kinds of performance are expected in different spaces. Not surprisingly then different pedagogical tools offer varied opportunities for learning in different spaces. The spaces that retail workers and firefighters work in are worlds apart. The practices they need to embody and the knowing they need to develop are vastly different. What is common across the



spaces is the need for developing a deep understanding of the standards required for the performative practices being developed. This necessitates a deep knowledge of the spaces, its practices, standards and purposes on the part of the VET practitioners for them to design and facilitate learning to meet the needs of learners and the demands within the work spaces.

## References

- Billett, S. (2001). *Learning in the workplace*. Crows Nest: Allen & Unwin.
- Bound, H., & Lee, W. C. (2014). Teaching and learning across boundaries: Work, classroom and in between. *SoTL*, 1(1). <http://tlc.unisim.edu.sg/research/AdvSoTL/helen.html>.
- Bound, H., & Lin, M. (2011). *Singapore Workforce Skills Qualifications (WSQ), workplace learning and assessment (stage II)*. Singapore: Institute for Adult Learning (IAL).
- Bound, H., & Rushbrook, P. (Eds.). (2015). *Towards a new understanding of workplace learning: The context of Singapore*. Singapore: Institute for Adult Learning (IAL).
- Bound, H., Chia, A., & Karmel, A. (2016). *Assessment for the changing nature of work*. Singapore: Institute for Adult Learning (IAL).
- Cook, S. D. N., & Brown, J. S. (1999). Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. *Organization Science*, 10(4), 381–400.
- Desmond, M. (2006). Becoming a fire fighter. *Ethnography*, 7(4), 387–421.
- Engeström, Y. (2004). New forms of learning in co-configuration work. *Journal of Workplace Learning*, 16(1/2), 11–21.
- Eraut, M. (2004). Transfer of knowledge between education and workplace settings. In H. Rainbird, A. Fuller, & A. Munro (Eds.), *Workplace learning in context* (pp. 201–222). London: Routledge.
- Eteläpleto, A. (2015). The role of work identity and agency in workplace learning. In *Towards a new understanding of workplace learning: The context of Singapore* (pp. 36–53). Singapore: Institute for Adult Learning.
- Evans, K. & Kersch, N. (2016). *Understanding working places as learning spaces: Perspectives, insights and some methodological challenges*. ASEM Forum for Lifelong Learning, 21st Century Skills, 305 October, Copenhagen.
- Evans, K., Guile, D., Harris, J., & Allan, H. (2010). Putting knowledge to work: A new approach. *Nurse Education Today*, 30, 245–251.
- Evans, K., Guile, D., & Harris, J. (2013). Rethinking work-based learning: For education professionals and professionals who educate. In M. Malloch, L. Cairns, K. Evans, & B. O'Connor (Eds.), *The SAGE handbook of workplace learning* (pp. 149–161). Sage: London.
- Fenwick, T. (2012). Mattering of knowing and doing: Sociomaterial approaches to understanding practice. In P. Hager, A. Lee, & A. Reich (Eds.), *Practice, learning and change* (pp. 67–84). Dordrecht: Springer.
- Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge: Harvard University Press.
- Kersch. (2015). Rethinking the learning space at work and beyond: The achievement of agency across the boundaries of work-related spaces and environments. *International Review of Education*, 61(6), 835–851.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Manidis, M., & Scheeres, H. (2012). Towards understanding workplace learning through theorizing practice: At work in hospital emergency departments. In P. Hager, A. Lee, & A. Reich (Eds.), *Practice, learning and change* (pp. 103–118). Dordrecht: Springer.
- Mulcahy, D. (2011). Between work and learning: On pedagogic practice and interstitial space. *Studies in Continuing Education*, 33(3), 203–217.

- Nicolini, D. (2011). Practice as the site of knowing: Insights from the field of telemedicine. *Organization Science*, 22(3), 602–620.
- Schartzki, T. (2012). A primer on practices: Theory and research. In J. Higgs, R. Barnett, S. Billett, M. Hutchings, & F. Trede (Eds.), *Practice-based education: Perspectives and strategies* (pp. 13–26). Rotterdam: Sense Publishers.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational researcher*, 27, 4–13.
- Shanmugaratnam, T. (2014, September 17 ). *Opening of Lifelong Learning Institute*, Singapore.
- Skule, S. (2004). Learning conditions at work: A framework to understand and assess informal learning in the workplace. *International Journal of Training and Development*, 8(1), 8–20.
- Solomon, N., Boud, D., & Rooney. (2006). The in-between: Exposing everyday at work. *International Journal of Lifelong Education*, 25(1), 2–13.
- Tennant, M. (1999). Is learning transferable? In D. Boud & J. Garrick (Eds.), *Understandings of workplace learning*. New York: Routledge.
- Wyn, J. (2013). Young adulthood in Australia and New Zealand: Pathways to belonging. In H. Helve & K. Evans (Eds.), *Youth and work transitions in changing social landscapes* (pp. 218–232). Tufnell Press: London.

# Chapter 14

## Workplace Learning for School-Based Apprenticeships: Tripartite Conversations as a Boundary-Crossing Tool



Ingela Andersson

**Abstract** This chapter examines how a vocational education and training activity, the tripartite conversation, is shaped in the context of the Swedish upper secondary apprenticeship education. Learning in school and in a workplace is often emphasised as complementary. Research that draws on activity theory emphasises the development of shared spaces to support integration of learning across these sites. In this chapter the tripartite conversation is investigated as a tool intended to support integration of experiences across school and workplace. The focus of this study was the following question: What does the tripartite conversation indicate about what the parties try to achieve with regard to students' learning? Field studies were conducted in three upper secondary schools in 2014. Sixteen tripartite conversations between vocational teacher, workplace tutor and student have been analysed. Activity theory and the concepts of tensions and contradictions have formed the analytical framework. The tripartite conversation is identified as a boundary-crossing tool to plan and negotiate workplace learning paths. The findings show that students were expected to develop knowledge, skills and abilities to handle daily work assignments and complex work situations in the workplace. These goals were sometimes hard to achieve due to uncertainties among participants about the learning objectives, norms and rules that guided the students' learning in the work place. It is concluded that integration of experiences across sites can be supported when workplace learning is collaboratively planned and evaluated from the perspectives of school and workplace respectively.

**Keywords** Upper Secondary Apprenticeships · Tripartite conversation · Boundary-crossing tool · Activity theory

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## Introduction

Workplace learning has been a marginal part of the Swedish upper secondary vocational education and training system since the introduction of an integrated upper secondary school<sup>1</sup> in 1970. In this school-based vocational education and training (VET) context, internships mainly involve work placements for varying lengths of time (Lgy. 70; Lpf. 94; Wärvik and Lindberg elaborate on this further in Chap. 15 of this book). In 2011 upper secondary apprenticeship education was made a permanent pathway as a parallel to its school-based counterpart, and as a result the question of how to integrate students' experiences across school and the workplace has come to the fore. In upper secondary apprenticeship education, schools were made responsible for arranging and evaluating students' workplace learning relative to national goals. The Education Act (SFS 2010:800,16§11a) states that workplaces, through an agreement between the workplace, the school and a student, now need to take formal responsibility to educate students. When schools and workplaces are made partners in this activity of vocational schooling, the two sites are formally connected, and collaboration becomes necessary. Hence integration of learning, as is the theme of this book, becomes an area to investigate in this context.

The upper secondary apprenticeship pathway is not an extensive part of upper secondary VET. The Swedish Agency for Education reported in a press release that less than 10% of the upper secondary VET students (approximately 8300) were undergoing training in the upper secondary apprenticeship pathway in 2015. During a 3-year education, both general and vocational knowledge requirements are included. Since 1994 all school-based upper secondary VET programmes are required to include 15 weeks of workplace learning over the 3 years. The upper secondary apprenticeship education is required to be predominantly implemented in workplaces. If this requirement is fulfilled, schools and workplaces are eligible for government grants. In 2017 these grants consist of three parts that could be applied for, and paid to the schools for further distribution, (1) financial contribution to the school and (2) financial compensation to employers. In addition, employers could receive (3) extra compensation if they assign each student a tutor who has completed special education for workplace tutors that was approved by the Swedish National Agency for Education. Students in upper secondary apprenticeship education can also apply for additional grants. These students are generally not employed. The financial regulations reinforce the need to ensure the integrity of student learning through the upper secondary apprenticeship pathway. The upper secondary apprenticeship education operates in this context that stresses VET in workplaces and increases collaboration between schools and workplaces.

According to Billett (2009), one reason to strive for closer collaboration between schools and workplaces is associated with the difficulties in arranging for teaching in school and training in the workplace that support students' integration of

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<sup>1</sup>In the 1970 school reform, academic and vocational pathways for young people were integrated in upper secondary schools.

experiences across the two sites. Furthermore, Virtanen et al. (2014) emphasise the advantage when schools engage in actions that aim to guide students' workplace learning, instead of making the student the only broker between the two institutions. In this context, tripartite conversations between the vocational teacher, a student and the workplace tutor appear as a tool (Engeström 2001) that may bring together the expectations of school and work. The accounts in this chapter discuss how a VET activity, the tripartite conversation, which is expected to support students' integration of experiences across sites, is shaped in the context of upper secondary apprenticeship education.

In the Swedish education system, tripartite assessment interviews have mainly been investigated as part of higher education, in relation to, for example, teacher education (Hegender 2010; Lindberg 2013). The term tripartite conversation occurred in connection to workplace learning in upper secondary VET when the Swedish government started to examine how the schools organised internships. In this context the tripartite conversation refers to a meeting between a vocational teacher, workplace tutor and student, which aims to assess and evaluate the student's learning in the workplace (Berglund 2007). A key concern in the state-governed upper secondary VET system is that in order to ensure an equivalent education in VET programmes across the country, workplace learning should be evaluated and assessed according to the requirements in the syllabuses rather than according to the standards that guide the work in a specific workplace (The School Inspectorate 2011). Gustavsson (2012) examined a series of tripartite conversations in different workplaces in the health and social care programme. The findings showed that vocational teachers assessed the fulfilment of workplace learning objectives and evaluated the extent to which school-based teaching supported students' learning during the work placement. Another study in the upper secondary VET apprenticeship pilot programme (2008–2011) showed that the follow-up and assessment practice in the tripartite conversations varied across teachers as well as the three programmes investigated (Berglund and Lindberg 2012). This raises questions about how the curriculum for workplace learning is enacted in the upper secondary apprenticeship pathway: What does the tripartite conversation indicate about what the parties try to achieve with regard to students' learning? This was the focus of the study reported in this chapter.

The chapter is organised as follows: Firstly research on complexities in arranging teaching and learning that support students' integration of experiences across school and workplace is reviewed. Secondly the theoretical framework, data collection and analysis procedures are outlined. Thirdly the findings from the activity theoretical analysis of the tripartite conversations are presented. Lastly the main findings are discussed, and some conclusions are drawn to explicitly highlight the contributions of tripartite conversations to integration of learning in schools and workplaces.

## Challenges with Integration

Research on curriculum work and integration of experiences across school and workplace has been mounting since 2000. This orientation in research is based on a sociocultural and situated understanding of teaching and learning in vocational education and training programmes. In their review, Schaap et al. (2012) emphasise that students learn in different ways in school and in workplaces and that knowledge is made available in different ways (c.f. Aarkrog 2005; Fuller and Unwin 2003; Lindberg 2003). Later studies focused on identifying factors that promote and restrict students' integration of experiences across school and workplace (Akkerman and Bakker 2012; Billett 2009; Sappa and Aprea 2014; Wesselink et al. 2010). For example, in research undertaken by Sappa and Aprea (2014) and other research undertaken by Wesselink et al. (2010), the researchers found that different stakeholders (vocational teacher, student, workplace trainer) held different conceptions of learning in school and in workplaces, which constrained the possibility to develop a shared VET practice. Instead, a combination of learning in school and in the workplace has been identified as a key feature that supports students' development of vocational knowledge and skills (Aarkrog 2005; Berner 2010; Billett 2009; Sappa and Aprea 2014; Virtanen et al. 2014). In a workplace, when afforded access to work tasks and the work community (c.f. Billett 2006), students may develop operational skills, work process knowledge and a vocational identity. In schools, students acquire theoretical knowledge that may help them to identify and evaluate work processes and workplace practices (Tynjälä 2008). By focusing research only on learning in school, or only on learning in the workplace, the shared practices that could reveal manifestations of integration of learning across these different sites have been overlooked.

Researchers using an activity theory perspective have used concepts of developmental transfer and boundary-crossing to analyse assumed shared practices where students are supported "in relating their situated knowledge in the workplace to the codified knowledge acquired in school" (Tuomi-Gröhn et al. 2003, p. 7). The concept developmental transfer adds a collaborative dimension to the understanding of transfer as transition of knowledge across sites. Transfer is here emphasised as developmental, which in the context of VET means that student, staff, vocational teacher and other experts are involved in the creation of new concepts or new solutions to problems in the daily operations. This understanding of an integrated teaching-learning curriculum has formed the basis for a number of intervention studies where researchers and practitioners collaborate (c.f. Konkola et al. 2007; Tuomi-Gröhn 2003). For example, research undertaken by Tuomi-Gröhn (2003) showed how school and one workplace developed a collective practice that supported students' learning during internships. One conclusion from this research was that long-term internships support the development of collaborative work practices, whereas short-term internships do not. Hence, the structuring of training periods emerges as one factor that may enable or constrain the development of a shared educational practice. Konkola et al. (2007) illustrate the development of a shared

educational practice in tertiary VET. For instance, they show how student assignments can foster cooperation between schools and workplaces, as exemplified by a student in healthcare education who developed a method for mirror rehabilitation in the workplace through a learning assignment. This method where care recipients exercised their physical mobility became integrated in the work process. However, it is uncertain to what extent collaboratively created goal-directed actions across school and workplace lasted or ended with the intervention at hand. The development of shared educational activity refers to the emergence of a boundary object or a “boundary-zone activity” (Konkola et al. 2007, p. 224). In this respect, research using activity theory conduct interventions that bring together school and workplace with the intention to promote collective learning across sites. In addition, research into boundary-crossing investigates how the shared educational practice contributes to students’ learning. The tripartite conversation is understood in this context as a potentially shared education activity.

Swedish research on collaboration between school and workplace in upper secondary VET is based on different methods and theories. This research has primarily focused on identifying the missing link rather than analysing the collaborative efforts that underpin integration of learning across sites. A finding that reoccurred in research investigating different upper secondary apprenticeship education projects was the absence of general strategies for guiding and evaluating students’ learning in the workplace (Berglund 2012; Berglund and Lindberg 2012; Kristmansson 2016; Olofsson 2014). Lagström (2012) coins the concept apprentice-teacher to describe vocational teachers as mediators between schools, workplaces and students. One part of their work concerned guiding and assessing students’ workplace learning. Another part concerned supporting students to understand and act on the basis of the conditions and rules applied in the workplace. Kilbrink and Bjurulf (2013) also show how vocational teachers and workplace tutors support the upper secondary apprentices in overcoming the differences between school and work. That is, in school vocational teachers used textbooks to explain the work tasks, drawing on students’ experiences in the workplace. In school students also had the opportunity to train on cheap materials, whereas in the workplace they worked on expensive materials and machines that the school could not afford (Kilbrink and Bjurulf 2013). These findings were in line with Berner’s (2010) reports on school-based VET with shorter periods of internships. Both studies emphasise school and workplace as complementary learning sites. All together, these studies indicate that workplace learning and school-based learning are complementary. From the upper secondary apprenticeship education pilot project (2008–2011) Berglund and Lindberg (2012) concluded that tripartite conversations are critical. Their findings suggest that routines and tools to support students’ integration of experiences were not sufficiently developed. Further investigation into the tripartite conversation therefor serves the purpose to increase the knowledge of how, rather than to what extent, this collaborative work may support students’ learning across school and workplace.

In sum, collaborations between vocational teachers and workplace tutors are fundamental to appropriately enact an integrated VET curriculum. The tripartite conversation emerges as a tool to evaluate and assess students’ workplace learning. Whether or not

it may support students' integration of experiences across sites remains to be seen. Research guided by activity theory emphasises the creation of shared educational practices and tools to develop these practices. Building on this tradition the study in this chapter sets out to investigate the tripartite conversation, not as an intervention or experiment, but as a potential boundary-crossing tool in a specific VET context.

## Method

For this research activity theory and the notion of interacting activity systems (Engeström 1987, 2001) guided the process to identify aspects of the respective activity systems related to the tripartite conversations. School and work are here regarded as different activity systems that change over time (Engeström 2001). Activity systems are constituted, maintained and changed in relation to changes in, for example, materials, tools, methods, technology and societal decisions and regulations. In the analysis for this chapter, school and workplace are seen as artefact-mediated and object-oriented collective activity systems. This means that people's collective engagement in goal-directed actions and routine operations contribute to shape the activity, while the *object of activity* at the same time tries to control the possible actions and operations. In an activity system, *rules*, *tools* and *division of labour* are mediators that try to guide and control the activity. In a general sense the school's *object of activity* is the students' learning, and the workplace's *object* is the production of goods and services (Lindberg 2003). However, to understand how the tripartite conversation may be shaped across school and workplace, these general objects need to be further elaborated in the analysis of empirical examples. In this activity an analysis of tensions and contradictions give clues to potentially new or shared objects (Engeström and Sannino 2011). That is, potentially new ways for school and workplace to assist with students' learning. Engeström and Sannino (2011) explain that "in change efforts ... contradictions are to an important extent manifested and constructed in patterns of talk and discursive action with the help of which actors try to make sense of, deal with and transform or resolve their contradictions" (p. 371). The nature of tensions and contradictions were analysed with the following questions in mind: How is the tripartite conversation shaped in the context of upper secondary apprenticeship education? What tensions and contradictions can be identified? What do these indicate about the object?

The study is based on data collected in three upper secondary schools and associated workplaces in 2014. Field notes taken during observations and informal conversations with vocational teachers, workplace tutors and students have been analysed. The schools (called A, B and C) selected for this study had established an organisation for upper secondary apprenticeship education in five or more of the twelve national upper secondary VET programmes<sup>2</sup> (The National Agency for

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<sup>2</sup>The 12 VET programmes are building and construction (BA), business and administration (HA), child and recreation (BF), electricity and energy (EE), handicraft (HV), health and social care (VO), hotel and tourism (HT), HVAC and property maintenance (VF), industrial technology (IN), natural resource use (NB), restaurant management and food (RL) and vehicle and transport (FT).



**Table 14.1** Number of VET programmes, students enrolled in upper secondary apprenticeship education and durations between schools and workplaces in School A, B and C

School	No. of VET programmes offered as upper secondary apprenticeship education	No. of students in upper secondary education apprenticeship	Durations in school/workplace
A	5	90	2 days/3 days
B	5	54 (900)	2/3
C	12	175 (3000)	2/3

**Table 14.2** Tripartite conversations

School/VET programme	No. of tripartite conversations/ students/workplaces	Length of conversation
A/HA	2 conversations/1/1	Fanny1 – 60 min, Fanny2 – 45 min
A/IN	1 conversation/1/1	Jake – 60 min
A/BA	1 conversation/1/1	Mark – 90 min
B/HT	4 conversations/2/3	Jennie1, w-p 1, – 45 min, Mary1 – 45 min Jennie2, w-p 2, – 60 min, Mary2 – 45 min
B/RL	1 conversation/1/1	Lisa – 60 min
C/HA	2 conversations/1/1	Danny1 – 60 min, Danny2 – 45 min
C/HT	4 conversations/2/2	Wendy1 – 60 min, Annie1 – 60 min Wendy2 – 45 min, Annie2 – 45 min
C/RL	1 conversation/1/1	Niclas – 45 min

Education 2012).<sup>3</sup> All three schools had participated in the upper secondary apprenticeship education pilot project (2008–2011) and continued to work with upper secondary apprenticeship education as a permanent pathway. However, in Schools B and C, VET programmes were predominantly school based, and upper secondary apprenticeship education was implemented as a parallel pathway in the existing organisation. School A only offered upper secondary apprenticeship education. Table 14.1 shows the number of VET programmes offered as upper secondary apprenticeship education in each school, the number of students and the duration of time spent weekly between school and workplace.

Eight vocational teachers were observed and interviewed during 16 prearranged meetings with 10 students and their tutors in 11 workplaces. Table 14.2 shows the number of tripartite conversations with different students in their workplaces and the length of each conversation.

Data collected from all 16 meetings were analysed to identify the features of the tripartite conversations. Tensions and contradictions were identified from field notes taken during the 12 meetings in the hotel and tourism programme (School B and C) and business and administration programme (School A and C). These meetings were chosen since two subsequent tripartite conversations with the same student could offer insights into how the tripartite conversations were interrelated. The data

<sup>3</sup>An English edition of the Swedish national Curriculum for Upper Secondary School 2011 is accessible at the Swedish National Agency for Education's website [www.skolverket.se](http://www.skolverket.se).

from the other four conversations was limited and therefore excluded. Real names of the participants were replaced with pseudo names to protect their identity.

Based on data production, analysis was performed in two steps. The first step was to compare field notes and complementary data from observations of all tripartite conversations to identify similarities and differences. That is, patterns related to content and emphasis that could be used to describe the characteristics of the conversations. Three main phases were identified: (1) *initiation*, when upper secondary apprenticeship education was implemented for the first time in a workplace or when a new student or syllabus was introduced in the workplace; (2) *evaluation*, to evaluate and/or renegotiate the plan for workplace learning, which was materialised in recurring conversations during a placement; and (3) *conclusion*, to assess and/or to conclude the student's learning in the workplace. These patterns indicate that the tripartite conversations were somewhat different in character. However, these basic descriptions needed to be further elaborated. This was done in relation to one of the main issues in activity theory analyses, that is, to identify the object of the activity. Following Engeström and Sannino (2010 p. 7) "conflicts, dilemmas, disturbances and local innovations may be analyzed as manifestations of the contradictions", which give two levels of analysis – the action level and the activity level. In the data I found *disturbances*, which are defined as "actions that deviate from the expected course of normal procedure" (Engeström 2008 p. 27). I also found *dilemmas*, identified as incompatible evaluations, and *conflicts*, identified in issues that may demand compromise or submission to the dominant party (Engeström and Sannino 2011 p. 375). Manifestations of contradictions are located at the short-term action level, though the contradictions adhere to the long-term activity level. The second step in the analysis was to identify tensions and contradictions since these may inform emerging objects of the activity. This was done by sorting disturbances, dilemmas and conflicts that come to the fore as different contradictions (1) within and between the activity systems and (2) between a newly established mode of activity and deposits of previous modes (Engeström and Sannino 2010 p. 7). The analysis presented in the following sections focuses on tensions and contradictions. Here, the activity system becomes an important analytical tool to identify the systemic relations where the tripartite conversation operates and sources of tensions that may give clues about the object.

## Findings

The tripartite conversation is shaped in a specific educational context where the schools are responsible for the students enrolled in upper secondary apprenticeship education, in school and in workplaces. Within the school's activity system, from the school board's perspective, the tripartite conversations aimed at establishing a formal, continuous contact between school and workplace. The following quote

from one of the principals serves to exemplify this: “The vocational teachers have agreed on executing tripartite conversations every third week, but I would say ... they are mixing informal visits, phone contact and this formal visit ...” (School A, interview principal). This “mixing” indicates disturbances. That is, for the teachers it was not always an option to perform tripartite conversations every third week. This disturbance indicates a contradiction between *rule* and *tool* within the school’s system that emerges from the usability of the tripartite conversation as a tool to support students’ learning. In other words, the tripartite conversations were implemented as a *rule* in the local school to sustain interaction between school and workplace. However, when executed by the vocational teachers, the tripartite conversations became a *tool* and a potential space where vocational teachers, workplace tutors and students could collaborate. The following summary of the analysis of the three phases in the tripartite conversation serves to demonstrate this.

Common for the tripartite conversation was firstly that the vocational teachers took responsibility for coordinating this meeting with the student and the workplace tutor, in the workplace. Secondly, the teachers seemed to have different goals for each conversation depending on what phase of the training period they were in. *Initial*, *evaluating* and *concluding* tripartite conversations were different in character. In *initial* conversations the three parties determined rules, work hours, work areas and/or work assignments for the student to engage in:

The Hotel and Tourism teacher Andrea informed that the work placement is for three days a week. They may shift between weekdays and weekend, as they prefer. The tutor and the student have to establish a schedule that fits them both. The tutor suggests that the student would benefit from a schedule that alternates between weekdays and week end. The tutor explains that on weekends the guests are more demanding, and on weekdays they work more with the CRS [computerised booking system]. (School B, field notes, tripartite conversation Jennie2)

The school regulated both work hours and work areas for the students’ work placement. However, the specific duties were negotiated between vocational teacher, workplace tutor and student, and a workplace schedule was created based on the conditions in the workplace. In the case above the focus was on one specific syllabus, *Reception 1*, according to which the related work assignments were identified.

The *evaluating* conversations focused on the students’ participation in and experience of work. To evaluate the students’ experiences in the workplace relative to national goals was a dilemma for the vocational teacher. The teacher did not have the mandate to determine and guide the students’ participation in the work assignments that were to be evaluated:

The business and administration teacher Carl asked the student how things were proceeding since the last meeting. The student replied: I can handle a customer all by my self, before I could not [...] Last week I managed to get a customer to join the loyalty program. He asked for a discount [...] I told him about the premises, 10% off ... an invoice free of charge [...] I completed the sale. (School C, field notes, tripartite conversation Danny1)

In these recurrent conversations the vocational teacher evaluated the student’s progression in previously discussed work areas. The focus was on skills training,

daily routines and more demanding or new work assignments. This was an ongoing discussion relative to the student's achievements in the workplace at hand. In this evaluation phase, it was mostly the teachers who asked the questions that in turn were related to requirements in the national syllabuses. The workplace tutor and student gave their accounts of the work through tales about specific experiences or work episodes.

In the *concluding* conversations, students' engagement in assignments relating to the requirements in the syllabuses was summarised by the teacher in a similar way. One vocational teacher, Andrea (hotel and tourism), explained this relative to a meeting where she intended to gather information about the student's achievements, as they were to end this placement. Her aim for the conversation was to establish to what extent the student had developed the ability to anticipate and reflect upon work, if she needed to be closely supervised or if she only performed the duties that were allotted to her. To assess a student's workplace learning without having been involved in the situations was another dilemma the teachers had to address. In this case the teacher asked questions, which resulted in a discussion with both student and workplace tutor:

How do you know what to do? [...] What are the guests' demands? [...] How do you work with different colleagues? [...] What have you learnt from them? [...] Have you solved any problems on your own? [...] How do you work ergonomically? (School B, field notes, tripartite conversation Jennie1)

By asking questions the teacher also guided the concluding conversations. On the one hand the vocational teacher used the syllabuses for the vocational courses, which guided the talk about the student's experiences in the workplace. On the other hand, the student and the workplace tutor used work assignments in the specific workplace to tell about the student's engagement in specific aspects of work.

In sum, two main *tools* have been identified in the analysis of the three phases in the tripartite conversations, the national syllabuses and the work assignments in the workplace. The former was also a *rule* in school, which determined the value of the student's work experiences relative to requirements stated in the national goals for the specific upper secondary VET programme. The teacher's dilemma emerges from a contradiction between school and workplace. Here the student's work experiences were valued or assessed relative to the different activities of school and work. Work assignments were executed and evaluated relative to standards (*rules*) in the specific workplace and the national syllabuses (*rules*). This analysis indicates two layers in the *division of labour* in the tripartite conversations: On the one hand, the school controlled what areas of work the student should engage in to fulfil the national requirements for the upper secondary VET programme. On the other hand, the workplace with its rules and norms, division of labour and work assignments controlled the student's actual experience of the work process. Here the focus was on students' ability to engage in work assignments in the workplace context. From this contradiction two different objects emerge in the tripartite conversation – the workplace as school and the workplace as work. The three phases in the tripartite conversations indicate a need for vocational teachers and workplace tutors to appropriately locate the teaching and training content for the students' workplace learning experiences.

## Allocating Content Between School and Workplace

The division of content between school and workplace was dependent on what work tasks the students could or could not engage in the workplace. Allocating content between school and workplace was relatively new to the vocational teachers. In school-based VET they had taught the different vocational subjects in the school classrooms or workshops and short periods of workplace learning had complemented this. In this school-based context workplace learning was planned in the workplace, not by the teacher. In the upper secondary apprenticeship education, the time for teaching in school was replaced with students learning in workplaces. The conflict for the vocational teacher appeared when the same syllabus (*tool*) was to be implemented in the daily work in workplaces. This change brought out the contradiction between the newly established mode of workplace learning and deposits of its previous modes: New *rules* had replaced the classroom with the workplace as a new *community* for teaching and learning, which the teacher did not have access to. As a consequence the school assignments were replaced by work assignments (*tools*), which the teacher did not control. The teachers had to reconsider how the teaching should be carried out based on the increased demands for workplace learning that was manifested in the new *rules* and *division of labour*. The following description of the vocational teachers' new way to work serves to demonstrate this:

The four vocational teachers (two in the hotel and tourism programme and two in the business and administration programme) were responsible for their students' work placement (3 days/week). They also taught vocational theory in class (90–180 min/week) which was complemented with workplace learning under the same syllabuses. There were approximately five parallel VET courses included in each student's study plan in a school-year basis. From a vocational teacher perspective, this meant that the students in the vocational theory class also took the courses in workplaces. Students in grade 1 and 2 often attended the same vocational courses in different workplaces. Students in grade 3 could attend different courses depending on what programme specialisation they had chosen and what work assignments they were offered. One teacher could be responsible for up to 25 students in the 3 grades. To allocate content, the vocational teachers needed to coordinate the in-class teaching with students' experiences in these workplaces. Therefore, specific subject matter relevant for implementation across sites was sometimes brought up in the tripartite conversation:

- Teacher: My idea for Danny's third year is to concentrate on the laws that help guide the work in the workplace. About the Labour law, I suggest you talk about how it's operationalized.
- Tutor: I could only talk about what we do here, what it means to have a collective agreement. (School C, field notes, tripartite conversation Danny2)

In this tripartite conversation, the vocational teacher tried to guide the tutor's interaction with the student by introducing new ways for her to address specific content stated in the syllabuses. The teacher and the tutor negotiated the relevance of this knowledge area relative to the student's experiences of work. It was not clear

to either party to what extent general knowledge about the conditions in working life could become part of workplace learning.

This area of knowledge was sensitive to the norms and working conditions in the specific workplace. It was not self-evident to what extent the workplace specifics could be made available to the student and the school. The excerpt indicates that collaboration concerning allocation of content could be one way for the teacher and the tutor to support students' integration of generalised knowledge and its application in the workplace – in this case how employees' and employers' rights and obligations were operationalised. The tripartite conversation now emerges as a possible vehicle that could reconcile the general and the specific knowledge experienced in the vocational theory class and through workplace learning.

In sum, when workplace learning replaced extensive teaching in school, the vocational theory class became a *tool*, which served to complement workplace learning. Here, the tripartite conversation emerged as a potential *tool* for the teachers to allocate content between school and the workplace and as a *community* to collaboratively plan the students' workplace learning. In addition, the tripartite conversation emerged as a potential boundary-crossing tool when the teacher and the tutor established a *division of labour*, which identified that general goals stated in the syllabuses could be implemented by the tutor as part of workplace learning. This *new division of labour* could potentially contribute to support students' integration of learning across the sites.

## Locating Content in Workplace Learning

This section presents the analysis of contradictions in two subsequent tripartite conversations in one work place. Two disturbances are identified and analysed relative to the school's and the workplace's respective activity systems. In the following example, Vicky, a vocational teacher at the business and administration programme, made two visits to *The Little Store* for tripartite conversation. These were the first and second tripartite conversations with the student, Fanny, in this workplace. The workplace had not participated in the upper secondary apprenticeship education before. Fanny had recently shifted from a major retail chain to this minor store that sold children's clothing and suitcases. The agreement was that she should remain in this store until November, approximately 8 months. The teacher had previously talked separately to the student and the workplace tutor (who was also the owner) about the upper secondary apprenticeship education arrangement. Before the first visit Vicky explained that she intended to discuss the goals emphasised in four syllabuses – the courses *sales and customer service*, *personal sales*, *practical marketing* and *purchasing*. These are subject-specific established national goals. They describe the knowledge students should be given the opportunity to develop through teaching. They also specify which parts that are to be graded. Each subject contains a maximum of ten goals. The goals start with "the ability to", "knowledge about", "understanding of" and "skills in". The goals reflect expertise with emphasis on one

of the four forms of knowledge – i.e. facts, understanding, skills and familiarity. The broad knowledge concept of “ability” covers the four knowledge forms. Before the second visit Vicky explained that she intended to follow up some aspects of the student’s experiences of work, which they had discussed at the previous meeting. Both tripartite conversations were performed in the morning before the store opened. On arrival the tutor took out chairs. They sat down at the side of the cash register, overlooking the store. Vicky guided the conversations. On both occasions, they spoke alternately about knowledge, skills and abilities formulated in the syllabuses and the wide range of work assignments that occurred in the store. In an early stage of the first meeting, Vicky explained to the tutor that the knowledge, skills and abilities that Fanny should develop according to the syllabuses were embedded in daily work assignments. As the conversation evolved two disturbances became tangible, additional sales and the web shop.

## Additional Sales

The first disturbance reoccurred several times in relation to different syllabuses in this 1 h meeting. As the conversation evolved, it became clear that one aspect of work was not available in the workplace, *additional sales*:

- Vicky: Personal sales is about this, how you can persuade a customer to buy something extra
- Fanny: I’m not good at that
- Tutor: I think you have just started, and that is very well. A later step will be to increase sales without deceiving the customers [...]
- Vicky: Sometimes it’s good to be aware that [...] an extra sale to five customers increases today’s cash [...]
- Tutor: hmm
- Vicky: if you have cheap things by the cashier [...]
- Tutor: hmm.
- Vicki: This may be the next step for you (School A, recorded, tripartite conversation Fanny1)

The teacher pushes for additional sales, and the tutor shows no interest to go ahead with this line of work. Later in the conversation the topic comes up again. The teacher argues that service and sales are integrated and that it is important to understand the economic consequences of additional sales. Eventually she suggests that they take this in “small steps”, one additional sale the first week, then two and three. As the tutor does not completely reject the idea, the teacher concludes that it is a goal to develop until their next meeting.

This negotiation brings up a contradiction between the syllabuses in *personal sales* and the work assignments (*tool*), which was anchored in the work activity. An additional sale, as an assignment, was relevant to the business and administration programme. Additional sales were not irrelevant in the store. However, there seem to be no visible *tools* in the current line of work for the student to achieve this goal. As they already had additional products placed in front of the cash register, the

teacher suggested a change in how to work with “additional sales” and stressed that they could offer something extra when they were about to complete a sale. The tutor responds with silence; therefore, the initial rejection “a later step” may very well stand.

In the second tripartite conversation, the goal for “additional sales” was to be evaluated, and this time the tutor and the student reject the idea:

- Tutor: We have been talking about additional sales. It’s hard [...] it will arrive eventually [...]
- Fanny: It’s too early; I don’t have the feeling for the situation
- Tutor: No, it will have to come later (School A, recorded, tripartite conversation Fanny2)

Now another contradiction emerges. The “additional sale” (*object*) which offered new knowledge and skills in service and sales collided with the norms (*rule*) that guided the work in the workplace – at least when a sale was about to be completed in the cashier. This was not their way to increase sales and therefore not possible for the student to engage in.

The tutor had the mandate (*division of labour*) to implement work routines that supported a certain way to deal with customers in the workplace. However for “additional sales” she was not prepared to consider altering the work process to meet demands from school, when there was a risk of upsetting or losing customers.

## The Web Shop

The second disturbance occurred partway into the first tripartite conversation when it became clear that the student worked with other assignments besides the work on the shop floor. This part of the conversation concern how they work with *marketing*. Vicky asks how they market their business besides advertising in local newspapers and through their loyalty club:

- Tutor: We have the web shop [...] Fanny has been in on it, adding products
- Vicky: That is another course, *E-commerce*. Have you been in on the whole process? Received or packed orders, how does it work?
- Fanny: I have seen someone place an order
- Tutor: It’s not extensive. We haven’t promoted it, and the reason is that the cash register system does not update the stock. We do not want to sell if we can’t deliver. It’s more a way to advertise to the local community [...] when the register is updated we will develop the web shop [...]
- Vicky: *E-commerce* is sort of in order here, if you develop this (School A, recorded, tripartite conversation Fanny1)

This negotiation brings up another contradiction between the work assignment and the syllabuses (*tool*) that was anchored in the school’s activity system. In a similar way to the previous disturbance, *e-commerce* was relevant to this workplace, however, not to the current syllabus on *marketing*. Beforehand, the web shop was only visible for the workplace tutor in the activity of this workplace. The contradic-



tion emerges as the web shop (*object*), which offered new knowledge and skills in running the business, collided with the predetermined study plan (*rule*). In this case, the teacher considered whether or not this course could be included in the student's study plan right away. The teacher had the mandate to make changes in the original plan set by the school (*division of labour*). Consequently, the student's work with the web shop might be recognised by the school as part of workplace learning. However, in the second tripartite conversation, the teacher did not evaluate the student's progression relative to the web shop, which indicates that the uncertainty embedded in the possibility to complete *e-commerce* in the workplace had contributed to postpone the introduction of this syllabus.

In the analysis of the tripartite conversations in *The Little Store*, contradictions between a newly established mode of activity and remnants of previous forms emerge from both disturbances. This store had no previous experience of working with students in the upper secondary apprenticeship education. They had worked with social practice for students in schools. The store had controlled these students' participation in work. In the tripartite conversation the tutor recognised a difference between social practice and upper secondary apprenticeship education. She explained that it was a long time since she had studied, and now she has to get the pieces together in order to support Fanny. The tutor considers the difference between organising student's experiences as it suited the student and the business and her interacting with Fanny who she introduced to a variety of work areas. For example, Fanny worked with the "the web shop" and on the shop floor. In this case, the workplace was made a partner in education and not only a site for social practice. The tripartite conversation established this relation. However, when the school pressured the workplace to implement a new work order for "additional sales" – an order that corresponded to the business and administration programme's ideal of a more integrated sales chain – the contradiction became evident. Even if "additional sale" was partly agreed upon as "a later step", this work procedure may not be implemented. It is reasonable to assume that the established form of work activity in the workplace probably would resist this procedure. In a similar way, a contradiction emerged when the workplace had arranged for the student to work with the "web shop", which gave a more holistic view of the work process in *The Little Store*. In school there was still the predetermined study plan for each upper secondary VET programme and student. Even if it was possible to introduce a new syllabus such as *e-commerce* in advance in one student's study plan, it might be hard to implement the additional syllabuses in the current line of organisation if the workplace could not guarantee that the educational goals were fulfilled. A potential new mode of the activity for workplace learning may however be foreshadowed as the workplace tutor, the vocational teacher and to some extent the student collaboratively negotiate the plan for the student's workplace learning path.

In each of the three perspectives, the vocational teacher emphasised the workplace as an extended classroom, where the students should develop knowledge, skills and abilities that fulfil the requirement for work and for vocational examination. To realise this, the teacher used the tripartite conversation to negotiate a workplace learning path. This path was expected to support the student in developing

operational skills, the ability to understand work processes, and to act based upon this understanding of complex relationships in work situations. For instance, the relationship between business conditions and the actions that could be taken to increase sales. The workplace tutor emphasised the student's learning and progression relative to a variety of experiences available in the store. To realise this, she negotiated successive progression towards wider experiences and more demanding tasks in the activity of this workplace. This path was expected to support the student to develop the ability to act independently in work situations. The student emphasised the experiences from work relative to her ability to handle the situation. To realise a workplace learning path, her focus was on developing operational skills in the daily work assignments. This path gave access to experiences that supported the development of an ability to perform various work assignments based on the standards in this workplace.

## Discussion

The analysis in this chapter has summarised how the tripartite conversation was shaped in the context of upper secondary apprenticeship education, and how it might be shaped as a tool (Engeström and Sannino 2010; Tuomi-Gröhn et al. 2003) to support students' integration of experiences across sites, which is also the theme of this book. The chapter has given examples of how contradictions between school and work were played out in the upper secondary apprenticeship education. The chapter has also given examples of how the new form for workplace learning and deposits of older forms for work placements were played out in the context of the tripartite conversation. The tripartite conversation emerged as a boundary-crossing tool where vocational teachers, workplace tutors and students could influence the creation of workplace learning paths in different workplaces. Several tensions were identified when the school's new procedure for workplace learning was introduced in workplaces. The changes demanded from schools and workplaces concerned new ways to work with students' workplace learning and new tools that were still not sufficiently developed (cf. Berglund and Lindberg 2012). The new approach with a tripartite conversation aiming to support student learning presented challenges in relation to the allocation of curriculum content between the school and the workplace. The vocational teachers' goals for students' workplace learning focused on the students' ability to apply both general and specific knowledge and skills in daily work situations. The teachers were guided by syllabuses that stated the direction for workplace learning relative to national goals. The primary goal for the workplace tutor and the student was on the performance of work assignments in complex work situations. This work was guided by the rules and norms in the workplace. Disturbances and dilemmas were identified in the vocational teachers' efforts to introduce new or alternative learning objectives in the workplace and in the workplace tutors' efforts to guide and control students' learning according to workplace standards.

A pedagogy that supports students' integration of experiences across sites has been emphasised as an aspect of VET that needs strengthening (Billett 2009; Schaap et al. 2012; Tynjälä 2008). The findings presented in this chapter have indicated that the tripartite conversation may contribute to shape a new integrated VET curriculum. Two aspects of work and learning underpinned the negotiations between vocational teacher, workplace tutor and student in the tripartite conversations. On the one hand, in order to meet the requirements of work, the assignments that the students engaged in had to be executed in accordance with the rules and norms that guided the work in the workplace. On the other hand, to meet the requirements of school, the students had to engage in different work assignments that complied with the learning objectives expressed in the national syllabuses. The vocational diploma emphasised subject-specific knowledge and skills, which were to be implemented as workplace learning according to national standards. In this context the tripartite conversation emerge as a boundary-crossing tool that carry the potential to support the development of collaboratively established workplace learning paths that serve the interest of the student, the school and the workplace.

Research has shown that the tripartite conversation was one aspect of the Swedish vocational teachers' work that went beyond assessment interviews. This work included collaborative evaluations of students' workplace learning (Berglund 2007; Berglund and Lindberg 2012). Teaching in class has been stressed as an important complement to workplace learning (Akkerman and Bakker 2012; Gustavsson 2012; Kilbrink and Bjurulf 2013). The findings reported in this chapter indicate that the tripartite conversation also included continuous collaborative planning of students' workplace learning paths. For instance, the assignments that the students engaged in could be explicitly related to the educational goals and collectively determined in the tripartite conversations. Access to different work areas could be collaboratively negotiated, and the teachers' planning for the VET theory class could include negotiation with the workplace tutors. In this context, general knowledge about work procedures acquired in school could be integrated with students' engagement in selected work assignments. In other words, the tripartite conversations can be anticipated as an emerging, however not yet fully developed, VET activity that carries the potential to deal with the difficulties embedded in supporting students' integration of experiences across sites. Without claiming to generalise a vocational teachers' pedagogy, the tripartite conversation is one example of how teachers and workplace tutors find new ways to collaborate. In the context of upper secondary apprenticeship education, research has however shown that collaborative evaluation of workplace learning is rather the exception than the norm (Berglund and Lindberg 2012; Olofsson 2014). Hence, further research into the specifics of vocational teacher pedagogy in the tripartite conversation is suggested.

The analysis of tensions and contradictions (Engeström and Sannino 2010, 2011) made it possible to understand how the tripartite conversation was shaped in the context of school and work. From this analysis two interconnected paths for workplace learning can be foreshadowed. One path followed the division of labour in the workplace. Students were supported in developing knowledge, skills and abilities to handle daily work assignments and complex work situations: The other path was

collaboratively planned and evaluated from the perspectives of the school and workplace, respectively. Students were supported to develop the ability to understand complex relationships in the workplace activity.

## Conclusion

This chapter has given examples of how workplace learning paths can be created as a VET activity that brings the school and the workplace together in various ways. One conclusion is when the workplace manifests the training arena, schools must evaluate and match the ongoing operations and actions in the workplace to potential learning objectives in the curriculum. Another conclusion is that when upper secondary apprentices enter the workplace, the workplace must implement training paths that transcend the daily routines in a single occupation. The tripartite conversation can be considered a useful tool for collaborative planning, which may prevent students becoming the only brokers between the two institutions. Integration in this context places greater demands on the vocational teachers. For them the tripartite conversations offer a space to coordinate teaching in school, and work experiences, and to influence the workplace learning path. This space emerges as a unique opportunity to shape an integrated curriculum, which otherwise would be difficult to achieve. Both school and the workplace need to support this. Workplace learning paths created in collaboration may carry the potential to be sensitive to the different conditions of schooling and work. In this way integration of experiences in different sites can be better facilitated and enriched.

## References

- Aarkrog, V. (2005). Learning in the workplace and the significance of school-based education: A study of learning in a Danish vocational education and training programme. *International Journal of Lifelong Education*, 24(2), 137–147.
- Akkerman, F. S., & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning*, 5(2), 153–173.
- Berglund, I. (2007). *En ny yrkesutbildning – genom yrkesbaserat lärande? En studie i tre gymnasieskolor som samverkar med företag*. Report from the EQUAL-project. Teacher College Stockholm. <http://yrkesutbildning.blogg.lu.se/files/2015/01/ENYrapporten.pdf>. Accessed 24 Mar 2017.
- Berglund, I. (2012). Att vara lärling i gymnasial lärlingsutbildning. In I. Henning Loeb, & H. Korp (Eds.), *Lärare och lärande i yrkesprogram och introduktionsprogram* (pp. 167–182). Lund: Studentlitteratur.
- Berglund, I., & Lindberg, V. (2012). *Assessment of vocational knowing: Experiences from the Swedish pilot project with upper secondary apprenticeship 2008–2011*. Bulletin of Institute of Technology and Vocational Education. <http://ir.nul.nagoya-u.ac.jp/jspui/bitstream/2237/17026/1/3%E3%80%90Viveca%20Lindberg%E3%80%91.pdf>. Accessed 15 Nov 2016.

- Berner, B. (2010). Crossing boundaries and maintaining differences between school and industry: Forms of boundary-work in Swedish vocational education. *Journal of Education and Work*, 23(1), 27–42.
- Billett, S. (2006). Constituting the workplace curriculum. *Journal of Curriculum Studies*, 38(1), 31–48.
- Billett, S. (2009). Vocational learning: Contributions of workplaces and educational institutions. In R. Maclean & D. Wilson (Eds.), *International handbook of education for the changing world of work* (pp. 1711–1724). Dordrecht: Springer.
- Engeström, Y. (1987). *Learning by expanding: an activity theoretical approach to developmental research*. University of California, San Diego, The Laboratory of Comparative Human Cognition's website: <http://lhc.ucsd.edu/mca/Paper/Engestrom/expanding/toc.htm>. Accessed 9 Jan 2015.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133–156.
- Engeström, Y. (2008). *From teams to knots: Activity-theoretical studies of collaboration and learning at work*. New York: Cambridge University Press.
- Engeström, Y., & Sannino, A. (2010). Studies of expansive learning: Foundations, findings and future challenges. *Educational Research Review*, 5(1), 1–24.
- Engeström, Y., & Sannino, A. (2011). Discursive manifestations of contradictions in organizational change efforts. A methodological framework. *Journal of Organizational Change Management*, 24(3), 368–387.
- Fuller, A., & Unwin, L. (2003). Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work*, 16(4), 407–426.
- Gustavsson, S. (2012). Treparsamtalet i APL. (The tripartite conversation and workplace learning in an upper secondary vocational education and training programme). In I. Henning Loeb & H. Korp (Eds.), *Lärare och lärande i yrkesprogram och introduktionsprogram* (pp. 149–165). Lund: Studentlitteratur.
- Hegender, H. (2010). Vilkor och praxis. Bedömning av lärarstudenters yrkeskunskaper under verksamhetsförlagd utbildning. *Nordic Studies in Education*, 30(3), 180–197.
- Kilbrink, N., & Bjurulf, V. (2013). Transfer of knowledge in technical vocational education: A narrative study in Swedish upper secondary school. *International Journal of Technology and Design Education*, 23(3), 519–535.
- Konkola, R., Tuomi-Gröhn, T., Lambert, P., & Ludvigsen, S. (2007). Promoting learning and transfer between school and workplace. *Journal of Education and Work*, 20(3), 211–228.
- Kristmansson, P. (2016). *Gymnasial lärlingsutbildning på Handels- och administrationsprogrammet. En studie av lärlingsutbildningens förutsättningar och utvecklingen av yrkeskunnande*. University of Umeå: UmU tryckservice. <http://umu.diva-portal.org/smash/get/diva2:1040061/FULLTEXT01.pdf>. Accessed 12 Dec 2016.
- Lagström, A. (2012). *Lärlingsläraren – en studie om hur vård- och yrkeslärares uppdrag formas i samband med införandet av gymnasial lärlingsutbildning*. University of Gothenburg. <http://hdl.handle.net/2077/27999>. Accessed 12 Jan 2015.
- Lgy 70. (1970). *Läroplan för gymnasieskolan* (Curricula for Upper Secondary School). Stockholm: Liber AB.
- Lindberg, V. (2003). *Yrkesutbildning i omvandling. En studie av lärandepraktiker och kunskaps transformationer*. Lärarhögskolan. Institutionen för samhälle, kultur och lärande. Stockholms Universitet: HLS Förlag. <http://www.diva-portal.org/smash/get/diva2:225794/FULLTEXT01.pdf>. Accessed 1 Nov 2016.
- Lindberg, V. (2013). Bedömning av lärares yrkeskunnande. In Y. Strähle, & A. Bronäs (Eds.), *Mentorskap i skola och förskola* (pp. 148–174). Stockholm: Nordstedts.
- Lpf. 94. (1994). *Läroplanen för de frivilliga skolformerna*. (Curricula for the Voluntary School Forms) Stockholm: Liber AB.

- Olofsson, J. (2014). *Yrkesutbildning i förändring – utmaningar och möjligheter ur ett forsknings och aktörsperspektiv*. Ratio report no. 10. <http://ratio.se/app/uploads/2014/10/yrkesutbildning-i-forandring.pdf>. Accessed 7 Jan 2015.
- Sappa, V., & Aprea, C. (2014). Conceptions of connectivity: How Swiss teachers, trainers and apprentices perceive vocational learning and teaching across different learning sites. *Vocations and Learning*, 7(3), 263–287.
- Schaap, H., Baartmaan, L., & de Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning*, 5(2), 99–117.
- SFS. 2010:800. Skollag. (Education Act). [http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Skollag-2010800\\_sfs-2010800/](http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Skollag-2010800_sfs-2010800/). Accessed 4 May 2017.
- The School Inspectorate. (2011). *Arbetsplatsförlagd utbildning i praktiken. En kvalitetsgranskning av gymnasieskolans yrkesförberedande utbildningar*. Report 2011:2. <https://www.skolinspektionen.se/globalassets/publikationssok/granskningsrapporter/kvalitetsgranskningar/2011/yrkesforberedande-utbildningar/kvalgr-yrkesforb-slutrapport.pdf>. Accessed 20 Mar 2017.
- The Swedish Agency for Education. (2012). *Upper secondary school 2011*. Stockholm: Fritzes. [http://www.skolverket.se/om-skolverket/publikationer/visa-enskild-publikation?\\_xurl=http%3A%2F%2Fwww5.skolverket.se%2Fwtpub%2Fws%2Fskolbok%2Fwpubext%2Ftrycksak%2Fblob%2Fpdf2801.pdf%3Fk%3D2801](http://www.skolverket.se/om-skolverket/publikationer/visa-enskild-publikation?_xurl=http%3A%2F%2Fwww5.skolverket.se%2Fwtpub%2Fws%2Fskolbok%2Fwpubext%2Ftrycksak%2Fblob%2Fpdf2801.pdf%3Fk%3D2801). Accessed 5 Feb 2017.
- Tuomi-Gröhn, T. (2003). Developmental transfer as a goal of internship in practical nursing. In T. Tuomi-Gröhn, Y. Engeström, & M. Young (Eds.), *Between school and work. New perspectives on transfer and boundary-crossing* (pp. 199–231). Bingley: Emerald Group Publishing Limited.
- Tuomi-Gröhn, T., Engeström, Y., & Young, M. (2003). From transfer to boundary-crossing between school and work as a tool for developing vocational education: An introduction. In T. Tuomi-Gröhn, Y. Engeström, & M. Young (Eds.), *Between school and work. New perspectives on transfer and boundary-crossing* (pp. 1–15). Bingley: Emerald Group Publishing Limited.
- Tynjälä, P. (2008). Perspectives into learning at the workplace. *Educational Research Review*, 3(2), 130–154.
- Virtanen, A., Tynjälä, P., & Eteläpelto, A. (2014). Factors promoting vocational students' learning at work: Study on student experiences. *Journal of Education and Work*, 27(1), 43–70.
- Wesselink, R., de Jong, C., & Biemans, H. J. A. (2010). Aspects of competence based education as footholds to improve the connectivity between learning in school and in the workplace. *Vocations and Learning*, 3(1), 19–38.

# Chapter 15

## Integration Between School and Work: Changes and Challenges in the Swedish VET 1970–2011



Gun-Britt Wärvik and Viveca Lindberg

**Abstract** This chapter focuses on Swedish upper secondary vocational education and training (USVET) and evolving conditions for the integration of education in schools and workplaces, as intended in the goals of three upper secondary school curricular reforms of 1970, 1994, and 2011. These reforms have transformed educational traditions in response to new societal expectations arising from changing working life and educational individualisation. Two occupational areas—healthcare and the textile industry—serve as examples that, over several decades, have been exposed to radical transformations in production and their contributions to the economy. Accordingly, the demands of occupational competencies have changed. The chapter is mainly based on secondary analyses of empirical research. Activity theoretical concepts are used as a lens for analysing changes. The main findings highlight different societal motives for education and the labour market under each of the three reforms, which impacted the objects formulated for USVET and the general organisation of how USVET was to be realised. A notable difference was the emphasis on vocational or general content, which has changed the ways in which integration between school and work has been realised. In both healthcare and the textile industry, VET teachers have been the main mediating agents of integration, albeit with a diminished role, since their contact and engagement with work sites became limited to a few visits. Teachers are now dependent on workplace activities they are not part of, yet have the responsibility to enact the curriculum in ways needed to optimise integration. The point being made here is that teachers' roles in integration need to be understood in terms of cultural and historical contexts that influence the quality of integration they are able to enact and facilitate.

**Keywords** Upper secondary school VET · Vocational curriculum · Vocational education policy · Vocational teachers · Activity theory · Societal motives · Mediating agents

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## Introduction

The focus of this chapter is on Swedish upper secondary vocational education (USVET) and conditions for the integration of education that takes place in schools and workplaces, as intended in the goals of three upper secondary school curricular reforms of 1970, 1994, and 2011. The reforms have transformed educational traditions to meet new societal expectations, embracing the development of a workforce that can meet the changing needs of the labour market and at the same time achieve more democratic and equal distribution of educational resources (Skolöverstyrelsen 1971a; Skolverket 1993, 1994a, b, 2011). In parallel, societal expectations also embrace educational individualisation that increasingly, and in connection with the development of the international lifelong learning policy agenda (e.g. European Commission 2000; OECD 1996), has become a prominent feature of the educational system, including of USVET (Lindell and Abrahamsson 2002). Individualisation to fulfil educational goals and achieve lifelong learning ambitions has gradually placed greater responsibility on individual students—the state taking a step back (Andersson and Wärvik 2014), which has resulted in implications for integration. An argument of this chapter is that the reforms have also transformed the conditions of USVET teachers' work as mediating agents between school and work. Integration can in this instance involve teacherly interventions as necessary for meeting the individual needs of students. However, for Swedish USVET, educational individualisation can likely leave students on their own to integrate what they have learned in school and in the workplace.

We base our discussions around the three curricular reforms pertaining to two occupational areas—healthcare and the textile (clothing) industry—reviewing both in relation to the overall societal motives for USVET. Both healthcare and the textile industry are traditional occupational areas but have over the decades been exposed to societal changes. These changes include radical transformations in their production and contributions to the economy and, accordingly, changing demands in occupational competencies of the workforce. Hence, workplace transformations should not be overlooked in an analysis of conditions for integration of education that takes place in schools and workplaces. Thus, we argue that working life changes, together with curricular reforms, create specific conditions for teacherly interventions and that both play an important part in quality integration and, accordingly, educational traditions of different vocations. The Swedish upper secondary VET in policy documents seems considered separately in its own entirety, while little attention is given to how integration between school and work is realised in the different programmes. Our questions are: What are the intended curricular and societal purposes of integration? How is education in schools and in workplaces intended to be linked? What are the consequences for integration in the two programmes? The point we highlight here is that the conditions for teacherly interventions to support integration in the healthcare and textile USVET slowly diminished since the 1994 reform because USVET teachers were distanced from authentic work sites. The 2011 reform did not change this situation. Instead, the influences by the trade branches and the



workplaces on educational content became more prominent. Our analysis is based on previous empirical research in the two fields.

## Theoretical Points of Departure

As a basis for this discussion, we use central ideas from activity theory, meaning that education and work are seen as two separate object-oriented and artefact-mediated activities that are historically evolved (Engeström and Kerosuo 2007). An object in this instance is not a thing or a short-term goal, but a purposeful whole that both embodies and gives direction to the activity, but is at the same time open to different interpretations by those involved in the activity. Thus, activities are created by purposeful actions at the same time as they create these actions, meaning that an object is embedded in a societal purpose that creates and motivates the existence of the activity—i.e. a societal motive. *Societal motive* (Engeström 2005) is the notion we will use here to analyse USVET transformations with regard to the driving force(s) for integration. *Integration* thus refers to shared societal motives between school and work. For integration to happen, there is a need for mediational means to cross boundaries and overcome dualities and possible contradictions (Konkola et al. 2007). In these instances, teacherly interventions also point out the agentic aspects of mediational means, what we here refer to as *teachers as mediating agents*. Thus, a key point here is the intertwining of structure and agency, i.e. societal motives and mediational means such as teachers' agency are seen as mutually constitutive and cannot be understood without each other.

Complex activities like education are often driven by several—and sometimes conflicting—societal motives and historically developed mediating tools, rules, and materials that contribute to changing activities and the persons involved in them. This is perhaps most obvious in USVET since there are several societal motives that are tied together in the realisation of integration between school and work and, accordingly, the accomplishment of USVET. Some of these are also in contestation. For instance, integration and workplace involvement are on the one hand seen as a means for education of highly qualified workers, demanded by the modern working life, but at the same time as a motivational means to retain engagement of students who would otherwise have left school (Berglund and Lindberg 2012). Other societal motives are for students to access modern education based on the latest technology and also reduction of youth unemployment among those who are educationally less privileged (Nylund 2013). These motives are all tied together in the realisation of integration between school and work and, accordingly, the accomplishment of USVET. As a consequence of their complexity, neither the school nor the workplace can manage these demanding educational and societal motives in isolation.

Thus, it is not only transformations in the societal motive of education but also in the societal motive of work that have altered the conditions for integration in the Swedish USVET. Furthermore, the traditions of integration and workplace involvement have varied between vocational areas, despite overarching national curricula

for the upper secondary school (Lindberg and Wärvik 2017). Reviews and debates around USVET tend to overlook these historical developments of the Swedish educational system and subsequent societal struggles and justifications that initiated vocational education to become school-based since the 1970s (Lundahl 1997). Likewise, the debates also neglect the different educational traditions that are embedded in different occupations and need to be considered for integration between school and work. Nevertheless, vocational education was reformed into a unified, general upper secondary school curriculum for all, complemented with national curricula for each programme. We contend that historically developed traditions are still highly relevant if we want to understand the phenomenon of integration between school and work (Miettinen and Peisa 2002) and how to support integrative educational practices in specific areas (cf. Grollmann, Chap. 4, 2018).

In the following, we briefly give an overview of the Swedish USVET of today, followed by an analysis of working life changes, curricular reforms, and conditions for integration in healthcare and textile educations during the three reforms of 1970, 1994, and 2011.

## The Swedish USVET

Since 2011, the Swedish USVET has formally offered 2 pathways in each of the 12<sup>1</sup> VET programmes: (1) school-based VET, which includes 15 weeks of work-based education,<sup>2</sup> and (2) school-based apprenticeship, where 50% of the programme is expected to be work-based (Skolverket 2011). These two pathways are regulated under a single national curriculum and comprise common goals. The national education policy considers the two pathways as equivalent in terms of merits, although the content may vary, and the school is responsible for both.<sup>3</sup> The school-based apprenticeship embraces a minor part of the Swedish USVET (see Andersson, Chap. 14, 2018) and is not explicitly dealt with in this chapter.

Unlike Sweden, countries like Denmark and Germany, with long traditions of a dual VET system, have organised VET that includes apprenticeship employment contracts under legislative requirements (Olofsson and Panican 2008). A burning issue for the Swedish apprenticeship track is whether students should be employed as apprentices. Both the employers' federation and trade unions in Sweden remain reluctant (Andersson et al. 2015), as they were when the debate about legal regulation of apprenticeship first started after the First World War (Lundgren 2007; Olofsson 2014). Instead, with different societal motives for USVET, a range of practices developed in the Swedish system, depending on which motive was considered as the strongest in different settings. This extends interests in integration

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<sup>1</sup>In total, there are 18 programmes in the Swedish upper secondary school. Since this chapter only relates to VET, the 6 general programmes are not discussed in any depth.

<sup>2</sup>Twenty-three hours per week, for a total of 345 h (Skolverket 2015)

<sup>3</sup>Students can change to the apprenticeship track even during their education.

between school and work beyond the issue of legal regulations. However, reviews by the Organisation for Economic Co-operation and Development (OECD) have since the late 1980s argued that links between school and work in Sweden are weak:

Sweden's large separation between the world of work and the world of education and school-based VET is significant in comparison to other Nordic countries... Given the social partners' direct knowledge of the labour market, this separation increases the risk that VET may not meet labour market requirements. There are also few forums at which the key VET stakeholders—government, trainers and social partners—can agree on common objectives. (Kuczera et al. 2008, p. 11)

Importantly, integration within the framework of USVET, even if formally school-based and regulated by education policy, is clearly intertwined with labour market policy and a measure for many societal expectations. Starting in 1944, different constellations for involvement by labour market organisations have constituted integrational means (Lundahl 1997; Nilsson 1983). Still, an evaluation by Lemar and Olofsson (2010) pointed out that the advisory boards did not always function very well since discussions often tended to be too general. In principle, different local trade associations are expected to be involved in the development of local curricula. Nevertheless, involvement of the different partners and outcomes of local negotiations vary in terms of the content and what to offer students as opportunities and experiences (Lemar and Olofsson 2010).

## **Healthcare and the Textile Industry**

Since the 1970s, the healthcare sector and the textile industry have been exposed to dramatic transformations that also have had implications for the kinds of competences that needed to be included in USVET programmes. For instance, the specialised healthcare assistants of the 1970s who were trained for the growing acute care hospitals are now trained as flexible generalists for a diverse range of health and social care work. Swedish textile workers have seen their their jobs in clothing industries being outsourced to countries that pay lower salaries. As a result, educational interests in this sector have now been directed towards fashion and designing of outfits instead of manufacturing.

### ***Healthcare***

The formal state-regulated educational trajectory of healthcare assistants is very short, created in response to the growth in acute care hospitals and general development of the welfare state during the first half of the twentieth century. Before 1957, education for these workers was mainly work-based and often in the form of a shorter period of acclimatisation under the guidance of a more experienced fellow worker/healthcare assistant. If the caring institution regarded it necessary, hospitals

could arrange short local courses as a brief orientation. However, a rapid expansion of the increasingly highly specialised acute care hospitals resulted in a shortage of staff. The realisation that more patients could be treated and survive meant that caring work became more demanding and, accordingly, raised demands for a better-educated workforce of healthcare assistants. Thus, a separation of school and work started to emerge and, hence, a need for integration between the two activities. An education of 8 weeks' duration started at the end of the 1940s, and in 1958, a more formalised general education for healthcare assistants was introduced. The programme was around 47 weeks long but still very local. Half the time was work-based, and half was school-based (SOU 1962; Walldal 1986).

### *The Textile Industry*

The Swedish textile industry was established in the eighteenth century and comprised the production of cloth—the weaving industry—on the one hand and the clothing industry on the other hand. Only the latter is discussed in this chapter. Factories were established in the late nineteenth century, when industrial sewing machines were invented and made possible the cheap mass production of garments (SOU 1959; Torsson 1982). By the turn of the century, some factories started schools for their employees to secure sufficient skills in reading and writing. This is a very early example of how a workplace integrated school into its activity.

With industrial production and the division of labour came a narrow specialisation on specific details that could be learnt in a much shorter time in the factories than previously was possible. However, the Swedish clothing industry, like many other sectors in Sweden, was not satisfied with what their employees could learn on the job alone. Although narrow in scope, the new technologies assumed specific literacy and drawing, at least from some workers, mainly by reading patterns. The first signs of integration of on-the-job learning with school-based learning were evident when complementary education for apprentices was organised in evening and Sunday schools, starting in the late nineteenth century. In the early twentieth century, the former solutions for “lower vocational education” within various sectors (Lindell 1992, p. 11) were no longer satisfactory. A governmental proposition, the 1918 Practical Youth School Reform, initiated Sweden's first comprehensive vocational education system for industry, craft, trade, and domestic work.<sup>4</sup> Immediately after this reform, vocational schools for the clothing industry were established in southwestern Sweden (Lindberg 2006). Vocational education for the clothing industry between 1918 and the integration of vocational education in upper secondary school in the 1970s is, however, only briefly documented.

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<sup>4</sup>It should be noted, though, that only a minor part of Swedish youth attended vocational education. These schools were mainly established in cities. According to Nilsson (1983, p. 32), “approximately 9000 young people were educated in different vocational schools, [but] only 700 were full-time” by the end of the 1920s.

## The 1970 Reform

In Sweden, like in many other Western countries, the post-war period was characterised by economic growth. The manufacturing industry was expanding and in need of manpower, as was the welfare sector. Education as a means for economic prosperity as well as for the development of a democratic society was an evolving societal motive (Bergström 1993). Increased access to formal education was expected to even out differences between social groups in society and to provide a competent workforce. The former parallel school system was abandoned, and reformation of the entire school system commenced in the 1940s, resulting in far-reaching changes some decades later. In 1962, the compulsory 9-year comprehensive school was introduced, and in 1970, a new curriculum for upper secondary school, Lgy70; (Skolöverstyrelsen 1971a) for unified upper secondary school, including vocational education, was implemented. Vocational education from then on was under the same educational policy and organisational umbrella as general upper secondary education (Lundgren 2007).

The idea of “recurrent education” as a new strategy for lifelong learning was put forward by the OECD, suggesting that education should be distributed “over the lifespan of an individual in a *recurring way*”<sup>5</sup> (Kallen and Bengtsson 1973, p. 7). Recurrent education was an alternative to the ideal of a period of education before work and was expected to avoid educational dead ends. According to Tuijnman (1991, p. 17), the idea of recurrent education was envisaged in 1969 by Sweden’s then-Minister of Education, Olof Palme, at an OECD meeting of ministers of education. Accordingly, the Swedish education policy debate was inspired by these ideas, and recurrent education should supply:

The labour market with the skilled manpower required for sustaining economic growth. It follows that recurrent education provided welcome arguments for emphasizing the liaison among education and working life. By strengthening the correspondence among education and work, recurrent education was aimed at facilitating the structural adjustment of labour markets and education systems by managing imbalances among supply and demand, and trade-offs among equality and efficiency. (Tuijnman 1991, p. 18)

Thus, a unified upper secondary school that included vocational education was a step in this direction, including a confidence in the state’s ability to govern the labour market. The societal motive of education was strengthened and, accordingly, the need for integration between the two activities.

The Lgy70 reform was planned before the economic recession of the 1970s, with its rapidly rising unemployment. The Swedish society was still prospering as a nation-state with good economic resources.

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<sup>5</sup> Underlined in original

### *Implications for Healthcare*

Lgy70 laid out a foundation for a totally renewed educational organisation for the healthcare sector that had been rapidly expanding over 20 years (Johansson 1983; Skolöverstyrelsen 1971b). Bedside training in hospital settings under the supervision of more experienced healthcare workers was considered inadequate, and healthcare assistants needed better education provided by schools. However, Lgy70 emphasised knowledge in bedside care, as was the case before this reform. The teachers were experienced and specialised nurses with teacher education qualifications. They also acted as clinical teachers in the hospital wards and supervised students. Like before the Lgy70 reform, the clinical teacher at the workplace and the teacher at the educational institution most often were the same person and a mediating agent of integration. The national curriculum was task-oriented and highly detailed about procedures the students should be able to carry out. Similarly, the book of methods for staff detailed a separate set of procedures. The task orientation was often challenged by nurse teachers who instead placed emphasis on the individual patients. It was argued that the specific needs of patients and caring problems should become the basis for teachers to integrate (Johansson and Björn 1979; Johansson 1983). The schools had special-methods rooms in which students could develop their skills under the guidance of the teacher before they engaged in bedside work with patients. To give students a broad experience, around one third of the education programme was spent at different kinds of workplaces during the 2 years of education, including nursing homes for the elderly, primary care, long-term care, psychiatric care, and medical or surgical care.

### *Implications for the Textile Industry*

Clothing technology became one of the 2-year vocational programmes in the upper secondary school of 1970 (Skolöverstyrelsen 1971c). The first year was common for all commencing students. During the second year, they chose whether to specialise in men's or women's clothing.

In interviews with teachers in one of the old schools (operated since 1920), a teacher who had received her vocational education and was employed there since 1984 spoke of a long tradition of collaboration with local clothing manufacturers. During the first year of the 2-year programme, students learnt the basics, and during the second year, they specialised in either male or female clothing and gained experience in serial production. This was made possible through collaboration with local clothing manufacturers. The manufacturers brought pieces of garments that had already been cut for the students to sew. Thus, even if the education was situated on school premises, integration between school and work took place as students carried out work tasks for companies. The school in this instance was set up as a real workplace, and integration was mainly mediated by the work assignments provided by

the manufacturers. Students gained experience in different kinds of specialisation through the division of labour that was common in manufacturing sites (Lindberg 2006). This type of arrangement was common not only in this particular school but also in other schools in the region.

### ***Comparison Between Healthcare and the Textile Industry***

Clearly, Lgy70 implied a separation of school and work and, accordingly, a need for greater attention to integration. Discourses on integration revolved around the term *collaboration*, albeit with little clarity on how integration was to be enacted and who was responsible for it. Despite the unifying national curriculum, it is clear that work-based education was organised differently in the two programmes. Healthcare students spent longer periods at different kinds of workplaces. The teachers were the main mediating agents for integration since they were teaching at the bedside as well as in the classroom. Thus, the societal motive of work (as mass production of specialist carers) was rather dominating in this new form of school-based education. In addition, the very detailed book of methods on how to carry out work procedures, combined with a very detailed curriculum on what kinds of specific procedures should be taught, also facilitated integration even if the task orientation was criticised. Textile students were educated on school premises, and teachers' contacts with the manufacturing industry were important for integration between school and work. Integration was made possible through assignments carried out for local clothing industries. Thus, schools also became serial producing workplaces—although on a small scale, the societal motive of work (as mass production of clothes) was a valued content in VET. However, the curriculum stipulated only 2 weeks of so-called workplace experience—labelled as *environmental practice*.

For both sectors, we note that teachers were present in the daily work of students, in the classroom as well as when the students were carrying out work tasks, be it as supervisor in a hospital setting or on school premises. The teachers' role as mediating agents for integration can thus be described as being quite far-reaching, be it in the school or in the workplace. A dominating motive for education was connected to workplaces' need for manpower for specialist care and mass production of clothes and a societal confidence in recurrent education.

### **The 1990 Reform**

The launch of the 1994 Curriculum for Non-Compulsory School reform, Lpf94, (Skolverket 1994a, b) coincided with increasing unemployment that, to a large extent, was affecting the public sector. The public sector was no longer expanding, as it was seen as inefficient and too costly. Discourses of globalisation and

knowledge societies in a period of change and uncertainty started to gain prominence, not the least in educational debates. The intended educational ideas of the 1970s were now replaced by what has been labelled the second generation of life-long learning (Rubenson 2006), driven by an OECD agenda (OECD 1989). Education and economy were placed together, “framed within a politico-economic imperative that emphasised the importance of science and technology, as well as highly-developed human capital” (Rubenson 2006, p. 329). Thus, we could have anticipated an even stronger integration between school and work, but this was not the case. On the contrary, we will argue that integration was weakened. One reason for this was an emerging new societal motive of USVET: A strong state was no longer seen as able to plan the lives of citizens in an uncertain future. Instead, citizens were expected to equip themselves with knowledge and skills and thereby become “empowered”, so they could flexibly adapt to changing societal circumstances that nobody could steer or purposefully contribute to. The individual was expected to design his/her own competence and become a flexible employee, accepting temporary project-based employment—in short, “eager to stay but ready to go” (Gee et al. 1996, p. 35).

According to Lundgren (2007), the term *recurrent education* was used in the political directives leading to the 1994 reform, USVET was seen as a first step, and students were expected to be able to continue their studies by in-service training, further education, or retraining (Lindberg 2003). All students were expected to be eligible for admission into higher education studies, made possible by the inclusion of additional general subjects in the curriculum. Furthermore, students were to be prepared for broad and changing vocational areas instead of specific vocations. Thus, all programmes became 3 years in length.

The ideal of a detailed uniform national curriculum like in the 1970 reform was abandoned, replaced with a possibility of local and regional interests to influence education, but only to a certain extent. Each programme had a nationally common component. In addition, there was a space in the curriculum for each school to define and construct courses related to local or regional needs for vocational competence. For this, the previously established vocational advisory boards (Nilsson 1983) were expected to assume major responsibility (Berglund 2007). The courses could be school- or work-based. Company-owned schools were established to deliver USVET. Such schools were initially founded by Swedish companies with an international market, e.g. Volvo, Scania, and SKF (Nilsson 1998). These schools specialised either in a single USVET programme or in a hybrid programme that was a combination of a vocational and a general programme. In the technical sector, collaboration with local companies was common (Lindberg 2003).

In sum, even though integration between school and work did not come to the forefront, collaboration with workplaces, companies, and organisations and their formal impact over local curricula were emphasised on a systemic level, with the intention of vocational advisory boards as mediating agents. However, as mentioned above, few of these boards took an active role. This may be because the language of the curriculum and the course syllabi may be difficult to interpret by those outside the school context. Vocational teachers remain the main mediating



agents for integration, even though they are detached from the context of work situations where students gain experiences (Berglund and Lindberg 2012).

### *Implications for Healthcare*

The new national curriculum for the education of healthcare assistants included a shorter period of work-based education than in the previous reform. The Lpf94 reform led to a programme that was more general in its character and embraced both healthcare, psychiatric care, and social care. However, contrary to Lgy70, not all students secured a work placement in, for instance, psychiatric care or acute somatic care. Instead, placements were in accordance with a specific course syllabus. That is, the character of the workplace selected for the placement followed the chosen course, and there could be variations between what the schools could organise for students. Therefore, despite the general approach of the programme, students followed more specialised pathways. Thus, even if the scope of the programme was broadened, students received far less workplace-based experience and fewer diverse opportunities (Berglund and Lindberg 2012). This was because the vocational focus of the occupational possibilities of healthcare assistants also were transforming. For instance, a new delegation ordinance (SOSFS 1997) implied that healthcare assistants performed less complex work tasks and therefore held a weaker position in the healthcare organisation (Pingel and Robertsson 1998). In addition, a dramatic restructuring took place in the healthcare sector, also implying that assistant nurses were redirected from acute care hospitals to an emerging new labour market that demanded caring staff, namely, long-term care (mainly elderly patients), long-term psychiatric care, and care of the mentally and physically disabled (Eriksson and Gunnarsson 1997).

The former clinical nurse teachers were replaced by workplace supervisors—i.e. healthcare assistants employed at workplaces. This also meant that the clinical nurse teacher as a mediating agent for integration had a more peripheral role. Instead of bedside work with students, the teacher only made brief contact visits and met with students together with workplace supervisors to discuss their learning. Their roles could also include supervision of workplace supervisors (Lagström 2012).

### *Implications for the Textile Industry*

With Lpf94, clothing technology became an orientation into the industrial technology programme. In parallel, textile-related orientations were established in two new vocational programmes: the craft programme and the arts programme. The main objective for the craft programme was to prepare for work within diverse craft—i.e. production, repair, and maintenance (Skolverket 1993). This programme was broad,

covering several local orientations,<sup>6</sup> from hairdressing and tailoring to saddle-making. Still, there were no national orientations for this programme comprising 9 textile-related variants offered in Sweden in 2005 by 30 upper secondary schools. The following descriptions recurred in different combinations as labels for these orientations: textile/clothes, design, fashion, and tailoring. Within the arts programme, the orientation was textile design. A few schools chose either the industrial or the arts programme as their framing for textile education, or a third, specially designed programme that was a hybrid between a general and a vocational programme (Textilhögskolan 2005).

The major change from clothing technology to the craft programme is explained by VET teachers in two schools that initially had started as an orientation within the industrial programme with the implementation of the 1994 reform curriculum. However, the number of students applying for this programme decreased substantially from previous years, and there was a threat of closing the department at both schools. When they changed the curricular context from the national orientation towards industrial to a local orientation in the craft programme, students returned (Lindberg 2006). Teachers were concerned that there were few jobs within the vocation. This was confirmed in a report by Gråbacke and Jörnmark (2008), stating that the number of employees in the Swedish clothing industry was approximately 1200 in 2008, compared to 64,000 in the 1950s. This situation was also obvious when the interviewed teachers discussed possibilities for the mandatory period (15 weeks) of work-based learning, allowing most students to be engaged as shop assistants selling fabrics or textile craft, or at department stores for ladies' or men's wear. The few students engaged in workplaces where clothes were produced worked for individual dressmakers (group interviews, March and September 2005).<sup>7</sup>

Lpf94 stressed an aspect of what was emphasised in the first version of the craft programme: "The completion of the education must always be done in working life" (Skolverket 1993, p. 9). When the syllabi were revised in 2000, collaboration between school and work was further elaborated upon. Lpf94 (Skolverket 2000) suggested that "Students' experiences from the workplaces can be used in school and vice versa" (pp. 13–14) but also that collaboration could be realised in various ways, such as by students participating in or contributing to events like craft exhibitions, local theatres (changing dresses to fit actors, sewing new dresses), etc. Schools that participated in the studies reported in Lindberg (2006, 2007, 2008) instead organised their own events, and, irrespective of which programme the schools had chosen, the final assignment for the students was to design, sew, document (sketches, patterns, materials and quantities, and costs), and present a collection of three pieces of garments. This presentation included firstly a folder that combined text and pho-

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<sup>6</sup>Each school offering the programme was expected to construct a local orientation based on local and regional needs.

<sup>7</sup>Previously unpublished documentation from the Communication and Learning in *Sloyd* Practices research project, funded by the Swedish Research Council, Project no 2003-4379 (Lindström et al. 2003). *Sloyd* is a school subject related to the design and production of objects in wood, textile, and metal (see also Merriam-Webster's dictionary).

tos of the garments as a presentation by the designer and secondly participation in a fashion show of third-year students' collections, organised by students. Each student collection was displayed on the catwalk, and these events were acknowledged in local newspapers.

### *Comparison Between Healthcare and the Textile Industry*

Although the VET programmes were prolonged from 2 to 3 years, the changes for both were radical. One reason for this was that the basis for vocational knowing of Lgy70 had vanished, implying changing societal motives of work. Another reason was that new ideals of lifelong learning had altered societal motives of USVET towards educational individualisation.

For healthcare, the duration of practice at workplaces was decreased to around a third of what it was before. The former education curriculum, with several clear occupational foci, now became more of a generalist education (Herrman 1998). At the same time, the means for integration between school and work was changed since the role of the clinical nurse teacher was changed from being present in everyday healthcare work to shorter contact visits outside patients' rooms (Lagström 2012). For clothing/craft, work-based learning outside school was something new, yet less time was allocated for students to acquire textile-related knowledge. As indicated above, the vocational knowing made available for students at workplaces was more directed towards selling (fabrics, clothing produced elsewhere, and textile craft) than producing clothes. This meant that students were allocated less time for learning the craft of sewing. The mass-production textile industry had moved to other countries and gradually from the educational institutions. Even in this programme, teachers made contact visits to the workplace. Indeed, both healthcare and textile work sites had been facing dramatic restructuring in that the former workplaces had transformed to a large extent.

In both sectors, integration between school and work was seen as important. However, we argue that this was mainly on a systemic level that the far-reaching integration of Lgy70 had disappeared. In both sectors, teachers were still the main mediating agents for integration. Importantly, it was the course syllabi that were intended to guide learning during work placements. However, the volume of learning depended on what workplaces could offer. At the same time, working life should get more influence on educational content, though indirectly managed by students, who could select which courses to study. Although detached from production and direct supervision of students carrying out work tasks, teachers mainly used contact visits and documents for assessment as integrating means. The societal motive of education was now more dominant in both fields and was oriented towards employability for a labour market in general. Furthermore, the implementation of more general academic subjects provided students with knowledge that was intended to prepare them for a changing future (SOU 1992).

These new societal motives changed the formal conditions for teachers' previous actions, developed over two decades. By prolonging the educational programmes from 2 to 3 years but simultaneously introducing general subjects totalling 30% of the programmes, teachers' conditions for mediating between school and work were decreased. Due to organisational aspects, this decrease was further strengthened as vocational subjects were no longer scheduled for whole days and instead for anything from single lessons to a half day. This reflected a stronger symbolic emphasis on school and a weakening of VET teachers' positions as mediating agents for integration between school and work (Lindberg and Wärvik 2017).

## The 2011 Reform

Globalisation with a new economy and work life restructuring with redundancies and demands for higher qualifications created several challenges affecting many individuals' life and work and, accordingly, society as a whole. In response to these imperatives, Rubenson (2006) identified a third generation of lifelong learning, starting at the end of the 1990s. Organisations like the European Union (EU) and OECD put forward a lifelong learning agenda that reintroduced social purposes in educational discourses, albeit from a totally different angle than in the 1970s. The issue of employability came to the forefront more emphatically, including individual responsibility for being flexible and ready to adapt to changing circumstances (European Commission 2000; OECD 2003). As stated by Rubenson (2006), "The provision of education and training arose out of the need to act swiftly against imbalances in the labour market" (p. 334). These ideas can be seen as a background for the reform in 2011.

Thus, the employability agenda was well established in educational policy and introduced into the activity of Swedish USVET that was once again reformed in 2011. The national elections in 2006 resulted in a new four-party right-wing coalition whose directives were that upper secondary school programmes should have either an academic or a vocational focus. The hybrid programmes of Lpf94 that had started as local or regional initiatives, in some cases by schools and in others by industries (Lindberg 2003; Nilsson 1998), were stopped. The general subjects for the vocational track were toned down. Accordingly, the Upper Secondary School 2011 reform, GY2011, (Skolverket 2011) almost resulted in a return to a parallel upper secondary school preceding the reform of the 1970s. Thus, we can argue that the societal motive of education for employability again was changing. The term *vocational education* was reintroduced in the reformed upper secondary school. The school (as the organiser) was responsible for work-based learning:

The organiser is responsible for providing places in workbased learning (APL) and ensuring that these places fulfil the requirements set up for the education. ... The organiser must be able to demonstrate that there are planned APL places available before the education starts. It is only if planned APL places disappear during the education due to circumstances outside the control of the organiser, such as bankruptcy or a downturn in the economy, that APL can be located at the school. (Skolverket 2011, p. 23)

Integration between school and work is emphasised in GY2011 even more than before and more aligned for employability. According to the national curriculum, “It is particularly important that the school cooperates with working life over vocational education” (Skolverket 2011a, p.12). Like the previous reform, students’ development in being flexible was seen as important. In the national curriculum, it is also stated that “Developments in working life mean ... that traditional boundaries between different vocational areas need to be reduced, and that demands are imposed on awareness of not only one’s own competence, but also that of others” (Skolverket 2011, p.6).

The new educational route for the upper secondary school meant that contacts with a workplace and a more narrow vocational focus were seen as a pathway for students to equip them for employment. Strong social ties in the labour market were put forward as a means to get a job (Kramarz and Nordström Skans 2014). Such discourses are different from those characterising the previous reforms when general academic school subjects were meant to develop employable individuals (Andersson and Wärvik 2012).

The 15 weeks of work-based education are, like in Lpf94, based on subject syllabuses and their courses, meaning that a course or part of a course can take place in school as well as in a workplace. The teacher, student, and workplace supervisor meet in tripartite conversations to follow up and ensure that students have participated in the expected activities and to set the student’s academic marks (Andersson, Chap. 14, 2018). Still, the school has full responsibility for the education and decides which parts of the course should be taught in school, often depending on what is made available for students at different workplaces. Nevertheless, regardless of the school’s responsibility, accomplishment of the work-based component is handed over to the workplace as it was under Lpf94. The teacher only makes short visits a couple of times. These visits include mapping the activities each student has participated in, comparing these with syllabi (i.e. learning outcomes and core content), and identifying indications of each student’s progress as a basis for marking (Lagström 2012).

Even in this reform, logbooks, examination tasks, and assessment documents are in use to support integration (e.g. Berg Christoffersson 2015). It appears that integration is very much dependent on what kinds of work tasks the different workplaces can offer, e.g. in terms of restricted or expanded participation (Fuller and Unwin 2003; Tanggaard 2006), and the ability, willingness, or even awareness of workplace supervisors to introduce workplace routines and work tasks to students, share their knowledge with the student, and identify what the student can do, when supervision is needed, what tools to introduce, and when it is time for more demanding tasks (Berglund 2009; Berglund and Lindberg 2012; Fjellström 2017; Kristmansson 2016; Paul 2017). We conclude that educational individualisation is also dependent on the students as mediating agents of integration.

## *Implications for Healthcare*

The GY2011 programme is named the Health and Social Care Programme and embraces both the healthcare and social welfare sectors. It is designed to explicitly develop a person who can easily adapt to changing societal needs, as stated by Skolverket (2011):

This is justified by the industry's view that the vocational area needs a broad common foundation with options for flexible specialisation later on. Without orientations, the organiser can in conjunction with the local programme councils adapt the education to changes in working life and in relation to research findings (p. 193).

Thus, within the programme, students can choose specialisation in gerontology and geriatrics, psychiatry, medical care, or special pedagogy, all related to different vocational outcomes. These vocational outcomes are not connected to specific occupational positions, such as healthcare assistant, but to vocational areas, such as health and social care, psychiatric care, care of the elderly and the area of functional impairment, and health and medical care. Paradoxically, this can also imply a narrower outcome since not all students study subjects related to work in acute care. The 15 weeks of work-based learning can be carried out in several kinds of workplaces or at a single site, depending on what resources the schools have access to. Recent projects have focused on specific tools to be used by teachers for the purpose of students' integration between school and work. These include simulations in the methods room on school premises (Leibring 2015) and digital dialogues (Berg Christoffersson 2015).

## *Implications for the Textile Industry*

With the latest curricular reform, textile design adopted a national orientation within the vocational handicraft programme.<sup>8</sup> This programme is now narrower in scope than in the 1990s; has five national orientations, of which textile design is one; and focuses on knowledge of and skills in construction, manufacturing methods, and handling of tools and machines, as well as knowledge about materials used in the handicraft area. It assumes that future work will be found in the textile industry. The main vocational subjects now are textile design, craft knowledge, and entrepreneurship. The main changes place a greater emphasis on the design rather than on the production of clothes, which is in line with how Swedish clothing/fashion companies have developed (Berglund 2014; Lindahl 2008).

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<sup>8</sup>Besides this programme, there are also ten upper secondary schools in Sweden that offer a local orientation *Fashion Design* within the Arts programme, one of the general programmes preparing students for higher education in Sweden (Högskolan i Borås 2016). Interestingly, vocational teachers are the ones teaching the subjects within this orientation. However, since there are no workplaces involved in these programmes, there is no issue of integration. This is not surprising, since there is little textile production in Sweden today.

## ***Comparison Between Healthcare and the Textile Industry***

A main change to both programmes is that the link to higher education is limited since students are now required to preselect school subjects that qualify for higher education. Furthermore, students are educated for specific vocational outcomes, related to a specific level in the Swedish national qualification framework (SeQF), which in turn is related to the European framework (EQF). For both programmes, it was expected that regional stakeholders will be able to influence the content of the education to a certain extent, but schools still maintain formal responsibility for education as a whole. Thus, education for employability continues to be a dominating societal motive, but for a narrower labour market, and with restricted means for integration. In both sectors, teachers are the main mediating agents, though detached from production work (as was in Lpf94). Teacherly interventions for integration seem mainly to be limited to tripartite conversations and through assessment documents (see also Andersson, Chap. 14, 2018). Importantly, teachers are responsible for laying out a support mechanisms for integration. However, like in Lpf94, educational individualisation implies that students are important mediating agents of integration.

## **Concluding Comments**

Our analyses show that there were various societal motives for the 1970 reform when vocational education became integrated into upper secondary school. These included (i) unifying the diverse (in terms of content and duration) vocational programmes in Sweden under a common and coherent umbrella; (ii) preparing for lifelong learning, or levelling out fluctuations in the labour market; and (iii) developing specialists with a clear vocational focus. As shown in the two examples above, healthcare and textile educations, these societal motives resulted in different practices. Secondary analyses of previous research indicate that historically developed traditions of collaboration between school and work contributed to how integration of the curriculum was realised in the two programmes. Integration relied on teachers' close relations with the two settings, school and workplace, to organise student experiences in detailed work tasks described in the national curriculum. We conclude that the activity of work was the dominating factor even if USVET was school-based and that teachers were the primary mediating agents for creating far-reaching integrating links between school and workplace, though in different ways in the two programmes. The healthcare programme relied on the former educational tradition of bedside education by nurses with a teaching qualification. They also taught in schools. The textile education, on the other hand, had very limited work-based education. Instead, teachers brought work tasks and the conditions of mass production into the school setting. In sum, Lgy70 implied a separation between school and work, but since teachers participated in both classroom teaching and

bedside work or school-based production of garments, the institutional divide was less obvious than in the later reforms. The teachers' clear positions as mediating agents to a large extent determined what became available for students.

The curriculum-related consequences since Lpf94 were similar for the two programmes. The meaning and content of vocational knowing had changed due to radical societal restructuring of both the healthcare sector and the textile industry. These societal transformations were also part of the transforming societal motives of USVET as connected to ideas of the need of flexible individuals that easily could adapt to changing (labour market) conditions. The vocational aspect was toned down, and the programmes were described as preparatory vocational education. Also with this curriculum, USVET teachers were the main mediating agents for integration between school and work. However, their position was weakened, since they now only made contact visits to meet with students and workplace supervisors. The teachers were removed from the context of production, and their participation in real work situations, together with the students, be it on hospital wards or in the production of garments in a school setting, was diminished. Instead, "schoolification" tools, such as logbooks, examination tasks, and assessment documents, were developed to record integration. It can thus be argued that the individual student, as a responsible lifelong learner, also became an important mediating agent for integration. The responsibility of teachers was to lay out a supporting structure to make this possible. Formally, the school curriculum prescribed the goals for the work-based activities, but teachers had little influence on what was made available to students.

In 2011, the USVET programmes again were labelled as vocational, and students' contacts with workplaces were expected to create employability. Thus, the vocational ideal was strengthened, and accordingly, the influence on the content by local industries was emphasised in the curriculum. The school still has full responsibility for education, and USVET teachers remain the main mediating agents for integration between school and work, but, like in the previous reform, they remain detached from the students' workplace experiences and the context of production. Integration is, like in the previous reform, based on support structures laid out by teachers, including contact visits, and mainly on the individual students' ability to integrate by the help of logbooks, formative assessment schemes, and so on. In this sense, there are no differences between healthcare and the textile industry. In terms of the workplace curriculum (Billett 2006), we argue that integration depends on whether workplace supervisors have a clear understanding of the workplace curriculum or a learning trajectory for the student, or merely see students as extra hands for work that needs to be completed. As a consequence, the return to strengthening the vocational ideals of USVET has been made without giving vocational teachers any new means for integrational work. Despite school-based USVET, a large responsibility is placed on agents in the workplaces and their ability to organise students' school days. Teachers' responsibility for integration between school and the workplace therefore seems to be limited, as they are dependent on workplace activities in which they neither participate nor can influence.



In sum, in this chapter, we have discussed societal motives of USVET as connected to integration between school and workplaces and the role of teachers and, since the 1990s, the role of students as mediating agents for integration. We have highlighted a decreasing integrating position for teachers, from far-reaching mediating agents of the 1970s towards the toned-down position of today, and also a reverse trajectory for students as connected to lifelong learning discourses of educational individualisation. In all three reforms, the societal motives of USVET have had a labour market focus, but based on different assumptions as to what creates employability: a governing state (Lgy70), increased educational level and general academic school subjects (Lpf94), or contacts with working life (GY2011). We can then notice that, despite a policy quest for integration of GY2011, the integrational means as intended curriculum have been weakened, placing significant responsibility on students. The main argument in this chapter is that VET teachers' roles and contributions for effective integration must be understood and formulated within the cultural and historical contexts of particular nations.

## References

- Andersson, I. (2018). Workplace learning for school based apprenticeships: Tripartite conversations as a boundary crossing tool. In S. Choy, G.-B. Wärvik, & V. Lindberg (Eds.), *Integration of vocational education and training experiences* (pp. 259–278). Singapore: Springer.
- Andersson, E., & Wärvik, G.-B. (2012). Swedish adult education in transition? Implications of the work first principle. *Journal of Adult and Continuing Education*, 18(1), 90–103.
- Andersson, E., & Wärvik, G.-B. (2014). Vocational education – The tension between educational flexibility and predictability. In G. K. Zarifis & M. Gravani (Eds.), *Challenging the 'European area of lifelong learning': A critical response*. Dordrecht: Springer.
- Andersson, I., Wärvik, G.-B., & Thång, P.-O. (2015). Formation of apprenticeships in the Swedish education system: Different stakeholder perspectives. *International Journal for Research in Vocational Education and Training*, 2(1), 1–24.
- Berg Christofferson, G. (2015). *Digital dialog som redskap för utveckling av yrkeskunnande. – en studie vid APL på gymnasieskolans vård- och omsorgsprogram* [Digital dialogue as a tool for development of vocational knowing – A study during workplace-based learning in a Health and Social Care Programme in Upper Secondary School]. Stockholm: Institutionen för pedagogik och didaktik, Stockholms universitet.
- Berglund, I. (2007). *En ny yrkesutbildning – genom yrkesbaserat lärande? En studie i tre gymnasieskolor som samverkar med företag* [A new vocational education – Through vocation-based learning? A study of three upper secondary schools collaborating with companies]. Retrieved January 2010 from <http://yrkesutbildning.blogg.lu.se>
- Berglund, I. (2009). *Byggarbetsplatsen som skola – eller skolan som byggarbetsplats? En studie av byggnadsarbetares yrkesutbildning* [The construction-site as school – or school as construction-site? A study of the vocational education of construction workers]. Stockholm: Stockholm University.
- Berglund, U. (2014). *Från textil- och konfektionsindustri till modeunder* [From textile- and clothing industry to wonders of fashion]. Retrieved October 2016 from [www.foretagskallan.se](http://www.foretagskallan.se)
- Berglund, I., & Lindberg, V. (2012). *Challenges for Swedish VET-teachers in upper secondary apprenticeship*. Paper presented at the ECER conference in Cadiz, September 2012.
- Bergström, G. (1993). *Jämlikhet och kunskap: debatter och reformstrategier i socialdemokratisk skolpolitik 1975–1990* [Equality and knowledge: Debates and reform strategies in social

- democratic school policy 1975–1990] (Stockholm studies in politics, 47). Stockholm: Stehag: Symposion graduate.
- Billett, S. (2006). Constituting the workplace curriculum. *Journal of Curriculum Studies*, 38(1), 31–48.
- Engeström, Y. (2005). *Developmental work research: Expanding activity theory in practice*. Berlin: Lehmanns Media, LOB.de.
- Engeström, Y., & Kerosuo, H. (2007). From workplace learning to inter-organizational learning and back: The contribution of activity theory. *Journal of Workplace Learning*, 19(6), 336–342.
- Eriksson, H., & Gunnarsson, E. (1997). *På tröskeln till omvårdnadsvärlden* [On the doorstep of the nursing world]. Doctoral dissertation, Umeå: Umeå Universitet.
- European Commission. (2000). *A Memorandum on lifelong learning* (Commission staff working paper). Retrieved September 2016 from [http://arhiv.acs.si/dokumenti/Memorandum\\_on\\_Lifelong\\_Learning.pdf](http://arhiv.acs.si/dokumenti/Memorandum_on_Lifelong_Learning.pdf)
- Fjellström, M. (2017). *Becoming a construction worker. A study of vocational learning in school and work life*. Doctoral dissertation, Umeå: Umeå universitet.
- Fuller, A., & Unwin, L. (2003). Learning as apprentices in the contemporary UK workplace: Creating and managing expansive and restrictive participation. *Journal of Education and Work*, 16(4), 407–426.
- Gee, J. P., Hull, G., & Lankshear, C. (1996). *The new work order. Behind the language of the new capitalism*. St.Leonards: Allen & Unwin.
- Gråbacke, C., & Jörnmark, J. (2008). *Den textila modeindustrin i Göteborgsregionen: En kartläggning* [A mapping of the textile fashion industry in the Gothenburg region]. Göteborg: Business region Gothenburg. Report. Retrieved August 2016 from [http://www.adasweden.se/media/uploads/notice/Textila\\_modeindustrin\\_en\\_rapport.pdf](http://www.adasweden.se/media/uploads/notice/Textila_modeindustrin_en_rapport.pdf)
- Grollmann, P. (2018). Workbased learning and vocational education in international comparative research. In S. Choy, G.-B. Wärvik, & V. Lindberg (Eds.), *Integration of vocational education and training experiences* (pp. 63–82). Singapore: Springer.
- Herrman, M. (1998). *Förändring med hinder. Omvårdnadslevers beskrivning av sin yrkesförberedande utbildning* [Changes with obstacles. Nursing students' descriptions of their vocational education]. Göteborg: Etnologiska föreningen i Västsverige.
- Högskolan i Borås. (2016). *Textil- & designutbildningar i Sverige 2016* [Textile- and design education in Sweden 2016]. Borås: Textilhögskolan. Retrieved in December 2016 from [www.hb.se](http://www.hb.se)
- Johansson, B. (1983). *Studiesituationen i den sociala situationen vid gymnasieskolans vårdlinje* [The study situation in the social situation of the upper secondary school Nursing Line]. Göteborg: Institutionen för pedagogik. Göteborgs universitet. Rapport nr 1983:08.
- Johansson, B., & Björn, E. (1979). *Vårdutbildning: vad är patientcentrering i den kliniska utbildningen?* [Health care education: What is patient centering in clinical education?] Göteborg: Rapporter från Pedagogiska institutionen, 186. Göteborgs universitet.
- Kallen, D., & Bengtsson, J. (1973). *Recurrent education: A strategy for lifelong learning*. Paris: OECD.
- Konkola, R., Tuomi-Gröhn, T., Lambert, P., & Ludvigsen, S. (2007). Promoting learning and transfer between school and workplace. *Journal of Education and Work*, 20(3), 211–228.
- Kramarz, F., & Nordström Skans, O. (2014). When strong ties are strong: Networks and youth labour market entry. *Review of Economic Studies*, 81(3), 1164–1200. <https://doi.org/10.1093/restud/rdt049>.
- Kristmansson, P. (2016). *Gymnasial lärlingsutbildning på Handels- och administrationsprogrammet: En studie av lärlingsutbildningens förutsättningar och utvecklingen av yrkeskunskande* [Upper Secondary Apprenticeship Education in the Business and Administration Programme. A study of preconditions of upper secondary apprenticeship education and development of professional skills]. Doctoral dissertation, Umeå: Umeå universitet.
- Kuczera, M., Field, S., Hoffman, N., & Wolter, S. (2008). *A learning for jobs review of Sweden*. OECD Reviews of Vocational Education and Training. OECD. Retrieved in September 2012 from <http://www.oecd-ilibrary.org/>

- Lagström, A. (2012). *Lärlingslärare. En studie om hur vård- och yrkeslärares uppdrag formas i samband med införandet av gymnasial lärlingsutbildning*. The apprenticeship programme teacher. A study of how the role of the vocational teacher is formulated in conjunction with the introduction of upper secondary school apprenticeships. Gothenburg: Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg.
- Leibring, I. (2015). *Metoddrumsundervisning. En kvalitativ studie av simulering inom vård- och omsorgsutbildning* [Clinical skills laboratory teaching: A qualitative study of simulation in nursing and healthcare education. Karlstad: Karlstad University Press.
- Lemar, S., & Olofsson, J. (2010). Bilaga 4. Om lärlingsrådets funktioner [Appendix 4. On the function of apprenticeship councils]. In Nationella lärlingskommittén (Ed.), *Gymnasial lärlingsutbildning – utbildning för jobb: erfarenheter efter två års försök med lärlingsutbildning*. SOU 2010:75 (s. 283–324). Stockholm: Fritzes. retrieved in January 2011 from [www.regeringen.se](http://www.regeringen.se)
- Lindahl, B. (2008). Snabbt mode förändrar textilindustrin [Fast fashion changes textile industry]. *Arbetsliv i Norden. Tidsskrift om arbetsmarked og arbeidsmiljø*, 22, 12–13.
- Lindberg, V. (2003). Vocational knowing and the content of vocational education. *International Journal of Training Research*, 1(2), 40–61.
- Lindberg, V. (2006). Contexts for craft and design within Swedish vocational education: Implications for the content. *Journal of Research in Teacher Education*, 13(2–3), 81–102.
- Lindberg, V. (2007). Same syllabus in two contexts: Vocational/liberal education? *Research in Sloyd Education and Craft Science, Techne Series A*, 10, 75–95.
- Lindberg, V. (2008). Elevuppgifter inom ett specialutformat program: En fallstudie om förväntningar på elevens kunskande [Learning tasks in a specially designed programme: A case study on expectations of students' knowing]. In V. Lindberg & K. Borg (Eds.), *Kunskapande, kommunikation och bedömning i gestaltande utbildning* [Knowledge acquisition, communication and assessment in education for art, craft and design] (pp. 93–105). Stockholm: Stockholms universitetets förlag
- Lindberg, V., & Wärvik, G-B. (2017). *Vad är ett yrkesämne?* [What is a vocational subject?]. In A. Fejes, V. Lindblad, & G-B. Wärvik (Eds.), *Yrkesdidaktikens mångfald* [Diversity of vocational didactics]. Stockholm: Läraryrket.
- Lindell, I. (1992). *Disciplinering och yrkesutbildning: Reformarbetet bakom 1918 års praktiska ungdomsskolereform* [Disciplining and vocational education: The foundation work behind the practical youth school reform in 1918]. Uppsala: Föreningen för svensk undervisningshistoria.
- Lindell, M., & Abrahamsson, K. (2002). *The impact of lifelong learning on vocational education and training in Sweden*. Adelaide: NCVR.
- Lindström, L., Borg, K., Johansson, M., & Lindberg, V. (2003). *Communication and learning in sloyd practices*. Application to the Swedish Research Council, Project no 2003–4379.
- Lundahl, L. (1997). *Efter svensk modell. LO, SAF och utbildningspolitiken 1944–1990* [According to a Swedish model. LO, SAF and education politics 1944–1990. Umeå: Boréa.
- Lundgren, U. P. (2007). *Vocational education. The case of Sweden in a historical and international context*. Uppsala: Department of Education. Uppsala University.
- Miettinen, R., & Peisa, S. (2002). Integrating School-based learning with the study of change in working life: The alternative enterprise method. *Journal of Education and Work*, 15(3), 303–319.
- Nilsson, L. (1983). Vocational education in Swedish Secondary Schools: Trends and reforms. *European Journal of Education*, 18(1), 31–43.
- Nilsson, A. (1998). *The emergence of new model of organisation of vocational education in Sweden*. TNTEE Publications, Vol. 1(1). Epublication. Retrieved June 2010 from <http://tntee.umu.se/publications>
- Nylund, M. (2013). *Yrkesutbildning, klass och kunskap. En studie om sociala och politiska implikationer av innehållens organisering i yrkesorienterad utbildning med fokus på 2011 års gymnasiereform* [Vocational education, class and knowledge. A study of social and political implications of content organization in vocational education, focusing on the upper-secondary school reform of 2011]. Doctoral dissertation, Örebro University.

- OECD. (1989). *Education and the economy in a changing society*. Paris: OECD.
- OECD. (1996). *Lifelong learning for all*. Paris: OECD.
- OECD. (2003). *Beyond rhetoric: Adult learning policies and practices*. Paris: OECD.
- Olofsson, J. (2014). *Lärlingsutbildning. Svenska erfarenheter och initiativ i ett europeiskt perspektiv* [Apprenticeship. Swedish experiences and initiatives in a European perspective]. Sieps 2014:4. Svenska institutet för europapolitiska studier. Retrieved April 2017 from [www.sieps.se](http://www.sieps.se)
- Olofsson, J., & Panican, A. (2008). Kapitel 1. Ungdomars etableringsförhållanden i de nordiska länderna – en bakgrund [Chapter 1. Conditions for young people in the Nordic countries to become established – Background]. In J. Olofsson & A. Panican (Eds.), *Ungdomars väg från skola till arbetsliv Nordiska erfarenheter* [From school to working life: Nordic experiences]. TemaNord 2008:584. Köpenhamn; Nordiska Ministerrådet.
- Paul, E. (2017). *Skriftbruk som yrkeskunnande i gymnasial lärlingsutbildning. Lärlingselevers möte med vård- och omsorgsarbets skriftpraktiker under det arbetsplatsförlagda lärandet* [Literacy as vocational knowing in upper secondary apprenticeship. Students' encounter with literacy practices in health and social care in workbased learning]. Stockholm: Stockholms universitet (doctoral thesis).
- Pingel, B., & Robertsson, H. (1998). *Yrkesidentitet i sjukvård – position, person och kön* [Vocational identity in health care – positions, persons and gender]. Arbete och Hälsa 1998:13, Solna: Arbetlivsinstitutet. Report.
- Rubenson, K. (2006). The Nordic model of lifelong learning. *Compare: A Journal of Comparative and International Education*, 36(3), 327–341. <https://doi.org/10.1080/03057920600872472>.
- Skolöverstyrelsen. (1971a). *Läroplan för gymnasieskolan, Lgy 70. 1. Allmän del* [Curriculum for the upper secondary school, Lgy 70. 1. General part]. Stockholm: Liber Utbildningsförlaget.
- Skolöverstyrelsen. (1971b). *Läroplan för gymnasieskolan. 2, Supplement, 16, 2-årig vårdlinje* [Curriculum for upper secondary school. 2, Supplement 16. 2-year health care line]. Stockholm: Liber Utbildningsförlag.
- Skolöverstyrelsen. (1971c). *Läroplan för gymnasieskolan. 2, Supplement. Tvåårig beklädnadsteknisk linje* [Curriculum for upper secondary school. 2, Supplement. 2-year clothing technology line]. Stockholm: Liber Utbildningsförlaget.
- Skolverket. (1993). *GyVux 1993:8, Programmaterial för gymnasieskola och gymnasial vuxenutbildning., Hantverksprogrammet : program mål, kursplaner och kommentarer* [Programme material for upper secondary school and upper secondary adult education. Craft: Goals for the programme, syllabuses, and comments]. Stockholm: Statens skolverk. [The Swedish National Agency for Education]
- Skolverket. (1994a). *Läroplan för de frivilliga skolformerna. Lpf 94*. 1994 curriculum for non-compulsory schools *Lpf 94*. Stockholm: Statens skolverk. [The Swedish National Agency for Education]
- Skolverket. (1994b/99). *GyVux 1994/99:15, Programmaterial för gymnasieskola och gymnasial vuxenutbildning, Omvårdnadsprogrammet. Program mål, kursplaner, betygskriterier och kommentarer* [Programme material for upper secondary school and upper secondary adult education. Health and nursing programme: Goals for the programme, syllabuses, and comments] (Upplaga 2:4) Stockholm: Statens skolverk. [The Swedish National Agency for Education].
- Skolverket. (2000). *Gy 2000:08, Hantverksprogrammet: Program mål, kursplaner, betygskriterier och kommentarer: [HV]*. Stockholm: Statens skolverk. [The Swedish National Agency for Education].
- Skolverket. (2011). *Upper secondary school 2011*. Stockholm: Statens skolverk [The Swedish National Agency for Education].
- Skolverket. (2015). *Lathund: Arbetsplatsförlagt lärande, apl* [Shortcut to workbased learning]. Retrieved March 2017 from [www.skolverket.se](http://www.skolverket.se)
- SOSFS. (1997). *Delegering av arbetsuppgifter inom hälso- och sjukvård och tandvård* (Delegation of worktasks in health care and dental care). SOSFS 1997:14. Stockholm: Socialstyrelsen.
- SOU. (1959). *Konkurrens under samverkan: Förslag till Handlingsprogram för textil- och konfektionsindustrin* [Competition under co-operation: Proposal for an action programme for textile- and clothing industry] Betänkande avgivet av textilutredningen. SOU 1959:42. Stockholm:Handelsdepartementet.

- SOU. (1962). *Arbetsuppgifter och utbildning för viss sjukvårdspersonal: betänkande* [Work assignments and education for certain care professionals] Utredningen angående vissa sjuksköterskornas och undersköterskornas arbetsuppgifter m. m. SOU 1962:4. Stockholm: Inrikesdepartementet.
- SOU. (1992). *Skola för bildning (Education and knowledge). Governmental Commission 1992:94*. Stockholm: Ministry of Education.
- Tanggaard, L. (2006). Situating gendered learning in the workplace. *Journal of Workplace Learning*, 18(4), 220–234.
- Textilhögskolan. (2005). *Textil- & designutbildningar i Sverige 2005* [Textile- and design education in Sweden 2006]. Borås: Textilhögskolan. Retrieved in June 2006 from [www.hb.se](http://www.hb.se)
- Torsson, K. (1982). Kvinnoarbete och teknisk förändring i tekoindustrin [Women's work and technological change in the textile and clothing industry]. *Kvinnovetenskaplig Tidskrift*, 3(3), 52–61.
- Tuijnman, A. (1991). Emerging systems of recurrent education. *Prospects*, 221(1), 17–24.
- Walldal, E. (1986). Studerande vid gymnasieskolans vårdlinje: förväntad yrkesposition, rollpåverkan, självuppfattning [Students at upper secondary Nursing Line: Expected vocational position, role impact, self-perception]. Göteborg: Göteborgs universitet.

# Chapter 16

## Success Factors for Fostering the Connection Between Learning in School and at the Workplace: The Voice of Swiss VET Actors



Viviana Sappa, Carmela Aprea, and Barbara Vogt

**Abstract** Effectively supporting apprentices in connecting what they learn at school and at the workplace still constitutes a challenge for most vocational education and training (VET) systems. To address this challenge, various efforts have been made in Switzerland, comprising a large investment in promoting effective cooperation between educational institutions and workplace settings as well as in designing integrated curricula and connective educational practices.

In this chapter, the core aspects of the Swiss VET system are briefly described as an introduction to an interview study that aimed to explore which factors are perceived by VET actors as crucial for successfully connecting learning and teaching across schools and the workplace. The study is part of a large research project on school-workplace connectivity in VET from a sociocultural perspective. The study sample was comprised of ten vocational school teachers, eight in-company or inter-company trainers and eight apprentices involved in apprenticeship programmes in different vocational fields as well as four experts from vocational teacher training and VET research. Semi-structured interviews were conducted and then examined using a thematic analysis. The findings of the study demonstrate that a multitude of factors contribute to the connections between learning at school and in workplace

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settings, including collaboration and communication disposals across learning locations as well as factors related to curriculum development and instructional arrangements. These findings are discussed in relation to the theoretical framework of the study, and implications for VET practice and research are examined.

**Keywords** School-workplace connectivity · Integrated learning · Thematic analysis · Boundary crossing · Stakeholders' viewpoint

## Introduction

The integration and reconciliation of learning experiences in different learning settings is a topic of ongoing interest, especially for vocational and professional education and training (VET/PET), which usually involve an alternation between more formal learning arrangements (e.g. schools or universities) and rather informal workplace settings (e.g. internships or apprenticeships) (Billett and Choy 2014); however, as anecdotic reports of teachers and trainers as well as research literature (Aprea and Sappa 2015; Ostendorf 2014; Sloane 2014; Virtanen et al. 2014) show, this is still a quite challenging task even for well-developed VET/PET systems, such as in Switzerland, Germany and Austria. Its accomplishment hinges on a range of factors, such as the availability of integrative learning tools, the application of adequate teaching methods and the alignment of curricula or cooperative financing. As with all other educational endeavours, an effective integration of learning experiences not only depends on how these factors are objectively set but also on the perspectives of the persons involved (Eklund-Myrskog 1997; Cano and Cardelle-Elawar 2004). In particular, individual ways of perceiving the relationships between learning sites could be considered filters that potentially influence the communications and actions of actors in and across learning contexts (Sappa and Aprea 2014). Thus, in this chapter, a research study that aimed to explore which factors are perceived by VET actors as crucial for successfully connecting learning and teaching across school and workplace settings is described. With respect to the core theme of the book, this chapter contributes to a better understanding of how the integration of vocational education and training experiences can be facilitated from the individual viewpoints of the individuals involved.

The study was based on current approaches in VET research, which typically refers to the integration of school-based and work-based learning as 'school-workplace connectivity' (Griffiths and Guile 2003; Stenström and Tynjälä 2009). Drawing on a sociocultural perspective, the successful integration of learning experiences at different learning sites is perceived as a reciprocal and multidimensional (i.e. cognitive, motivational and socio-emotional) process of crossing the boundaries between these sites (Tuomi-Gröhn and Engeström 2003; Middleton and Baartman 2013). In fact, as Akkerman and Bakker (2011) underlined:

All learning involves boundaries. Whether we speak of learning as the change from novice to expert in a particular domain or as the development from legitimate peripheral participation to being a full member of a particular community, the boundary of the domain or community is constitutive of what counts as expertise or as central participation. When we consider learning in terms of identity development, a key question is the distinction between what is part of me versus what is not (yet) part of me. (Akkerman and Bakker 2011, p. 132)

This sociocultural view of school-workplace connectivity has been developed in the last few decades as an alternative to the so-called comparative approach, which emphasises the need to promote an integration of vocational education and training experiences by basically overcoming any gaps or differences between the two learning settings (Biemans et al. 2004; Finch et al. 2007). Specifically, from this perspective, vocational education efforts should be made as similar as possible to workplace locations to thoroughly anticipate at school what learners will experience at the workplace. The comparative approach is also based on cognitive-functionalistic models of learning, according to which developing abstract and general models can be highly efficient because they allow learners to generalise content from the classroom to real-world situations (Anderson et al. 2000). This perspective describes learning as an individual cognitive process and considers knowledge and skills as elements that can be separated and decontextualised from the circumstances of their applications. In this framework, the transfer metaphor is most appropriate in representing connections of learning between the multiple learning sites. Many scholars have criticised this model as being too simplistic and mechanical (Lave 1988; Tanggaard 2007). On the contrary, for the school-workplace connectivity model, learning across learning settings is interpreted in a dialogical and ecological perspective, where individual, knowledge and social-cultural contexts are reciprocally intertwined. Based on this perspective, metaphors such as transitions and boundary crossing are more appropriate in representing how learning occurs across different locations.

Moreover, the school-workplace connectivity approach particularly highlights the need to adopt a systemic view, including different levels where such a connection can be promoted in VET (Achtenhagen and Grubb 2001; Stenström and Tynjälä 2009). The following levels are considered: (a) the *macro level*, especially focusing on the structure, regulation processes and philosophy of the VET system as a whole (e.g. whether it is a dual-track or a school-based system, who is in charge of financing the system), including the specifications of teachers' and trainers' education; (b) the *meso level*, for which an institutional perspective is adopted, which particularly encompasses (1) the organisation of cooperation and communication within and between VET institutions and actors and (2) the specification of the VET curricula; and (c) the *micro level*, which includes an instructional perspective on the concrete learning and teaching activities in vocational school classrooms and workplace settings.

Given that data from interviews with VET actors in Switzerland is presented in this chapter, the ways connections between different learning locations are structured and regulated in this country are described (section "[How connections between different learning locations are regulated in Switzerland](#)"). Next, the methodological



aspects of the study (sampling, instruments of data collection and analysis; section “[Methodology](#)”) are discussed, and then the findings are presented (section “[Findings](#)”). The chapter concludes with a discussion of the findings and implications for practice and research (section “[Discussion and implications](#)”).

## **How Connections Between Different Learning Locations Are Regulated in Switzerland**

Switzerland is known for its long-standing and widely encompassing VET system. Around two-thirds of its students enrol in a VET programme (upper-secondary level) after compulsory education (lower-secondary level). The predominant form of VET programmes is the dual-track apprenticeship approach, which basically combines part-time training at a host company and part-time learning at a vocational school.

Apprentices are hired by host companies and are trained under production conditions with the supervision of expert employees (i.e. in-company trainers) who are qualified to provide on-the-job training. Specifically, in-company trainers attend a short training programme provided by recognised institutions that handle pedagogical and institutional issues in VET.

Depending on the chosen occupation, apprentices attend classes at vocational schools for 1–2 days per week. These classes cover vocational subjects as well as general education. To facilitate a more connected instruction programme, vocational subject teachers are required to have prior careers in their specific teaching fields. To satisfy this requirement, most become teachers after spending several years as employers or tradesmen, and some keep their previous jobs in addition to their teaching jobs (see also Hof et al. 2011; Sappa et al. 2015). In contrast, teachers in general education have usually pursued academic paths. Both general education and vocational subject teachers are required to earn a qualification as a VET teacher provided by specialised teacher training institutions (e.g. the Swiss Federal Institute for Vocational Education and Training, SFIVET).

In addition to schools and workplaces, learners attend so-called intercompany courses. These courses are provided by intercompany centres that are maintained under the auspices of the trade associations of each vocational sector. More specifically, intercompany centres are expected to provide apprentices with additional and complementary training for skills that are difficult to acquire in host companies and under production conditions for several reasons (SERI, Facts and Figures 2016). They also contribute to reinforcing the connection between school and workplace settings because they often collaborate with both vocational schools and host companies (Cattaneo and Aprea 2014; Sappa and Aprea 2014). Depending on the VET programme, apprentices attend these courses two to three times per year. Thus, although an intercompany centre may be considered a ‘third’ learning place, school and workplace settings remain the core training locations where apprentices spend

most of their time. Intercompany trainers are required to have strong expertise in their professional fields. They must also receive qualifications from specialised teacher training institutions, such as the SFIVET. It is quite common that intercompany trainers assume multiple roles, such as also being engaged as trainers at the workplace and/or as vocational subject teachers at vocational schools.

In Switzerland, the cooperation between educational and workplace locations is also legally regulated. Since the reform in 2002 (new Federal Act on Vocational and Professional Education and Training, LFPr 2016, art 16), the three learning sites are explicitly required to interact and collaborate for curricula development, training implementation and assessment processes. Representatives of the world of work (professional associations) and the government (federal and state level) in particular interact to develop effective vocational programmes. Whereas the Confederation (federal level) and the cantons (state level) are responsible for the strategic management of VET and its implementation, respectively, the professional associations play a key role in developing and keeping the VET curricula updated to ensure standards are adequate for the labour market needs.

In addition, a common curriculum regulates learning across the multiple learning locations by defining exactly what each learning site must contribute to achieve the intended programme learning goals (Hoeckel et al. 2009; LFPr 2016, art 19). This common curriculum aims to guide teachers and trainers in promoting connective teaching (see also Sappa et al. *in press*). Furthermore, most of the curricula are designed in a competence-oriented manner. Specifically, a set of work situations that are typical for a particular vocational sector are defined in collaboration between representatives of the professional associations and school teachers. Curricula are then designed by including all skills and knowledge required to successfully perform in such situations (Ghisla et al. 2008).

Finally, the national qualification procedure entails practical (based on what is experienced in the host company) as well as theoretical (including both vocational subjects and general education) elements. The assessment committee is comprised of teachers, company trainers and representatives of the professional associations.

## Methodology

### *Sample*

The sample included ten vocational school teachers, eight company or intercompany trainers, eight apprentices and four experts in the field of vocational teacher training and research.

A combination of the purposive and convenience sampling strategies was adopted. The criterion of heterogeneity was first applied to include participants from different vocational fields. In particular, persons involved in dual-track VET programmes in the industry and craft field and in business and administration were selected (see Table 16.1).

**Table 16.1** Sample of the study

	Industry and craft	Business and administration	Total
Teachers	5	5	10
Trainers	4	4	8
Apprentices	4	4	8
Experts	3	1	4
Total	13	13	30

Teachers, trainers and apprentices were contacted directly and individually by the interviewer (author 1 of this chapter), and they voluntarily agreed to participate. The teachers (five female and five male) were heterogeneous regarding teaching experience. The youngest had worked as a teacher for 4 years and the oldest for more than 20 years. The group of trainers was composed of employees who were responsible for supervising apprentices while learning and working in the host companies. Four of these participants also served as trainers at the intercompany courses. Apprentices were aged from 16 to 20 years, and they were balanced by gender (four were female). Four were hired at medium- or small-sized companies, while the others worked at large industries. The interviewees were connected in the sense that for each apprentice, one of his/her company trainers and at least one teacher from his/her vocational school were contacted. They were all involved in apprenticeship programmes in the Canton of Tessin, i.e. the Italian-speaking region of Switzerland.

The four experts<sup>1</sup> were selected based on their expertise in educating and training teachers for vocational schools as well as in vocational teacher training and research. They were recruited from the German-speaking region of Switzerland and were contacted directly and individually by the interviewer (author 3 of this chapter). One expert was a researcher and professor at SFIVET with extensive knowledge and experience in VET research and teacher training, particularly in the business and administration field. Two experts held executive positions in teacher training institutions, while another held an executive position in a vocational school and co-authored several publications on teaching and learning in VET.

### *Data Collection and Analysis*

Data were collected through individual semi-structured interviews that focused on participants' ideas and experiences related to the connections between school and workplace settings in Swiss VET. The interview guidelines were basically the same for all interviews, although the language differed, which was in the mother tongue of the participants. Specifically, teachers, trainers and apprentices were interviewed

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<sup>1</sup>The experts' interview data were collected according to the framework of the Master of Science in Vocational Education and Training, Swiss Federal Institute for Vocational Education and Training, SFIVET (see Vogt, 2014).

using the Italian language, whereas interviews with VET experts were conducted in German.

The common guidelines included a specific section focusing on factors that are crucial for fostering the integration of learning and teaching across different locations. In particular, interviewees were asked to illustrate which elements they perceive as helpful in assisting apprentices to connect their learning experiences at school and at the workplace. The interview questions were intended to stimulate descriptive, narrative and argumentative discourses (see also Sappa and Aprea 2014; Vogt 2014). Thus, participants were invited to describe their opinions as well as to provide examples from their experiences in the field. The average length of the interviews was 1 h. All interviews were audio-recorded and transcribed verbatim.

The interview data were examined by adopting a thematic analysis methodology. As described by Braun and Clarke (2006), a thematic analysis aims to identify, analyse and report themes within data that are related to a specific research question or topic. For this study, the focus of the thematic analysis was the factors that foster connections between learning in school and experiences at the workplace.

According to Braun and Clarke (2006), a thematic analysis entails six steps: (1) familiarising oneself with the data by rereading and searching for meaning and patterns, (2) generating initial codes, (3) searching for themes by attributing different codes to potential themes, (4) reviewing themes through a re-elaboration based on coded data extracts as well as on the entire data set, (5) defining and naming themes and (6) producing the report. In this case, themes were elaborated by collecting segments that referred to similar concepts. For example, many interviewees discussed the importance of communication and exchanges between teachers and trainers in supporting integrated teaching and learning. These segments were attributed to the theme 'exchange, communication and collaboration between VET actors'.

Two researchers carried out the five steps separately for the interviews they conducted (respectively, in the German and Italian languages). Two lists of themes were identified, and each theme was attributed to a specific code. The two lists of themes were exchanged and intensively discussed between the two researchers to reach an agreement on a common record of themes. During this process, some themes identified by the first researcher were simply added to those recognised by the second researcher, and other themes needed to be discussed and negotiated to identify an appropriate attribution. For example, one researcher identified the theme 'the relevance for teachers to support the learners' process of developing a professional identity'. The second researcher found the theme 'the importance of valuing the developmental needs of learners as students and workers'. The two themes were merged into the category 'comprehensive learning goals', defined as the importance of defining learning goals that surpass professional knowledge and also encompass a developmental perspective.

To limit possible linguistic difficulties, a common coding scheme consisting of the list of themes and their detailed descriptions was then developed in English, and the two researchers recoded the selected segments of their own interview data by using the common coding scheme. A third researcher (second author of this chapter) checked the coherence between the two sets of data coding. Finally, the inter-coder

agreement procedure was applied by involving a fourth independent researcher. The inter-coder agreement was calculated based on the totality of the text segments using Cohen's kappa statistics.

## Findings

Through the process described, a list of 20 themes representing what the interviewees perceived as most significantly contributing to supporting learners in connecting learning at school and in workplace settings was identified. The inter-coder reliability check yielded a kappa value of 0.77.

Table 16.2 shows the list of identified themes clustered into three main groups: (a) collaboration and communication disposals, (b) factors related to curriculum development and (c) instructional factors. In addition to the theme names and descriptions, the table reports the number of text fragments attributed to each category, and the number of individuals (teachers, trainers, apprentices and experts) who mentioned the factors is represented by each category. For example, 'exchange, communication and collaboration between VET actors' was mentioned in eleven text segments by two teachers, three trainers and three VET experts. The details of each category are discussed in the next section.

### *Factors Related to Collaboration and Communication Disposals*

The first theme deals with conditions and disposals that support collaboration and communication between VET actors, including school teachers and in-company and intercompany trainers.

Specifically, three subthemes were identified: (a) exchange, communication and collaboration between VET actors, (b) teachers' and trainers' connective attitudes and (c) teachers' and trainers' experiences across different locations.

Eight interviewees (including two teachers, three trainers and three experts) emphasised the relevance of *developing a close exchange, communication and collaboration among all VET actors involved* (i.e. school teachers, company trainers, intercompany trainers, school principals and employers).

This collaboration was described in terms of exchanges and dialogue between people involved at the different locations. Although the contribution of each VET actor to learners' competence development is well-defined by VET curricula, the participants stated that an integrated implementation of such contributions should be based on a reciprocal understanding of how the learning and teaching processes are initiated, implemented and guided at the different learning sites. Thus, a shared view of integrated learning across school and workplace settings was perceived as a key aspect that should be promoted among actors of vocational schools and host companies to foster effective connections. In addition, as described in the following

**Table 16.2** Perceived factors that are crucial for fostering connections between learning in school and at the workplace

Category name	Category description	N text segments	N individuals				TOT
			Teachers	Trainers	Apprentices	Experts	
<b>Factors related to collaboration and communication disposals</b>							
Exchange, communication and collaboration between VET actors	Exchange, communication and collaboration within schools and with actors outside schools on organisational, content, didactical and pedagogical aspects	11	2	3	–	3	8
Teachers' and trainers' connective attitudes	Ability and willingness to develop a shared understanding of connective VET, including empathy regarding the different learning settings	1	–	–	–	1	1
Teachers' and trainers' experiences across the different locations	Relevance of having teachers who have experienced or still are experiencing real work contexts or alternatively, company trainers who are in some way involved in the school context	10	3	3	4		10
<b>Factors related to curriculum development</b>							
Training programme in schools focusing on professional situations	Designing school learning based on professional situations	1	–	–	–	1	1

(continued)

**Table 16.2** (continued)

Category name	Category description	N text segments	N individuals				
			Teachers	Trainers	Apprentices	Experts	TOT
Parallelism/alignment	Aligning content and sequences of learning at school to the learning at workplaces	9	2	3	3	1	9
Comprehensive learning goals	Inclusion of comprehensive learning goals that surpass competences and view the learner in a more developmental perspective (i.e. support learners in identifying themselves with the profession)	1				1	1
<b>Instructional factors</b>							
<i>Connective teaching strategies</i>							
Connected teaching	Designing teaching in a connected and student-oriented manner	6	–	–	1	3	4
Connected training at the workplace	Trainers support and guide students to recognise the connections between school learning and practice at the workplace	2	–	1	–	1	2
Learning circles	Realistic learning tasks that enable a combination of theories and practices, e.g. for a given subject, different learning possibilities (posts) from which learners can choose are displayed in the room	2	–	–	–	2	2

(continued)

**Table 16.2** (continued)

Category name	Category description	N text segments	N individuals				
			Teachers	Trainers	Apprentices	Experts	TOT
PBL	PBL (problem-based learning), e.g. according to a set procedure, possible solutions to a given case must be found, discussed and chosen	2	–	–	–	2	2
Case studies	Case studies, e.g. according to a set procedure, possible solutions to a given case must be found, discussed and chosen	1	–	–	–	1	1
Cooperative learning	Group work that enables ways to support the development of different competences	1	–	–	–	1	1
Excursions	Excursions that support cooperation between different actors of VET	1	–	–	–	1	1
Project-based teaching	Teaching design based on projects developed at the boundaries of different disciplines or locations (e.g. multidisciplinary; school-workplace projects)	3	1	1	1	–	3
Structured analysis of workplace practices (at school)	Reflective activities that aim to analyse and understand the processes behind work practices	2	2	–	–	–	2

(continued)



**Table 16.2** (continued)

Category name	Category description	N text segments	N individuals				
			Teachers	Trainers	Apprentices	Experts	TOT
Narration	Description of concrete situations/ experiences by teachers or learners relevant to the teaching subject	8	4	–	1	2	7
Authentic materials and laboratories	The use of tools, instruments or machines that are commonly used at the workplace to support school learning	9	3	–	2	2	7
Unstructured discussions and comparisons between students and teachers about what the students do at the workplace	Informal or unstructured discussions between teachers and students about practices at the workplace	7	4	–	3	–	7
<i>Connective teaching tools</i>							
ICT	The use of ICT tools to complement theoretical knowledge with insights from practice without limitations of time and place	2	–	–	–	2	2
Learning journal	The use of learning journals to complement descriptions of practical experiences with theoretical knowledge and to increase the significance of documenting learning processes	2	–	–	–	2	2

extract, regular exchanges among teachers and trainers were perceived as substantially beneficial in helping students recognise the connections between their experiences at the different locations:

School teachers come to my company to visit me and to discuss issues. When apprentices see me talking with their teachers, they are usually surprised, and they realise that there is an exchange and a connection... they tell me, 'Oh, so school and workplace are not separate worlds... you are in contact with each other'. And I think it helps. (Trainer, male, industry and craft field)

Some interviewees also stressed the importance of exchanges and dialogue within the school, especially between teachers of vocational subjects and teachers of general education. Such dialogue and cooperation were conceived as essential in promoting a comprehensive and integrated competence development for the students:

Vocational subject teachers and those from general education need to collaborate. For example, there is a relationship between hygiene behaviour at the workplace and in students' everyday world, including rights and duties. These issues are typically treated separately; however, it is important that students become aware of these connections. (VET expert, male, industry and craft field)

In addition, one expert mentioned that in her opinion, VET teachers and trainers should develop *connective attitudes*. This means that they should have the ability and motivation to extend their own special expertise (as a teacher of a specific vocational subject or as a professional in a specific field) by including possible links with the expertise transmitted, respectively, to the work and school communities. From this perspective, a key role is attributed to teacher and trainer education programmes. In the opinion of the expert, teachers and trainers should be encouraged to develop an integrated approach to vocational teaching and training, possibly by interacting with each other and having opportunities for discussion and exchanges during their training period:

Connective attitudes need to be developed as a life-long process. Here, teacher education could play a pivotal role, especially by sensitising teachers to the different perspectives as well as specific affordances and constraints attributed to the learning locations. (VET expert, female, business and administration field)

Finally, four apprentices, three teachers and three trainers highlighted the relevance for *teachers and trainers to have their own experiences in school and workplace settings*, preferably similar to those the apprentices are experiencing. For example, teachers who have job experiences in the field of what they teach (e.g. a teacher in accounting who works as an accountant) were described as being familiar with both scholastic and professional languages and aware of possible discrepancies between what is experienced at the different learning locations. This awareness was described as a contributing factor to making teachers more effective as well as more capable of supporting learners as they meaningfully integrate their experiences across school and workplace settings:

My teacher worked in the same company where I am working as an apprentice. She knows the environment where I work, she knows the climate and she knows the procedures we use. Her explanations are easy to understand. We share the same language, and we use similar terminologies. It helps. (Apprentice, female, business and administration field)

Similarly, trainers with experience in teaching were also described as more effective in helping apprentices recognise the link between school and the workplace.

### ***Factors Related to Curriculum Development***

Regarding *curriculum development*, the aspects cited by the interviewees were clustered into three categories, namely, training programme in schools focusing on professional situations, parallelism/alignment and comprehensive learning goals.

First, the fact that most of the Swiss *curricula are designed based on work situations* (see section “[How connections between different learning locations are regulated in Switzerland](#)” in this chapter) was recognised as highly beneficial by one expert because it guides school teachers in basing their instruction on concrete examples, and it also provides a common framework for teachers and company trainers:

If curricula are exclusively oriented to disciplinary knowledge, they might be subject to inducing purely receptive learning patterns and ultimately produce inert knowledge. ... Work situations help teachers think about concrete problems that could emerge ... for example, it is not about abstract bits of knowledge from chemistry but how to apply chemistry to workplace problems. (VET expert, female, industry and craft field)

A second category refers to an aspect that should be reinforced, at least in the opinion of nine interviewees (three trainers, three apprentices, two teachers and one expert). Specifically, a need for a higher *chronological alignment between learning in school and at the workplace* was mentioned in the sense of dealing with a specific component in school and at the workplace in the same period of time. This is expected to support apprentices in better understanding how theoretical knowledge could contribute to practical problems.

Third, although mentioned by only one expert, it is worthwhile to mention the importance of *setting learning goals based on a more comprehensive and developmental perspective*. According to this view, an effective connection between learning in school and at the workplace might be facilitated if school teachers guide learners to become familiar with the culture and the structure of the work organisation. Furthermore, it was emphasised that the identification with the profession should be enhanced by assigning specific tasks, such as interviewing company trainers on a specific topic related to the profession or by promoting exchanges with more experienced apprentices.

### ***Instructional Factors***

The instructional factors identified included *connective teaching strategies* and *connective teaching tools* as important aspects.

## (a) Connective teaching strategies

With respect to *teaching strategies*, the need to *design teaching in a connected manner* was described by several interviewees (three experts and one apprentice) as an important prerequisite to foster integrated learning at VET schools. These participants particularly highlighted the need for making connections between school knowledge and practice at the workplace as clear as possible. Specifically, they argued that VET teachers could have a type of script in mind that guides them and learners through the learning process. As described in the following extract, this script should not only be seen from the perspective of the logic of the disciplinary content but especially from the perspective of learners as well. Thus, the script should begin at the level of learners' knowledge and experience and end by initiating the transfer to the workplace setting:

I think that the instruction should have a clear structure, a sort of script, detailing the different activities, including their beginning and their ending. ... In developing this script, teachers should not solely adhere to the textbook but should specifically pay attention to what learners bring with them. The script should be coherent from the perspective of the learner. ... Most importantly, it should also enable transfer to the activities that students practice at the workplace. (VET expert, female, business and administration field)

Accordingly, the importance of adopting a student-centred approach was emphasised by many participants. Furthermore, the relevance of encouraging students to reflect on their own actions at the workplace was underscored.

Another category included extracts reporting the need of designing *training at the workplace in a connected manner*. More specifically, two interviewees, including one trainer and one apprentice, pointed out the relevance for apprentices to be guided not only in school but also at the workplace to recognise and make connections between what is learned at the different locations. One apprentice mentioned it was beneficial for her to be supported by her company trainer to compare and relate theoretical knowledge learned at school with the work practice she was executing. Similarly, in the following extract, a company trainer from the business and administration field stressed the importance of supporting apprentices in recognising the connection between school learning and practices at the workplace:

Especially in the first year of apprenticeship, it is not easy for the apprentices to see the connection between what they learnt at school and what they do at the workplace. The trainers must support them in making connections. I always ask apprentices about what they did at school to make the connection with what we practice at the workplace evident. (Trainer, female, business and administration field)

In addition to the above-mentioned instructional principles, several *formal teaching methods* were cited as essential in helping students connect what they learned and experienced at school and workplace settings, including learning circles, problem-based learning, case studies, cooperative learning, excursions, project-based teaching and structured analyses of workplace practices. Although each was cited by only one or two interviewees, separate categories were created due to their relevance, as also testified by current literature on learning and teaching methods and instructional design (e.g. Reigeluth et al. 2016).

First, *learning circles* were mentioned by two experts. This method entails the use of several stations with different learning situations and materials that are displayed in the classroom. Learners circulate from one stations to the other and process and check the learning situations and materials autonomously. The potential to foster integrated learning was perceived in creating learning situations, which enables the integration of theory and practice.

Second, the *problem-based learning* (PBL) approach was cited by two other experts as important in helping learners connect what they experience at school and at the workplace. The multiple processes involved in PBL (i.e. identify the problem, explore the pre-existing knowledge, generate hypothesis and possible mechanisms, identify learning issues, self-study, re-evaluation and application of new knowledge to the problem, assessment and reflection of learning) were described as particularly helpful in supporting the transfer of knowledge and skills. According to the participants, this approach also encourages learners to reflect on their actions across the boundaries of the different settings.

Similar to PBL, one expert mentioned *case studies* as particularly useful in creating connections between theory and practice. Case studies require students to work on an authentic problem. Students are stimulated to connect their practical and theoretical knowledge while engaging in the following processes: problem analysis, identification of possible options, evaluation of choices selected and prediction of effects of possible solutions.

In the opinion of another expert, *cooperative learning* also contributes to developing competences that are needed at the workplace, including the ability to integrate different perspectives, roles and experiences.

Furthermore, *excursions* or field trips to companies and respective workplaces were described by one expert as activities that enable learners to understand what occurs in practice. Excursions provide possibilities for observations and the investigation of a specific professional situation as well as making connections with what has been taught before and/or will be taught afterwards.

An additional teaching strategy involves *project-based teaching*, which here refers to teaching designed based on projects developed at the boundaries of different disciplines or locations, such as multidisciplinary projects or projects where students are asked to integrate what they learned in school and at the workplace. This strategy was mentioned by a teacher, a trainer and an apprentice. The apprentice discussed the need to integrate school knowledge and practical experience at the workplace when developing an instrument to be presented at the final examination. The project lasted the entire final year of his apprenticeship. The aim was to design and build a tool that contained electrodes. The entire process had to be reported in a document to be presented and discussed with the examination committee. The apprentice also stated that this project was extremely useful in recognising and practising the integration between school knowledge and experiences at the workplace.

Finally, *a structured analysis of workplace practices* was described by two teachers as highly effective in helping students connect learning in school and in workplace settings. As illustrated by a teacher in the following extract, this analysis aims

to guide students to reflect on workplace practices they are actively engaged in by identifying the implicit processes behind their actions. Learners are also supported in identifying the set of knowledge and skills involved in the processes:

Last week I asked students [who work at the front desk of an administrative office] to describe what they do when they answer a phone call at the workplace. I asked them to describe all their actions in detail. The aim was to make them reflect on their actions. They are often able to describe what they do, and they are rarely aware of how many knowledge and skill sets are used while answering a phone call. The aim was to guide them to see the macro and micro actions involved in a work procedure. (School teacher, female, business and administration field)

Furthermore, a set of more *informal instructional techniques* was mentioned by many participants as a substantial contribution to supporting learners in connecting what they learnt and experienced in school and in workplace settings. The techniques include narration, authentic materials and unstructured discussions and comparisons between students and teachers about what students do at the workplace.

*Narrations* consist of reporting anecdotes and authentic experiences by teachers or learners to illustrate specific knowledge or skills in action. Seven interviewees (four teachers, two experts and one apprentice) pointed out the importance for teachers to anchor their instruction on authentic narrations from their own work experience or from the work experiences of the learners. Sharing real experiences was believed to have a dual potential: it contributes to increasing learners' motivation to recognise connections between different learning sites and makes teachers more credible to the students:

I told the students about my experiences at the workplace. I told many stories about my clients and my work, and that helped students better understand the world of work. (School teacher, female, business and administration field)

Connections between learning in school and at the workplace were also believed to be fostered by the opportunity at school to use *authentic materials*, including tools, instruments or machines similar to those used at the workplace. As asserted by three teachers, two apprentices and two experts, these opportunities allow learners to practice and experiment with their knowledge and skills in a 'realistic' environment.

Finally, seven interviewees found it helpful to provide learners with the opportunity to discuss and compare what they learned in the different locations with peers and teachers. This exchange is referred to as 'unstructured discussions and comparisons between students and teachers about what the students do at the workplace'. As described by an apprentice in the following interview extract, these discussions basically arise in an informal and unstructured manner, such as when before beginning their lessons, teachers ask learners about their experiences at the workplace or when learners ask teachers about differences they observed between what is learned in school and what is experienced at the workplace:

When we enter the classroom, the teacher asks each of us, 'How are you? What did you do at work last week? What materials and tools did you use?' These questions helped me a lot to put what was learnt at school into practice. Sometimes, differences emerge between what is taught at school and what applies at the workplace. We discuss it, and that helps us. (Apprentice, male, industry and craft field)

## ***Connective Teaching Tools***

Another category includes specific *teaching tools* designed to support learning processes across different locations.

The first facilitating tool involves the use of *information and communications technologies (ICT)*. Two of the experts specifically commented on the potential of ICT to mediate learning across different learning sites, as it allows complementing theoretical knowledge with insights from practice without limitations of time and place:

Personal insights, experiences and reflections need to be made visible and negotiable, possibly with the use of ICT tools, such as learning platforms or Wikis. These tools are easy to use and are accessible for the apprentices. [...]They can help to connect theory and practice, individual experience and formal learning. (VET expert, male, industry and craft field)

A second tool mentioned involves the use of *learning journals*, i.e. a collection of notes, observations, thoughts and other relevant materials compiled over a period of time as a result of learning and/or work experiences. Its purpose is to enhance learning through the process of writing and thinking about learning experiences. The two experts who cited this tool basically agreed on its potential; however, they indicated that learning journals have prevalently been used, at least in Swiss VET, by apprentices to report workplace practices. To increase the benefits of learning journals, the descriptions of practical experiences must be complemented with theoretical knowledge, which is learnt in VET schools:

Of course apprentices can work with the available learning documentation; however, I have the impression that in Switzerland, the use of this tool is yet to be optimised. It is still conceived as an instrument of control with regard to the practical part of apprenticeship. [...] To stimulate reflection, integration with professional knowledge acquisition and general education is imperative. Students need to be supported in this respect. (VET expert, male, industry and craft field)

## **Discussion and Implications**

In this chapter, a research study that aimed to explore which factors are perceived by VET actors as relevant for successfully connecting learning and teaching across school and workplace settings is described. The findings showed that a multitude of elements contribute to fostering these connections, including factors related to communication and collaboration disposals across VET locations, factors related to curriculum development and instructional factors. The identified factors support the claim that integration of vocational education and training experiences at the workplace implies multidimensional processes that must be supported at different levels (Achtenhagen and Grubb 2001; Stenström and Tynjälä 2009).

At the *meso level*, collaboration and *communication disposals across VET locations* and *factors related to curriculum development* were highlighted. The

interviewees emphasised the need for teachers and trainers to intensively communicate and possibly collaborate to provide a well-integrated teaching and training programme. As mentioned by one expert, communication and collaboration require teachers and trainers to develop connective attitudes, including the motivation to interact and to demonstrate empathy in different learning settings. This finding is consistent with the opinion of many scholars in the field of school-workplace connectivity who have stressed the need for VET actors to develop a common understanding of vocational learning across education and workplace settings as an interactive, bidirectional and dialogical process (see Griffiths and Guile 2003; Sappa and Aprea 2014). From this perspective, teachers and trainers must be aware that connective teaching and training also depend on the extent to which the people responsible for teaching and training are connected. In addition, many interviewees, especially apprentices, argued in favour of the added value of having teachers and/or trainers who have been personally involved at the different learning locations. In previous publications, they are referred to as ‘boundary-crossing facilitators’ (Aprea and Sappa 2014, 2015) due to their role in facilitating learners to cross the cultural boundaries of the different locations; however, other titles have been attributed to people who move between the boundaries of different sites, including ‘brokers’ (Koskinen 2008; Wenger 1998) and ‘boundary spanners’ (Buxton et al. 2005; Veillard 2012). Regardless of the specific title, many scholars have argued that these people can provide valued help to novice learners ‘because of their knowledge of different institutions or situations, their interpersonal networks and their ability to speak different languages’ (Veillard 2012: 7). In this regard, the fact that Swiss teachers are required to have previous career experience in their field (see section “[How connections between different learning locations are regulated in Switzerland](#)” in this chapter) is considered highly valuable.

Regarding *curriculum development*, the findings support the key role of designing integrated curricula, possibly based on professional situations, as also recognised by several authors in the field of school-workplace connectivity (e.g. Griffiths and Guile 2003; Tuomi-Gröhn and Engeström 2003). In addition, interviewees, especially trainers and apprentices, emphasised the need for school and workplace locations to collaboratively design learning and training sequences to provide students with the opportunity to experience a specific task in school and at the workplace in the same period of time.

Finally, *instructional factors* refer to the *micro level* of daily teaching and training practices. The findings confirmed the crucial role of both formal and informal strategies and tools. On one hand, many formal methods were cited, including learning circles, problem-based learning, case studies, cooperative learning, excursions, project-based teaching and structured analyses of workplace practices. On the other hand, some practices were mentioned by the interviewees as typically arising from informal activities, such as unstructured discussions stimulated in school about what learners experience at the workplace.

Furthermore, all the identified factors demonstrate the complexity of learning across the boundaries of school and workplace settings at the cognitive, motivational and socio-emotional levels (Akkerman and Bakker 2011; Sappa et al. [in](#)



press). Most of the mentioned instructional tools are intended to stimulate cognitive and meta-cognitive processes to support the transfer of knowledge and skills across different locations (see also Mann et al. 2009; Schaap et al. 2012). Learning journals and ICT were also cited as methods that support reflection on actions across the boundaries of different settings (see also Aprea et al. 2015; Boldrini and Cattaneo 2014; Cattaneo and Aprea 2014; Caruso et al. 2016). In addition, identity development and identification processes were emphasised as crucial to supporting integrated learning. From this perspective, the need for comprehensive learning goals and the key role of teachers' and trainers' experiences across the different locations were emphasised.

Finally, it should be noted that almost all the identified categories were related to learning and teaching in vocational schools. The only two factors that explicitly implied an active involvement of the host companies referred to the exchanges between VET actors and the need for connected training. Thus, the main responsibility for successful learning across the boundaries of school and workplace settings seems to be attributed—at least in the opinion of the interviewees—to the school. This finding requires further investigation. In particular, a larger study is needed to verify the possible leading role attributed to educational institutions by the VET actors. Due to the small and nonrepresentative sample, the data cannot be generalised to the entire VET population in Switzerland. In addition, the possible implications of assuming a leading role for vocational schools are worth investigating. From the boundary-crossing perspective, learning across school and workplace settings is facilitated if the involved locations are all actively engaged in supporting connective learning and if such learning is truly interpreted as a shared object (Akkerman and Bakker 2011; Griffiths and Guile 2003); however, some scholars have underscored the need for further efforts to attribute equal value to the different cultures of learning promoted at school and workplace locations (Billett 2014) as well as to encourage VET actors to view vocational learning as a bidirectional and circular process (Sappa and Aprea 2014).

Despite the explorative and nonrepresentative nature of this study, some implications can be outlined regarding the question of how to promote successful connections between learning at school and workplace settings. In particular, the following recommendations can be derived based on the discourse with the interviewees.

At the *meso level*, the importance of investing in teacher and trainer education programmes that aim to promote a culture of cooperation and exchange among VET actors was pointed out. The vital role of these programmes in supporting the development of a holistic and shared view of connective VET was also emphasised. In addition, the data suggest the relevance of developing a more comprehensive view of vocational learning goals. In particular, the need to support learners in identity and identification processes arising from their transitions across the cultural boundaries of school and workplace settings was highlighted. These processes should also be considered while designing VET curricula. Finally, the importance of providing a connected VET curriculum was discussed, particularly by designing it based on work-related situations and aligned learning content.

At the *micro level*, several instructional strategies were mentioned as particularly useful in supporting connected teaching and training. In particular, the data confirmed the relevance of supporting learners in reflecting on the workplace practices they are involved in as well as the usefulness of connecting teaching to authentic situations. In addition, the findings encourage teachers and trainers to work in the ‘transition space’ (Akkerman and Bakker 2011; Gutierrez et al. 1999), i.e. at the boundaries of the multiple locations. Various types of connective tools were mentioned, and the key role of teachers and trainers who share experiences with the students at the boundaries of different settings was also emphasised.

Regarding VET research, the multiple factors identified in the discourse with the interviewees indicate that further investigation from the VET actors’ perspectives is needed. Their experiences in the field are in fact crucial to understanding how a connective VET can actually be implemented. Differences among different groups of VET actors will be discussed in-depth in further publications to determine whether successful factors are perceived differently by different actors. Moreover, the relationships between successful factors at the meso and micro levels and those at the macro level should be investigated.

## References

- Achtenhagen, F., & Grubb, W. N. (2001). Vocational and occupational education: Pedagogical complexity, institutional diversity. In V. Richardson (Ed.), *Handbook of research on teaching* (4th ed., pp. 604–639). Washington, DC: American Educational Research Association.
- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132–169.
- Anderson, J. R., Greeno, J. G., Reder, L. M., & Simon, H. A. (2000). Perspectives on learning, thinking, and activity. *Educational Researcher*, 29(4), 11–13.
- Apra, C., & Sappa, V. (2014). Kongruenzen und Divergenzen des Lernens in Schule und Betrieb: Die Perspektive von Auszubildenden in der Schweizerischen Berufsbildung. *bwp@ Berufs- und Wirtschaftspädagogik – online*, 26, [http://www.bwpat.de/ausgabe26/aprea\\_sappa\\_bwpat26.pdf](http://www.bwpat.de/ausgabe26/aprea_sappa_bwpat26.pdf). 13 Oct 2014.
- Apra, C., & Sappa, V. (2015). School-Workplace Connectivity: Ein Instrument zur Analyse, Evaluation und Gestaltung von Bildungsplänen der Berufsbildung. *Berufsbildung in Wissenschaft und Praxis BWP*, 44(1), 27–31.
- Apra, C., Cattaneo, A., & Sappa, V. (2015). Mind the Gap: Boundary-Crossing an den Übergängen von informellem und formalem Lernen in der beruflichen Bildung. In G. Niedermair (Ed.), *Informelles Lernen. Annäherungen – Problemlagen – Forschungsbefunde* (pp. 265–280). Linz: Trauner Verlag.
- Biemans, H. J. A., Nieuwenhuis, A. F. M., Poell, R. F., Mulder, M., & Wesselink, R. (2004). Competence-based VET in the Netherlands: Backgrounds and pitfalls. *Journal of Vocational Education and Training*, 56(4), 523–538.
- Billet, S., & Choy, S. (2014). Integrating professional learning experiences across university and practice settings. In C. Harteis & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 485–512). Dordrecht: Springer.
- Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A socio-personal account. *Educational Research Review*, 12, 1–13.

- Boldrini, E., & Cattaneo, A. (2014). Scaffolding collaborative reflective writing in a VET curriculum. *Vocations and Learning*, 7(2), 145–165.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Buxton, C. A., Carlone, H. B., & Carlone, D. (2005). Boundary spanners as bridges of student and school discourses in an urban science and mathematics high school. *School Science and Mathematics*, 105(6), 302–312.
- Cano, F., & Cardelle-Elawar, M. (2004). An integrated analysis of secondary school students' conceptions and beliefs about learning. *European Journal of Psychology of Education*, 19(2), 167–187.
- Caruso, V., Cattaneo, A., & Gurtner, J.-L. (2016). Learning documentations in VET systems: An analysis of current Swiss practices. *Vocations and Learning*, 9(2), 227–256.
- Cattaneo, A., & Aprea, C. (2014). Using technologies to integrate vocational learning in multiple contexts. In V. C. X. Wang (Ed.), *Handbook of research on education and technology in a changing society* (pp. 675–690). Hershey: IGI-Global.
- Eklund-Myrskog, G. (1997). Students' view of learning in vocational education. *Scandinavian Journal of Educational Research*, 41(2), 179–188.
- Finch, C., Mulder, M., Attwell, G., Rauner, F., & Streumer, J. (2007). International comparisons of school-to-work transitions. *European Education Research Association Journal*, 3(2), 3–15.
- Ghisla, G., Bausch, L., & Boldrini, E. (2008). CoRe – Kompetenzen-Ressourcen: Ein Modell der Curriculumentwicklung für die Berufsbildung. *Zeitschrift für Berufs- und Wirtschaftspädagogik*, 3, 431–466.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), 56–73.
- Gutierrez, K. D., Baquedano-Lopez, P., & Tejada, C. (1999). Rethinking diversity: Hybridity and hybrid language practices in the third space. *Mind, Culture, and Activity*, 6(4), 286–303.
- Hoeckel, K., Field, S., & Grubb, W. N. (2009). *Learning for jobs: OECD reviews of vocational education and training*. Switzerland. Available at: <http://www.oecd.org/edu/skills-beyond-school/oecdreviewsofvocationaleducationandtraining-learningforjobs.htm>
- Hof, S., Strupler, M., & Wolter, S.C. (2011). *Career changers in teaching jobs: A case study based on the Swiss vocational education system*. IZA Discussion paper 5806. Available at: <http://ftp.iza.org/dp5806.pdf>
- Koskinen, K. U. (2008). Boundary brokering as a promoting factor in competence sharing in a project work context. *International Journal of Project Organisation and Management*, 1(1), 119–132.
- Lave, J. (1988). *Cognition in practice: Mind, mathematics and culture in everyday life*. New York: Cambridge University Press.
- LFPr. (2016). *Federal Act on Vocational Education and Training*, 13 December 2002, Swiss Confederation. Available: <https://www.admin.ch/opc/it/classified-compilation/20001860/index.html>
- Mann, K., Gordon, J., & MacLeod, A. (2009). Reflection and reflective practice in health professions education: A systematic review. *Advances in Health Sciences Education*, 14(4), 595–621.
- Middleton, H. E., & Baartman, L. K. J. (Eds.). (2013). *Transfer, transitions and transformations of learning*. Rotterdam: Sense Publishers.
- Ostendorf, A. (2014). Konnektivität im österreichischen Berufsbildungssystem. Perspektiven der Verbindung von Schule und Arbeitswelt. *Wissenplus*, 18–22.
- Reigeluth, C. M., Beatty, B. J., & Myers, R. D. (Eds.). (2016). *Instructional design theories and models, Volume IV: The learner-centered paradigm of education*. Abington: Routledge.
- Sappa, V., & Aprea, C. (2014). Conceptions of connectivity: How Swiss teachers, trainers and apprentices perceive vocational learning and teaching across different learning sites. *Vocations and Learning*, 7(3), 263–287.
- Sappa, V., Boldrini, E., & Aprea, C. (2015). Combining teaching with another job: A possible resource to face professional challenges. Preliminary findings from a Swiss study in voca-

- tional education and training. *Empirical Research in Vocational Education and Training*, 7(13), online: <http://ervet-journal.springeropen.com/articles/10.1186/s40461-015-0026-4>
- Sappa, V., Cattaneo, A., & Aprea, C. (in press). L'apprendimento integrato tra scuola e lavoro. In G. P. Quaglino & F. Bochicchio (Eds.), *L'agire formativo*. Brescia: La Scuola.
- Schaap, H., Baartman, L. K. J., & De Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning*, 5, 99–117.
- SERI. (2016). Vocational and professional education and training in Switzerland. *Fact and Figures*. State Secretariat for Education, Research Innovation. Available at: [https://www.sbfi.admin.ch/dam/sbfi/en/dokumente/berufsbildung\\_inderschweiz-faktenundzahlen2016.pdf.download.pdf/vocational\\_and\\_professionaleducationandtraininginswitzerland-fac.pdf](https://www.sbfi.admin.ch/dam/sbfi/en/dokumente/berufsbildung_inderschweiz-faktenundzahlen2016.pdf.download.pdf/vocational_and_professionaleducationandtraininginswitzerland-fac.pdf)
- Sloane, P. F. E. (2014). Professional education between school and practice settings: The German dual system as an example. In C. Harteis & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 397–425). Dordrecht: Springer.
- Stenström, M. L., & Tynjälä, P. (Eds.). (2009). *Towards integration of work and learning. Strategies for connectivity and transformation*. Amsterdam: Pergamon.
- Tanggaard, L. (2007). Learning at trade vocational school and learning at work: Boundary crossing in apprentices' everyday life. *Journal of Education and Work*, 20(5), 453–466.
- Tuomi-Gröhn, T., & Engeström, Y. (Eds.). (2003). *Between school and work: New perspectives on transfer and boundary-crossing*. Oxford: Elsevier Science.
- Veillard, L. (2012). Transfer of learning as a specific case of transition between learning contexts in a French work-integrated learning program. *Vocations and Learning*, 5(3), 251–276.
- Virtanen, A., Tynälä, P., & Eteläpelto, A. (2014). Factors promoting vocational students' learning at work: Study on student experiences. *Journal of Education and Work*, 27(1), 43–70.
- Vogt, B. (2014). *Do individual conceptions of vocational learning and teaching matter for implementation of teaching and learning arrangements fostering integration of theoretical, practical and self-regulative knowledge at and across learning sites?* Unpublished thesis, master of science in vocational education and training, Swiss Federal Institute for Vocational Education and Training, SFIVET.
- Wenger, E. (1998). *Communities of practice: Language, learning, and meaning*. Cambridge: Cambridge University Press.

# Chapter 17

## Concepts, Purposes and Practices of Integration Across National Curriculum



Stephen Billett, Gun-Britt Wärvik, and Sarojni Choy

**Abstract** The concept of integrating two sets of experiences implies a duality, that is, a consideration of the contributions of and relations between these two entities. For vocational education, it means accounting for experiences in at least two separate physical and social settings (i.e. workplaces and educational institutions) and how these can be and are reconciled by learners. These two kinds of settings exist for different purposes and have distinct goals, processes and practices aligned for their continuity. There are also other stakeholders who have an interest in the goals for and processes for realising vocational education, as well as an interest in securing their purposes. National industry groups, employee unions and professional agencies seek to achieve specific outcomes for particular industries and workplaces. All these stakeholders also make particular contributions to the provision of vocational education and implicitly to students, apprentices and workers' learning. As illustrated in the national cases presented in Section II of this volume, the dual set of experiences in workplace and educational institutions is now an increasingly significant and common feature and characteristic of vocational education. This is the case whether it is enacted by upper secondary schools, specialised technical education institutions or universities. It is experiences in dual settings, the relations between them and how learners come to engage with and reconcile these experiences that make this form of education quite distinct from general education. Thus, integration of these experiences is salient, including how provisions of experiences are enacted and experienced across a wide range of educational and work settings, and in quite distinct ways.

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## Integration of Experiences

This chapter summarises and synthesises the array of conceptions, purposes and practices about integration of the kinds of experiences that serve the project of vocational education that has been advanced across this volume. Overall, it proposes that integration implies a duality that requires a consideration of the contributions of and relations between two entities. For vocational education, this means accounting for experiences in at least two separate physical and social settings (i.e. workplaces and educational institutions) and how these experiences are engaged with by individuals (i.e. the process of experiencing) and then reconciled by them (Billett 2014). These two kinds of settings exist for different purposes and have distinct goals and processes aligned with their continuity. Perhaps most importantly here are the learners (i.e. students, apprentices, workers) who, as well as being the object of others' interest, have individual intentionalities: interests and purposes (Malle et al. 2001). Ultimately, it is they who engage and learn, whilst these stakeholders make significant contributions to the provision of vocational education and sometimes learning. Given these circumstances, considerations and explanations of how to effectively integrate these experiences are now particularly salient. This includes understanding how the provisions of experiences are best ordered and enacted across a wide range of educational and work settings and in ways that address the particular situational factors and also how different conceptions of educational practices can be accommodated and for different educational purposes.

The authors of the chapters comprising this volume largely concur that the integration of experiences cannot be seen alone as a technical-administrative solution to improving vocational education or by just embedding these two sets of experiences in its provisions. The use of pedagogic tools such as tripartite conversations, e-platforms for reflections on work placement activities, etc. might be useful, but not sufficient. Instead, a broader set of considerations about and procedures promoting these integrations are required. There are situational, occupational and personal factors that have to be considered carefully in the context of where they are to be enacted (Marsh 2004). There can also be no guarantee that what is intended to be achieved through curriculum arrangements and pedagogic practices will be realised with fidelity to those intents (Smith and Lovatt 1990). As many chapters propose, the process and outcomes adopted and how instructional tools are enacted can differ between and across occupations, settings and within the enactment of national curricula (Lahn and Nore, Chap. 11). To rely on or have wholesale confidence in the crafting of the intentional course curricula and learning outcomes (i.e. the intended curriculum) alone will be insufficient to realise the desired process of integration of

experiences and the learning arising from it (Billett 2009b). This is the case even when the “same” set of educational provisions are enacted (Andersson, Chap. 14), because situational factors shape how these experiences play out locally (Skilbeck 1984). In this way, having a provision of students’ work placement to secure intended learning outcomes is not a straightforward means to enhance the quality of educational experiences and outcomes. Like other aspects of education, it needs to be intentionally organised, directed towards specific outcomes and then enacted in ways which seek to secure intended outcomes (Tyler 1949).

Beyond what is intended and what is enacted, however, is also how learners (i.e. students, apprentices, workers) come to make sense of what they are experiencing, construe meaning from and learn through them: the experienced curriculum. In particular, when there are two different kinds of settings affording quite distinct experiences for students, as they reconcile these experiences they learn from what they have experienced within and across these settings. That progress of appropriation (i.e. meaning making) is unlikely to be uniform, and, consequently, diverse outcomes will arise across a cohort of learners even if the students had the “same” experiences, though that in itself is highly unlikely and undesirable. Students bring their particular knowledge and ways of knowing – personal epistemologies (Billett 2009a) – to the activities and interactions afforded to them in the various settings in which those experiences occur. This leads to highly diverse processes of meaning making. Moreover, it is undesirable that students have the same kinds of outcomes as they are all on different learning trajectories. There also needs to be a diversity of responses to problems, emerging occupational tasks and ways of advancing occupations. The complexities comprising from experiences in the intersections between the individual and institutional elements (i.e. the workplace and educational setting) will inevitably be shaped by individuals’ reconciliation of sets of situational and personal factors. In this way, there can be no complete confidence that what is intended through the educational experience, and no matter how carefully it is enacted, will lead to particular kinds of anticipated learning outcomes.

There should be, of course, a consideration of identifying appropriate educational intents, planning and enacting provisions aligned to securing outcomes and engaging learners in ways directed towards particular types of achievements. A key tenant of the education project is that there should be clear intentions about what educational experiences are proposed to be achieved (Marsh 2004; Tyler 1949). This then permits the alignment of experiences to those intentions. These are referred to as intentions because, as noted, there can be no guarantee that they will be realised. However, the grounds for uncertainty are perhaps the greatest when there are distinct kinds of experiences in two different settings, such as when students are having experiences in workplace and educational settings. Their integration is, ultimately, reliant upon the efforts and agency of the learners and how they come to reconcile experiences in both settings. Consequently, considerations for the planning and enactment of these experiences need to reflect the complexity and uncertainty of those arrangements.

As many contributions to this volume note, there are also problematic issues arising from the duality of vocational education and its institutional complexity that

need to be addressed. We summarise four issues that arise from the commentaries in chapters in Section II of this book. First is the issue of individual's agency (Goller 2017) (see, e.g. Billett, Chap. 2 and Smith, Chap. 6) that refers to how students go about reconciling and integrating what they have learnt in educational and workplace settings. This issue in some ways extends to the development of two allied bases of knowledge and knowing – the canonical knowledge of the occupation and the particular situational requirements for work performance.

Second, there is the issue of institutional barriers that have to be overcome in one way or another for the accomplishment of students' education and the making of work-ready graduates but also for long-term collaborative activities and educational development more broadly. That is, each of these two social and physical settings (i.e. the workplace and educational institution) has different imperatives and bases for continuity. However, they share concerns associated with the development of human performance and potential. Yet, these need to be drawn together. Noteworthy here is that vocational education systems seen as being most mature are characterised by closer relations between these two sets of social institutions rather than their separation (Billett 2013). The Swiss example by Sappa et al. in Chap. 16, for instance, illustrates close partnerships between schools and in-company centres that lead to noteworthy outcomes. The provisions in Switzerland are likely better resourced than in most other countries.

Third, some chapters also mention identifying and providing teachable moments for students in the everyday flow of production work that is not directly intended for educational purposes (see Chan et al., Chap. 9 and Vaughan, Chap. 10). Hence, it becomes important to consider what kinds of contributions each of these settings can make to students' occupational development and how the experiences in one can be augmented by those in the other. Just the immersion into practice is not enough; there must be opportunities for students to consider and evaluate what they have experienced and learnt. For instance, if it is the case that the workplace affords no opportunities for considerations about practice and opportunities to consider and evaluate those experiences, this might be something which could best occur in the educational setting. If the workplace is one which provides learners with access to a diversity of practices, then pedagogical activities in the educational setting can be used to augment and enrich those experiences (Billett 2009b). Conversely, workplaces can provide experiences that are unavailable in educational settings (see Sappa et al. Chap. 16). These include the pedagogically rich activities that are freely available through many work activities such as when workers engage in planning, enacting and evaluating work tasks and processes, often in which discussion arises about goals and processes (Choy, Chap. 5 and Vaughan, Chap. 10). These kinds of experiences are often available gratuitously in workplaces, yet are far from always fully utilised and optimised, perhaps because their pedagogic worth is not quite understood or valued. Ultimately, experiences within educational settings alone will remain a substitute and an insufficient provision of experiences. Given the importance of the contributions of physical and social settings to human cognition, including learning for work, the quality of experiences becomes important. So, just as economic restrictions and demands for efficiency often create restrictions on the



kinds and duration of experiences afforded in workplaces, there are also limits to what is provided, experienced and learnt in educational settings. A key quality of having experiences in both settings is that each makes particular kinds of contributions, and there are opportunities, in particular, for experiences gained in educational settings to be augmented and enriched by work-related experiences.

Finally, another issue, frequently raised and discussed in the chapters albeit from different perspectives, is the length and sequencing of work placements and school-based education, considered in connection with other contextual issues and integrational means. There are distinct educational traditions about and pathways for occupations that have been advanced, embracing social as well as identity aspects of learning that have in the past and still continue to shape the provision of vocational education (Pylvas et al., Chap. 7; Eiríksdóttir, Chap. 8; Nyen and Tønder, Chap. 12; Lindberg and Wärvik, Chap. 15). National traditions associated with different trade branches/vocational areas can play a role for the integration. These traditions and practices can both support and inhibit the development of occupational capacities. Nyen and Tønder (Chap. 12) explain this in terms of shielded and non-shielded opportunities. Part of the process of enhancing learning experiences for students is to identify what is useful and what is inhibiting about those traditions and then attempt to redress them.

Taken together, these issues comprise those which need to be considered and, where necessary, redress in seeking to identify and enact effective experiences for vocational education students. Finding ways of engaging students effortfully with what is afforded them, it follows, is also central to integration.

## Concepts, Purposes and Practices

As a means of progressing and considering issues raised by the contributors to this book, it seems worthwhile to address those associated with the experienced, the enacted and the intended curriculum. Usually, discussions about these three concepts of curriculum commence with the intended curriculum (i.e. what is intended to be achieved, for what purposes and how) and then proceed to a consideration of their implementation (i.e. the enacted curriculum) (Brady and Kennedy 2003). However, here in considering the issues raised above, the discussion commences with those associated with the experienced curriculum: learners' experiencing and learning from what is enacted. This ordering is premised on three rationales. Firstly, given the centrality of learners experiencing, and reconciling and learning across two distinct physical and social settings, it seems important to consider the perspectives of the learners as being pre-eminent. Secondly, without understanding those perspectives, the process of organising and enacting effective vocational education provisions becomes problematic and potentially piecemeal and ineffective. Perhaps only through a detailed consideration of the provision of experiences and their integration from the perspectives of those who have to engage in and learn through and from them can effective curriculum provisions be organised and pedagogic

practices be selected. Thirdly, consideration of the intended, enacted and experienced curriculum in that order reflects a linear-rational approach to the organisation of educational experiences that has been long since dismissed as being not only unhelpful (Wheeler 1967) but also as failing to explain how the provision of experiences and students' experiencing can best be understood and enacted.

In this section, three key ideas that have been drawn from the contributors' texts are considered in broadly addressing the four issues raised above. These are (i) student readiness, (ii) connectivity and re-contextualisation and (iii) institutional contextual issues.

### *Students' Readiness*

The concept of *students' readiness*, advanced by Billett (Chap. 2), acknowledges the central role of students' mediation of what they experience in both settings, how they make sense of that and come to reconcile, i.e. the process of "experiencing". The premise and platform for that mediation is on what students know, can do and value. It is these capacities that students utilise when they construe from what they experience and construct knowledge (i.e. learn) through the process of experiencing. That experiencing is shaped by what is afforded through the social and physical environments in which they engage in activities and interactions and how they utilise their capacities that have arisen through their personal histories. This perspective emphasises a socio-personal view of students' experiences in so far as it accommodates the contributions and suggestions from the social world and how individuals come to engage with it, albeit in social settings such as workplaces and educational institutions. Given the centrality of this mediational process to their learning, students' readiness in terms of what they know, can do and value will be central to how they make sense of and engage in experiences in both settings and then reconcile them as directed towards sets of goals associated with what they need to learn for their occupations. This readiness is shaped by the legacies of their prior or pre-mediate experiences. That is, how their previous experiences and reconciliations have led to the development of what they currently know, can do and value (Billett 2015). Part of that readiness is their willingness to engage in new kinds of activities and interactions and extend what they know, can do and value. As a consequence, the effectiveness of learning experiences is shaped by their readiness, on the one hand, and the degree by which the experiences afforded to them entice, engage and grant opportunities for them, on the other.

The educational considerations here include students' level of readiness, including the kinds of experiences they have had previously and their willingness to engage, and the fit between those factors and what experiences are afforded to them. Beyond learners' readiness itself is the degree by which their productive engagement with experiences in the school and work settings can be supported by curriculum processes including the sequencing and duration of activities, as well as teacherly interventions. For instance, it is suggested that to assist students become

ready for optimising the experiences in the workplace, there are educational activities that might be conducted prior to their engagement in those experiences. This includes developing their capacities so that they can engage effectively in the workplace. Then, whilst in the workplace, there may be interventions which can occur to support their learning in ways which reflect their readiness to make sense of what they are experiencing and how they can interact in the work setting. After students have completed their work experiences, there may also be activities that can be undertaken to assist them in reconciling what they have experienced and directing their thinking and acting towards the intended learning outcomes. Support, therefore, can be provided to assist them develop the kinds of conceptual, procedural and dispositional forms of knowledge required for particular occupations but also come to understand the particular situational requirements that arise in specific workplaces. The conceptual premise advanced here is that it can assist students utilise their existing zone of potential development (i.e. readiness in terms of what they know, can do and value) and through those educational interventions extend their potential development and readiness to develop further their knowledge. As a consequence, understanding students' readiness in terms of their zone of potential development is the premise by which teachers and workplace supervisors can engage in productive educational interventions in and across the settings to ensure students are afforded a diversity of experiences and bases for reconciling those experiences.

Students' readiness and integration arises through processes of experiencing across their life course. The important role that learner agency plays within that is a key consideration in a number of other contributions within this edited volume. Issues associated with how students embrace an agentic approach to their learning that includes the formation of occupational identity or subjectivity, that is, "how to be" in a certain occupation (Chan, Chap. 9; Smith, Chap. 6; Vaughan, Chap. 10), are addressed within these contributions.

Vaughan (Chap. 10) uses the concept *vocational thresholds* as a metaphor for learning experiences that are identity-related and significant to an occupation, as a kind of transformation or "crossing" that leads to students extending their learning in ways of seeing, that she described as, "a portal to a different world", (page xxx) and from which there is no return. That is, having expanded the repertoire of capacities of the learners, including their insights, their perspectives, ways of working and values are changed. In this way, experiences in workplaces need to be seen as being educative because of their strong contributions to these crossing of thresholds. Vocational thresholds can be multiple, each with their own cultural, social and historical genesis and suggestions, described as "regimes of competence". Vaughan emphasises the importance of both structure and agency in this endeavour. That is, the kind of duality that has been referred to above: societal structures and the agency of the learner engaging with those structures. It is, therefore, important to move beyond the division between "theory" and "practice" as separate conceptions and pieces of knowledge that students have to internalise and reconcile. Importantly, it needs to be acknowledged that conceptual (i.e. theory) and procedural (i.e. practice) capacities arise from experiences in both settings, not each being inherently

generative of one kind (i.e. educational settings generating theory and work settings generating practice). Instead, the development of procedural and conceptual knowledge arises through experiences in both of these settings.

Learning from experiences in both settings also does not necessarily lead to the knowledge, skills and dispositions that students are intended to learn. In workplaces, there might be tensions between production demands and learning demands (cf. Ellström 2001). So, competence regime of a workplace can be instrumental and only applicable on specific tasks in a very narrow sense. Similarly, what is experienced and learnt in educational settings may not be adaptable or useful outside of those settings. The concept of vocational thresholds emphasises factors associated with the situation in which knowing and doing are enacted and how this can represent thresholds for learners, albeit in different ways across a cohort of learners. As with processes of reconciliation discussed earlier, how students come to and negotiate these thresholds becomes a central educational concern. These concerns include their pro-activeness, meaning-making abilities in reading new situations and an openness to engaging in aspects that cannot be known in advance. Mentors, team leaders, teachers, etc. play a key role for drawing attention to the educative purposes of the workplaces and also those in educational institutions. This also implies that both of these settings should be seen as being knowledge generating, albeit in ways that respects their particular institutional practices and constraints. Vaughan's study of secondary and tertiary education in New Zealand emphasises the duality of experiences in education and work settings and the relations between them in her accounts of the ongoing development of general medical practitioners, the formation of teachers' subjectivities that includes their teaching as well as craft worker roles. All of this emphasis accentuates the ability to reconcile the contributions from different experiences premised on learner readiness.

New Zealand/Aotearoa as a bicultural world is also the context for Chan et al.'s contribution (Chap. 9). They investigated the integration between tertiary studies and work as an identity formation practice across five bachelor programmes: applied management, broadcasting, midwifery, nursing and social work, from a bicultural perspective. The anticipation was that students should be able to integrate and apply knowledge of biculturalism and understand Treaty of Waitangi/Te Tiriti o Waitangi with respect to their intended occupations. Therefore, scaffolding of and efforts to embed biculturalism became part of the preparatory programme the students undertook – explicitly elements of their preparation before, during and after work placements. It is reported in this chapter that there were no consistent structures or approaches across these programmes in seeking to generate these outcomes. Instead, they had all evolved through the particular social and historical trajectories of those programmes. The demands, such as the understanding of an occupation, the ability to communicate well in the context of that specific occupation and to think critically and analyse and generate solutions to unfamiliar and sometimes complex problems are all different. For instance, supervisors guided the midwifery students through maternity experiences; social work students engaged in observing normal work activities; and applied management students were expected to apply theoretical knowledge to solve business problems.

These kinds of approaches reflect different understandings about educational goals and student readiness to engage in educative experiences to realise those goals. It is also noteworthy that even accepted mores that arise outside of working life about biculturalism may not always easily translate into specialised areas of occupational practice. Hence, readiness in that might be expected because although students have grown up in a bicultural context, their understandings may not always extend into a new domain of activities such as the occupation they are seeking to learn.

Students' readiness extends to learner agency and concerns their meaning making and construction of knowledge from their experiences. In his chapter, Smith (Chap. 6) emphasises worker's personal agency and how it shapes, and is shaped by, learning in and through work. Thus, learner agency means development and identity transformation that include both personal and social contributions to learning but premised on the agency of the learner in engaging in and reconciling experiences across social and physical settings. Agency, from Smith's perspective, should then be seen as driven by negotiated collective situational and historical circumstances within a particular activity, and not as an individual power or will that drives action and change. That is, what is referred to by others as reconciliation or re-contextualisation is here seen as being captured through the concept of negotiation. Integration can thus refer to the students as negotiators and their meaning making from experiences, embracing a personal perspective and previous engagement in the particular activity, mediated by various resources afforded through specific activities. The students' experiences for the development of motivation and attitudes, relations to others, capacities to perceive time and who does what and how, learning strategies, etc. are vital for integration and their capacity to act. However, their capacity to negotiate and relate the kinds of strategies used to advance that learning is premised upon students' readiness.

### ***Connectivity and Re-contextualisation***

Whilst the listing above pays particular attention to learners' readiness and how it shapes how they engage in and reconcile experiences in both work and educational settings, other perspectives within this volume focus more closely and privilege the contributions from these institutions. Guile, for instance, emphasises the mediated relationship between school and work and compares two models of work experience: the connective typology of work experiences and the re-contextualisation of knowledge model (Griffiths and Guile 2003). His connective typology is based on Weber's ideal types applied on work experiences, developed to facilitate learners' connections and boundary crossing between domain knowledge and occupational knowledge and values (Guile and Young 2003). In this way, the focus is on the physical and social aspects of these two settings and where boundaries are seen as those separating and delineating them. His focus on integration privileges learners' movements within and across these contexts. The re-contextualisation model is also

influenced by cultural-historical activity theory meaning that all cultural tools, i.e. knowledge embedded in artefacts, are influenced by the purpose of the specific activity. Thus, knowledge changes when these kinds of tools, albeit often psychological, are moved from a workplace or a discipline to become part of school-based curricula or workplace practices, or vice versa, the context changing through that movement. The focus here is on manifestations of knowledge in the social settings and how it is projected by the norms, forms and practices of those settings and on learners' movements within and between contexts as well as their engagement and embodiment of knowledge.

Yet, even within these perspectives that privilege the genesis and projection of the social world – sociogenesis – there is still a need to accommodate how actors come to engage with these practices and suggestions. Learners' agency and engagement with what is afforded by educational institutions and workplaces is vital for understanding the processes of integration. However, one key contribution from this field is that by focusing on social, cultural and institutional practices, distinctions can be made amongst different approaches and programmes based upon consideration of the contributions of these specific settings. In this way, education provisions that are wholly based within the education institution, those that are embedded within apprenticeship systems and those that offer experiences in both tertiary education institutions and workplaces can be understood in terms of the contributions that arise for the learners through different combinations of participation in social settings (i.e. schools, workplaces, etc.), what is afforded them and how learners take up those affordances.

Choy's chapter (Chap. 5) focusing on how students, teachers, managers and coordinators in Australian vocational education programmes conceptualise connectivity between what is learnt in educational institutions and workplaces, meaning associative connections between two parallel modes, offers insights into these combinations and different patterns and purposes for participation. From the perspectives of students, teachers and managers and coordinators, she identifies four common conceptions on how they connect:

*Experiences as preparation* – a sequential and linear combination of conceptual and practical learning, meaning learning at the educational institution as preparation for learning in the workplace and/or vice versa.

*Broader perspective on procedural learning* – learning a correct procedure in a psychologically safe environment and then applying it work situations once a level of procedural capacities has been achieved;

*Encompassing perspective* – to understand the conceptual knowledge and thus, the rationale for the enactment of work procedures in ways appropriate to its enactment and utility in work settings; and

Learning that stimulates *higher order thinking* – a circular process that promotes critical thinking and acting within a domain of occupational activities to secure results or the kinds of higher-order outcomes that are required for adaptability and responding to change. (Choy, Chap. 5)

These conceptions also illustrate an increase in the level of complexity – from learning *for* work to learning *through* work – and accordingly, the importance of

pedagogical, curricula and personal epistemological couplings amongst the different phases of the apprentices' learning trajectories, for example.

Sappa, Aprea and Vogt (Chap. 16) discuss the idea of boundary crossing and connectivity between school-based and work-based learning in a Swiss investigation of teachers, trainers and apprentices' perspectives on what factors have been most efficacious in supporting apprentices' learning. These authors refer to meso-aspects as concerning institutional communication and cooperation within and between VET institutions and actors and the micro-aspects as concerning the teaching and learning situations. The meso-level implies the prominence of a "connective attitude" between teachers and trainers, which also points to the importance of their own education. Central to their account is how the process of boundary crossing plays out across these social and physical settings. Amongst others, the authors mention that teachers and trainers, who have engaged in and participated in these different settings, must have the capacities to be important boundary-crossing facilitators. That is, their understandings and insights about conceptions of activities and interactions, procedures for conducting them and values by which their enactment is shaped arises from their pre-mediate (i.e. earlier) experiences and, hence, learning. These understandings permit them to effectively guide learners in understanding the imperatives and practices of these settings and how they might be reconciled.

From a workplace perspective, Pylväs, Rintala and Nokelainen (Chap. 7) have studied how students engage in the social environment and work practices of Finnish apprenticeship training and come to reconcile the experiences they have in these two settings. These authors raise important questions about what competences are acknowledged in this training and associations between the kinds of competence required and how their experiences are likely to be realised. *Competence* is their main focus, which for them means cognitive (i.e. conceptual-occupational), functional (i.e. operational-occupational), social (i.e. operational-personal) and meta-competences (i.e. conceptual-personal). Thus, their questions also include how personal-level competencies can be integrated with the occupational competencies. They also discuss connections between what is afforded by education providers and workplaces, including that references to these connections mostly refer to an administrative imperative such as contracts in the beginning of the apprenticeship training, rather than a focus on learning through these arrangements.

As a consequence, they conclude that boundary crossing in terms of how these experiences are seen and evaluated is limited. Instead of a connective model, they argue, the Finnish model seems to keep theoretical studies and work experiences separate in ways that inhibit their integration and reconciliation. Apprentices were seen, perhaps not surprisingly, more like employees than students. Learning in educational institutions became rather peripheral to these learners and was not integrated, perhaps because it was seen as being separate and potentially irrelevant to the workplace and work activities in which they were engaging. Both cognitive and functional competences gained in working life were more appreciated, because of the personal imperatives they represent. Pylväs and her co-authors state that the role of teachers could be more active. Furthermore, the structures ordering, organising and supporting students' engagement in both settings need to be seen as being

premised more upon students' learning and reconciliation through these experiences than regulatory practices that preoccupy administrative imperatives. Yet, these authors also comment that in this learning and reconciliation across experiences, students' abilities to engage and mediate these processes through their intentions, volition and self-reflection and their social skills are seen as important. Again, the emphasis on these personal capacities to participate in the social practices and derive learning from them is quite central here.

Lahn and Nore (Chap. 11) discuss the use of ePortfolios as a tool for documentation and assessment and as a *hybrid learning arena* bridging education and work. They report that the development of local plans and activities associated with vocational education are increasingly premised on the requirements of the national curriculum. Their enactment is largely shaped by requirements of assessment procedures, with much of the enactment roles being taken away from teachers. That is, they have been outsourced to the so-called training offices that comprise elements of a new structure for Norwegian VET and as promoted by its "third space" (i.e. social partners/government/county educational authorities). The training offices are owned and driven by a community of companies and are approved as training companies. Their tasks include recruitment of apprentices and enterprises, networking with institutions involved and quality assurance. The design and enactment of the ePortfolios is one aspect of quality assurance and developed to become an integration element between the training offices, schools and work. These ePortfolios are both an accounting device, based on branch requirements, and an assessment tool through which apprentices can monitor their progress against the requirements of the national curriculum and company standards and also receive feedback, etc. Lahn and Nore investigated four occupational areas: health care, industrial mechanics, plumbing and sales. The ePortfolios were used for different pedagogical functions in each of these areas. They noted differences in how the apprentices from different occupational areas used the device. They concluded that ePortfolios, to a large extent, supported restrictive learning but argued that there is potential for improvements to make them available for more effective integration of experiences in both settings.

Issues with various perspectives, discourses and imperatives associated with distinct social practices are evident in the chapter by Andersson (Chap. 14). Its contributions arise from an investigation of tripartite conversations (i.e. those amongst teachers, workplace supervisors and students) in apprenticeships offered in Swedish upper secondary school. These conversations are designed for bridging the two activities of schooling and working and in ways that make the national syllabus and work assignments important tools. That is, there is a strong institutional compact in the formation of these arrangements and at the level of the intended curriculum. However, she notes the separation of these curricular goals from the kinds of work assignments in which the students are able to engage. The first is controlled by the school and the second by workplaces. The schools have overall responsibility for the collaboration and can come to view workplaces as extended classrooms, yet they have little influence within those workplaces in terms of the activities and interactions in which students engage.



Thus, there is little discussion of the kinds of intended integrations. Instead, the conversations were more about division of content between school and workplace and a dependency on workplaces to provide experiences for students and how these might be allocated in ways which meet the intended ideals. Not only the positioning but also the capacity of the education institutions to negotiate these arrangements is complicated in achieving the intended outcomes. This was a task that was relatively unfamiliar to teachers who had previously taught all vocational subjects in the school. However, the prospect is for ongoing negotiations amongst teachers, workplace supervisors and students that could lead to enhance potential for more complete and effective shared understandings. This could lead them to provide experiences and assist students engage in and reconcile their experiences through distinct kinds of activities and interactions that occur in both settings and are directed towards developing their occupational competence. Perhaps because of its relative newness and novelty, a key conclusion from this investigation is that the abilities for tripartite conversations to meet the needs of all parties, and as directed towards effective educational provisions, is in its infancy. Consequently, whilst not yet adequately developed, this presents a focus for ongoing development that could potentially lead to enhancing the quality of the Swedish model of apprenticeship.

Andersson's chapter emphasises the role that particular societal cultural and institutional sentiments play in the provision and reconciliation of students' learning experiences. Within the Scandinavian model of governance, engagement across these social partners is understood and practiced, albeit not without tensions and difficulties. Nevertheless, these kinds of structures and interactions stand as societal facts within which an education system finds itself located. Hence, these discussions are set within a particular societal context that is premised upon such interactions. In a similar way, Nyen and Hagen Tønder (Chap. 12) focus on the organisation of training practice in a Norwegian societal context and explore the possibilities for integration of these experiences based on interviews with students in upper secondary vocational education. Through an analysis of the data provided by students, the authors have identified a model for organising their experiences. It comprises elements of the degree of *shielding* (i.e. exposure to demands and also expectations from customers or not) and degree of *relevance* (i.e. students' experience of a trade or not). The experience within the schooling element of the upper secondary vocational education is normally viewed as offering a high degree of shielding to its students, yet the degree of relevance can be high as in through workshops. Workplaces are normally not shielded, but work experiences can also be of low relevance as well as of high.

All four forms for organising are relevant in different phases of students' education programme. In this way, again, it is suggested that each of these two settings make particular contributions to students' learning. It is not difficult to understand why young persons might not be given the opportunity to directly participate in their preferred occupation in a workplace when they are not ready to do so effectively. They might be given activities which to them (i.e. students) seem as being irrelevant and unrelated to learning their preferred occupation. Equally, it might seem that experiences in the education setting that are directed towards qualifications and

examinations are very relevant to securing occupational capacities and abilities to practice that occupation. Exercised here is how expectations, perspectives and activities in both settings are subject to complex factors including the experiences afforded, individuals' perceptions of the quality of those experiences and how they are to be engaged with by those who are learning.

The focus on connectivity and context is also important when developing a new field of education. This is the case with the introduction of an emphasis on a continuing education and training system in a societal context that has placed strong emphasis upon children's learning and the initial development of occupational competence. Issues associated with standing, relevance and bases by which individuals and institutions participate may be complicated when the worth and value of these provisions are yet to be fully established and legitimated within the societal context. Bound et al. (Chap. 13) discuss policy changes in Singapore's continuing education and training (CET) sector and integration of learning experiences as part of work and for work, in and through different "spaces". Yet, all of this occurs within a country with a very strong emphasis on educational provisions as in schooling, the role of teachers and a highly competitive approach to education and assessment. In this contribution, and given that much of the CET provisions needs to occur outside of education institutions, the main concept is *spaces for learning*. Such spaces are given meaning by social processes, and together with pedagogical tools, routines, etc., they can afford different performative practices. For instance, the value of the workplace as a learning environment may well be compromised in a country where academic achievement, institution of schooling and of teaching is so prevalent and high. Thus, it is important to understand these spaces. They are much more than a physical place and constitute cultural and societal spaces. The authors conclude that "It is thus important for VET practitioners to 'read' and 'know' the spaces" to identify pedagogical tools. All of this is particularly relevant to education provisions that require broad societal participation. Nonetheless, it is the workers and supervisors and teachers who have a major role in working across institutions.

In sum, what this set of contributions suggest is that understandings about societal and institutional factors play an important role in organising provisions and assistance for vocational education students to integrate experiences in both settings. They emphasise, in different ways, the role of institutional facts (Searle 1995) and how these play out in practical ways when trying to organise and integrate experiences for students across workplace and educational settings. The discussions in this section have emphasised how sociogenetic factors have come to shape institutional arrangements and how individuals can act within them. Moreover, it is indicated that these sets of factors are far from uniform, and societal sentiments within countries can shape both what constitutes these institutions and their practices, and how negotiations can occur across them, and how students come to engage in and learn through them.

### *Contextual Institutional Issues*

Pervading the contributions referred to above are a set of contextual institutional issues that need to be emphasised. In particular, the contribution by Bound et al. raises questions about how an education provision seeks to reshape societal relations and capacities rather than being responsive to it. That is, there are factors which are not constrained to the exercise of societal sentiments but are positioned as changing it or will be cathartic in bringing about those changes. Given the field and the role of supranational agencies in seeking to promote vocational education for its alignment with economic development, there is much in what is proposed for vocational education which is subjected to changes from outside of nation states and their societal and cultural sentiments. Grollmann (Chap. 4) points out that many countries are seeking to adopt the dual education model often at the urging of supranational agencies such as the OECD or World Bank. He criticises the vocational interest of the supranational organisations as being too narrow and mainly directed towards outcomes for labour market. Missing in the push from these supranational agencies is an awareness of the complex institutional arrangements that comprise vocational education and training systems, including their initial formation and ongoing development. Instead, the promotion of policy agendas from these agencies tend to emphasise curricula design and integration of learning experiences between work and educational institutions that are seen as being effective in one national context and therefore should be applied elsewhere. Most national vocational systems can probably be seen as dual in one sense or another, even if they are not classified as such, and this duality includes curricular implications, he argues.

However, there are always different institutional frameworks, sequencing of learning times in educational institutions and workplaces and roles of actors in national VET systems, even between those formally classified as dual. In other words, duality can have many different forms. Yet, these variations and differences are emblematic of the distinct institutional arrangements, goals and imperatives of countries. Hence, both the arrangements for providing and integrating students' experience in terms of the intended curriculum and also how these are likely to be enacted will be shaped by factors germane to particular countries. Moreover, how students come to engage in these activities is likely also to be shaped by societal sentiments. In countries such as Singapore, for careers that are dependent upon particular forms of work, there can be societal sentiments which place value on different forms of work and sharply distinguish and delineate those to which young people should aspire. This then leads to different kinds and forms of engagement by young people in these occupations. Indeed, this can be an unhelpful barrier to responding to even the best, most well thought through and considered educational provision. Grollmann's concerns are that a lack of knowledge about the genesis form and imperatives for different kinds of vocational programmes are not fully considered when proposing the ways in which national systems and teaching and promotion of learning processes can progress. Hence, in organising and engaging students in both work and educational activities, these are likely to be cast in quite

different ways across different nation states and often for worthwhile and important purposes.

These factors also play out differently within nation states as the requirements are not always nationally consistent. Eiríksdóttir (Chap. 8) indicates the variations in sequencing and length of periods in school and work in 34 of the Icelandic certificate trades. Even with a new national curriculum being introduced in 2011, this did not lead to new VET curricula. The length of the workplace period ranges between 24 and 126 weeks, meaning that students spend 16–73% of their education in a workplace. Most commonly, education starts at school. In contrast to many of the societal mores referred to above, in Iceland, VET is regarded as independent and free from centralised governance. Eiríksdóttir's question concerns the rationale for these variations. One explanation could be that each field has been able to establish its own model in response to balancing different pedagogical and economic goals. A conclusion is that variances in sequencing can offer different values and practices. These may well be not just an ad hoc product of history but reflect particular needs and efficacious processes for securing occupational knowledge.

Indeed, the chapter by Wärvik and Lindberg (Chap. 15) provides a historical example of how this plays out in one nation State (i.e. Sweden). They provide a perspective on how the organising of integration between school and work was proposed to be accomplished through the goals of a national curriculum as influenced by three upper secondary school reforms in 1970, 1993 and 2011, by using examples of lifelong learning policy, in the fields of healthcare and textile production. Over the decades, these occupational fields (i.e. healthcare and textiles) have been exposed to occupational transformations and changing demands of competencies: from health care specialist to a flexible generalist, easy to use for several purposes, and from textile worker to designer. Concurrently, societal purposes of vocational upper secondary school have changed. Even with a unifying national curriculum of the 1970s, the healthcare sector continued its vocational traditions, meaning a focus on bedside work and integration through a clinical nurse teacher influenced by recurrent education ideals. The 1990s reform instead emphasised general subjects and higher education eligibility for employability, so the vocational emphasis diminished, and accordingly, close institutional integration between healthcare and school disappeared. The 2011 reform meant a revival of vocational education and work placement as a main route to employability. However, there was less interest in curricular integration.

All of the above emphasises how conceptions of integration experiences are shaped nationally and within nation States and influenced by societal and cultural sentiments. Yet, within each of these States, there are particular institutional arrangements which are essential when seeking to provide experiences across them. This suggests that policy borrowing and swapping needs to account for local circumstances and historical development, which includes the formation of institutions that organise, enact and integrate vocational education and their transformations over time.

## Conclusions

As has been proposed through the contributions to this edited volume, the provision and integration of experiences in both workplaces and educational settings is not simply the enactment of a process whereby students are exposed to experiences in both settings and benefit from that immersion. Instead, it has been suggested that the intended curriculum that aims to guide and direct learning experiences towards intended outcomes needs to take account of a range of cultural, situational and societal factors that shape the provision of experiences and to what purposes they are directed. Even then, it is necessary to account for the ways that students' personal epistemologies will shape how they come to engage with what is afforded to them. Of course, such considerations can also be exercised through the planning for and enactment of the intended curriculum. However, there can be no guarantee that regardless of many consultations or the extent of trialling and refining, that particular cohort or even generation of individuals will respond as intended.

Therefore, the concept of integration needs to account for the kinds of experiences which are provided and the basis by which individuals will come to engage with, construe and construct what they experience through a process of experiencing. What has been emphasised within this chapter is that learner readiness in terms of individuals' ability to engage in these settings and reconcile what they have learnt through that participation will be central to what constitutes their integration. Hence, integration cannot be seen to be a totally institutional phenomenon. Instead, it is in a large part of a personal effort. Of course, society will make judgements about the degree by which that personal meaning making and acting are consistent with what is supposed to be learnt through these experiences.

Regardless, it is important to see the context. The intended and enacted curricula in their unique institutional settings cannot be seen separate to students' experiences and their agency. As many of the chapters of this book have emphasised, the intended, enacted and experienced curriculum hang together and are enmeshed. Thus, as noticed by Grollmann (Chap. 4), borrowing of educational ideas between nation states is problematic and difficult to achieve as envisioned (Steiner-Khamsi 2004). Educational ideas tend to "travel" and be adopted in national contexts other than where these originated. However, such borrowing rarely considers the peculiarities of local contexts, systems and process. Local and national traditions of curricula and educational systems are essential components of knowledge and thus, the development of students' experiences. But such aspects are not always visible, often taken for granted. Furthermore, any conceptualisation of students' readiness needs to take into account the institutional duality of vocational education, that is, the social and physical settings, and the national educational context, for a more complete understanding of the phenomenon of integration of students' experiences between school and work. Again, as mentioned – given that learning takes place across two distinct settings – learners' experiences are central in this endeavour but need to be understood as being dual, situated and embedded.

The key premise advanced in this chapter is that the experienced curriculum should be considered a starting point for curricular development and that students' readiness for integration underpins effective integration of learning in educational institutions, workplaces and in-between spaces. These are important considerations especially when political pressures on vocational education expect speedy training and development without much attention to supporting learning for integration.

## References

- Billett, S. (2009a). Personal epistemologies, work and learning. *Educational Research Review*, 4, 210–219.
- Billett, S. (2009b). Realising the educational worth of integrating work experiences in higher education. *Studies in Higher Education*, 34(7), 827–843.
- Billett, S. (2013). Towards a mature provision of vocational education. *International Journal of Training Research*, 11(2), 184–194.
- Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A socio-personal account. *Educational Research Review*, 12(C), 1–13.
- Billett, S. (2015). Readiness and learning in healthcare education. *Clinical Teacher*, 12, 1–6.
- Brady, L., & Kennedy, K. (2003). *Curriculum construction*. Frenchs Forest: Pearson Education.
- Ellström, P.-E. (2001). Integrating learning and work: Problems and prospects. *Human Resource Development Quarterly*, 12(4), 421–435.
- Goller, M. (2017). *Human agency at work: An active approach towards expertise development*. Wiesbaden: Springer Fachmedien.
- Griffiths, T., & Guile, D. (2003). A connective model of learning: The implications for work process knowledge. *European Educational Research Journal*, 2(1), 56–73.
- Guile, D., & Young, M. (2003). Transfer and transition in vocational education: Some theoretical considerations. In T. Tuomi-Grohn & Y. Engestrom (Eds.), *Between school and work: New perspectives on transfer and boundary crossing* (pp. 63–81). New York: Pergamon.
- Malle, B. F., Moses, L. J., & Baldwin, D. A. (2001). Introduction: The significance of intentionality. In B. F. Malle, L. J. Moses, & D. A. Baldwin (Eds.), *Intentions and intentionality: foundations of social cognition* (pp. 1–26). Cambridge, MA: The MIT Press.
- Marsh, C. J. (2004). *Key concepts for understanding curriculum*. London: RoutledgeFalmer.
- Searle, J. R. (1995). *The construction of social reality*. London: Penguin.
- Skilbeck, M. (1984). *School based curriculum development*. London: Harper and Row.
- Smith, D., & Lovatt, T. J. (1990). *Curriculum: Action on reflection*. Wentworth Falls: Social Science Press.
- Steiner-Khamsi, G. (Ed.). (2004). *The global politics of educational borrowing and lending*. New York: Teachers College Press.
- Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. Chicago: University of Chicago Press.
- Wheeler, D. K. (1967). *Curriculum process*. London: University of London Press.

# Chapter 18

## Considerations for the Integration of Students' Experiences



Sarojini Choy, Gun-Britt Wärvik, and Viveca Lindberg

**Abstract** Educational institutions are fundamentally designed for teaching and learning, whereas learning in workplaces remains a secondary function supported through engagement in routine and nonroutine work tasks, direct and indirect guidance and opportunities and accessibility to a range of work tasks to gain experience (Billett, *Stud Contin Educ* 23(1):19–35, 2001). Development of skilled workers demands that learning at educational institutions and in workplaces is well connected and integrated. Without deliberate efforts from teachers, guides, mentors or other actors to make connections between learning at different sites, students could likely remain ‘passive bystanders’ during scheduled practice periods in workplaces. It therefore becomes necessary to develop learners’ capacities to help mediate between the curriculum organised by their educational institutions and the curriculum situated in the everyday business of workplaces where they gain vocational experiences. Further to empowering learners to access and engage in learning, there are other considerations necessary for effective integration of learning in different sites. In this chapter we draw on the cases presented in Part II to propose broad considerations for integration around four imperatives: social-cultural arrangements, negotiated curriculum, the roles of stakeholders and learner preparedness. Imperatives and implications for students’ learning are discussed. In the summary of the chapter, we recapitulate the main ideas about supporting integration of learning in educational institutions and workplaces and stress the significance of a collective and reciprocal approach for integration.

**Keywords** Integration · Connections · Learner preparedness · Agency · Considerations for integration · Supporting integration

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## Introduction

Educational institutions are fundamentally designed for teaching and learning, and this is their everyday business. Workplaces in which students gain vocational experiences have a different business focus. In general learning relies on the agency of individuals, while any structured learning tends to be a secondary function. The level of intentionality and deliberate pedagogical interventions, structured to facilitate integration during the course of everyday work, tends to align with core business goals in workplaces. As established in the chapters in Part II of this book, at different sites, learning is supported through engagement in routine and nonroutine work tasks, direct and indirect guidance and opportunities and accessibility to work tasks in order for students to gain experience, albeit all these need to be well connected and integrated. The point made here is that without deliberate efforts of teachers, guides, mentors or other actors to make connections between learning in different sites, many students likely remain ‘passive bystanders’ during practice schedules in their learning programme. It therefore becomes necessary to develop learners’ capacities to help mediate between the curriculum organised by their educational institution and the curriculum situated in the everyday business of workplaces where they gain vocational experiences. This is a challenge expressed in several chapters of this book. The case examples in the earlier chapters illuminate processes, procedures and arrangements for the integration of vocational education which takes place in schools<sup>1</sup> and in workplaces.

The chapters originate from different national education systems that have distinct cultural-historical origins. Vocational education can, for instance, be based in a fully school-based VET or follow an apprenticeship model, where workplaces can be understood as being important contributors to education through circumstances ranging from short-term placements to long-term employment for students. The responsibility of enterprises for learning in the workplace is generally regulated by national legislation, collective agreements or voluntary contracts. These social partners in the labour market can be highly influential or operate passively. In countries like Switzerland, trade associations (e.g. through in-company centres) take greater responsibility for VET, while in others (e.g. in Sweden) it is the schools that have responsibility for VET. Despite the different arrangements which provide students with educational experiences in the field of vocational education, both schools and workplace settings account for integration of learning in the two main sites. As illustrated in Part II of this book, deliberate attempts to integrate learning are common yet present challenges. The arrangements, in respective national contexts, have been developed as part of the intended curriculum to structure and organise learners’ experiences and, thus, develop the capacity of contemporary workers.

In this chapter we draw on the cases presented in Part II and propose broad considerations for integration of learning experiences at different sites, also bearing in mind – even if not made explicit in this chapter – important national differences.

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<sup>1</sup>From hereon we use the term school to represent all educational institutions.



From a policy perspective, it might be tempting to turn to another country to find 'the best model' to implement locally, which, as Steiner-Khamsi (2004) has pointed out, is a common contemporary political strategy. This is however not our intention here. We will not propose processes that could easily be implemented. Indeed, this would be an impossible endeavour since even when ideas 'travel' globally, i.e. travelling discourses (Brennan Kemmis and Wärvik 2011) or best practices (Jackson 2015), they always materialise locally, in accordance with local social, cultural and historical conditions. Instead, we turn attention to different kinds of formal arrangements, as have been synthesised in previous chapters, to emphasise the complexities surrounding a variety of relations between schools, workplaces, other organisations and students/learners.

The cases in Part II illustrate that integration is directed by emerging discourses of changing conditions in production, as well as changing societal demands and new economic problems which need to be solved. Different groups of stakeholders are involved, with a focus on learning: be it in schools or in workplaces – there is always a curriculum (Billett 2006). For instance, in Australia, the curricula are formulated in written documents such as the training packages. In workplaces, a learning curriculum exists (because workers learn all the time), although it is less likely that this would be written in a form similar to the school curriculum, unless the workplace has a formalised learning and development practice, or operates as a registered training organisation and follows a prescribed curriculum. Parts of the training packages are implemented when students are placed in workplaces to gain experience. Workplace learning can be expressed as an intended trajectory of work tasks over time in, for example, building sites, restaurants or aged care facilities. However, Billett (2006) alludes to the conceptual nuances developed within the curriculum theory on workplace curriculum, pointing out that three aspects of curriculum are at stake: (1) the intended curriculum, based on the intentions of the workplace; (2) the enacted, learning opportunities and provisions actually made available or afforded for the students/apprentices; and (3) the experienced, how students/apprentices engage in learning. Students' active engagement in learning is interwoven with work through input from other co-constructors of the contexts (e.g. co-workers, supervisors and material resources) that they are part of and to which they also contribute. That is, the social and cultural arrangements have a range of influences on students' learning.

Four conditions for integration that are highlighted in the case examples are discussed here: (1) social-cultural arrangements, (2) negotiated curriculum, (3) stakeholders' roles for enacting integration and (iv) learner preparedness. These conditions might all embrace intended, enacted and experienced curricula, albeit from different angles. The specific contexts, their dualities and the links between them are recognised, including the engagement of teachers from schools, workplace supervisors and students. Key considerations and implications for each condition are also summarised. The chapter summary recapitulates the main ideas about supporting integration of learning in schools and workplaces.

## Social and Cultural Arrangements

Theoretical perspectives like practice architecture theory, sociocultural theory and cultural-historical activity theory provide conceptual frameworks that offer a comprehensive understanding of integration of students' learning experiences in school and work. The ways in which particular tasks are performed in order to achieve work outcomes are shaped by the actors and the social and material world. That is, work cultures in 'practices of a community' of which actors are a part of (Gherardi 2009) influence how individuals approach work tasks. This also implies that the discursive, material, social and cultural arrangements of a workplace curriculum for learning are established historically by the leadership and the workforce community. While elementary affordances and provisions for learning are ascertained by the resources available at worksites – and in schools – (Kemmis and Smith 2008; Tuomi-Gröhn and Engeström 2003), these and other conditions for students' learning and integration may be contested by other actors involved and by work priorities. Thus, asking students to simply apply what they learn in schools is meaningless unless considerations of the work and workplace contexts are made clear to them. That is, students need to be made aware of the contexts and the significance of appropriating what they learn for productive work outcomes. Moreover, they need to become aware of the distinct arrangements and situations and learn ways to navigate, negotiate and adapt their knowledge and skills to appropriately perform work tasks and at the same time achieve the learning outcomes suggested in their study programme. They also need to recognise that the context within a workplace is not only different but may vary from that at school where they have learnt specific ways of appropriating knowledge. For example, the 'vocational specialisation' model in Norway (see Nyen and Tønder, Chap. 12) is a programme designed to provide opportunities at several sites to understand the distinct contexts within the same occupation or across occupations to direct students' learning for developing particular types of competences. In other countries such as Australia (through group training organisations), apprentices may be rotated in different worksites during their placement periods to acquire more comprehensive experiences. These types of rotational opportunities expose students to a range of social and cultural arrangements that enrich their experiences and extend the scope of understandings about 'becoming' a worker in particular vocations. Therefore, being cognisant of the social and cultural contexts will enable students to navigate through work systems and integrate what they learnt in school and at work, albeit through negotiated conditions.

### *Considerations for Social and Cultural Arrangements*

A conclusion is that local social and cultural arrangements cannot be understood without taking the intended and enacted as well as the experienced curricula into account. Local intended curricula in turn are dependent on national policies (this is

discussed later in the chapter). Thus, such arrangements illuminate the complexity of vocational education and the high demands placed on schools and workplaces as well as on students for effective integration. Therefore, integration of learning in schools and workplaces needs to be negotiated initially but also in relation to various experiences during each period of WBL. These negotiations concern conditions as well as the vocational content of the experiences.

## Negotiated Curriculum

Students' conceptions and quality of knowledge construction for making meaning influence how well they integrate what they learn in different sites. That is, situational as well as personal factors form the premise for relational duality between learning sites (see Billett, Chap. 2). However, students need to learn ways to *identify and analyse situations* to map and apply what they have learnt at school – or vice versa (Billett 2006). Moreover, it is not just a matter of transfers between learning sites (Säljö 2003). Learning also relies on students' relational agency (Edwards 2005) to negotiate mutuality and conditions as they mediate the circumstances for their learning. In some ways they are obliged to negotiate these conditions, given that they have defined periods to gain vocational experiences through workplace-based learning in different work settings. Both schools and workplaces are responsible for what is made available for students at each site, albeit students need to participate in negotiating and realising the curriculum. Even then, unequal outcomes may be produced by workplaces as well as by schools. The case examples in Part II of this book highlight a range of arrangements that allow actors to perform distinct roles in facilitating integration – not leaving this to transpire organically.

Arrangements in the workplace where students gain experiences of different kinds, for example, the production of goods and/or services, of decision-making, of trying their own judgement or observing others use theirs, will undoubtedly be a primary interest to them. As explained earlier, the main object of school is 'learning' in vocational education where production is often – but not always – secondary. In other workplaces, learning is inevitable, but not necessarily at the fore of the activity (Lindberg 2003; Kilbrink and Bjurulf 2012; Lorenzo 2012). Learning is loosely embedded in the daily business of workplaces and within competing interests – work productivity being the main interest. That is, schools and workplaces tend to have dissimilar interests and practices when it comes to achieving learning goals. This means that what students learn in schools could likely remain unconnected or even be underutilised (Poortman et al. 2014; Veillard 2012) without deliberate intervention (e.g. by teachers and supervisors). Thus, the key stakeholders (teachers, students and managers in workplaces) need to collaborate to generate effective learning conditions for integration through the enacted and engaged curriculum. In the main, student agency and ability to negotiate determine how rich the integration of their learning in different sites can be. However, there are other constraints.

It is not always practical to pre-organise the full set of an intended curriculum in the workplace; instead, usually opportunities are harnessed when situations arise during the course of meeting workplace demands. Thus, arrangements in the two main sites need to be negotiated specifically for learning, such that integration can be fostered for two main cohorts of learners who seek learning experiences across sites: (1) those who are in some form of employment (e.g. apprentices, article clerks, cadets) and (2) those positioned as students (i.e. attending schools, vocational institutions or universities). Each is likely to be afforded distinct sets of provisions and may also experience different kinds of contestations – those in employment probably being afforded more privileges. Negotiated arrangements with input from key stakeholders can facilitate integration. Ideally, an intercessor can negotiate, mediate, monitor and coordinate the intended, enacted and experienced features of the full curriculum, not just the components for experiential learning in practice settings. However, intercessor positions that include all of these roles are uncommon<sup>2</sup> and costly. Instead, teachers or work placement coordinators act as boundary-crossing dyads (Lambert 2003). Regardless of who facilitates integration, there are two main aspects to be negotiated: the learning curriculum and operational arrangements for experiential learning.

### *Negotiating the Learning Curriculum*

Schools and workplaces have substantial influence on the curricula in their respective sites. Understandably, the main actors who support students' learning in each site will have particular goals and interests. For instance, those from educational institutions will have an interest in the intended (predefined) curriculum that teachers have to enact, assess and report on. Those from workplaces will prioritise business-related productivity where learning is positioned within business as usual conditions, thus generally be secondary to other work activities or be circumstantial. Moreover, work settings may present a range of unknown contingencies, so access to a wide range of learning opportunities is likely to be constrained by work urgencies driven by clients, timely delivery of services or products and market forces. This means that students are experiencing two complementary yet sometimes contending curricula: (1) that of the school and (2) that of the workplace. Both are equally important and need to be carefully structured and negotiated to harmonise competing interests and goals. Moreover, these contending curricula need to be sequenced in ways where learning is commensurate with and at the same time challenges students' actual level of vocational knowing and understanding. Essentially, a sequence of peripheral to full participation as suggested by Valsiner (2000) will be less overwhelming for students and, with some guidance, will allow them to consolidate what is already learnt and then scaffold additional experiences. It therefore is necessary for those who are supervising students' learning in the workplace to

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<sup>2</sup>For a Cuban example – see Lorenzo (2012).

understand the educational purpose of their engagement and how this contributes to the intended curriculum, albeit certain aspects may need to be negotiated to meet goals in both sites.

Although much of the intended learning curriculum content is preset by agencies responsible for national qualifications, considerations of what comprises competence for a given vocation, and affordances and resources made available at particular sites, have to be negotiated. This is to accommodate variations in practice and the scope of experiences available across sites, as well as within particular vocations. For instance, the scope of general practice in medicine in a large city would be quite different to that in a rural town (see Chan et al., Chap. 9). Yet, experiences in both settings make for better preparation of trainees. Nonetheless, a curriculum to broaden and incorporate learning in different circumstances needs to be carefully planned and timetabled for appropriate durations of experiential learning. This means that the lead agencies which are responsible for national qualifications, schools and industry, as well as professional bodies, have particular roles in establishing and negotiating a curriculum that includes suitable scope of experiences and durations and the kinds of affordances necessary to support development of competencies through integration. New actors such as in-company training centres in Norway and Switzerland (see Chaps. 11, 12 and 16) show how these centres have been given responsibilities related to issues that neither schools nor workplaces alone are able to adequately address.

For the enacted curriculum, the range of tasks as well as variations to allow a wide variety of experiences needs to be determined. Furthermore, variations in work practices, services and products need to be carefully considered in order to maintain currency of knowledge, skills and competences for productivity. That is, new experiences as well as recurrent tasks are necessary for the purpose of establishing familiarity. Nyen and Tønder (Chap. 12) suggest that close cooperation between schools and workplaces ensures better content alignment of the curriculum offered in the two sites. They recommend a framework premised on situated learning theory and expansive as well as restrictive learning cultures to suggest conditions for learning in multiple communities of practice. Nyen and Tønder (Chap. 12) and Andersson (Chap. 14) propose a tripartite conversation between teachers, students and workplace trainers to establish boundary spaces (Tuomi-Gröhn and Engeström 2003) for planning, assessing and evaluating the enacted and experienced curriculum. They further recommend collaborative VET pedagogical practices to facilitate a workplace training trajectory or a training plan. For instance, teachers can visit worksites to assess students' performance and at the same time review types of activities that can be included in the training plan. Andersson (Chap. 14) suggests a *decided schedule* which includes a training plan for working in different departments. This plan can be reviewed regularly during tripartite conversations between the vocational teacher, student and the workplace supervisor to closely align with the learning objectives of relevant courses. When incorporated in the training plan, this allows students to learn about and experience any recent technological as well as ongoing operational changes at the workplace. Lambert (2003) suggests the inclusion of a learning studio in which tripartite conversations can be

held to discuss training trajectories in multivoiced conversations with the student, teacher and workplace supervisor or trainer.

### *Negotiating Operational Arrangements*

Other stakeholders can contribute to negotiations about operational arrangements for experiential learning. A further possibility is that negotiations for collaboration give consideration where workplaces can contribute to important, but limited, vocational knowing, as has been practised in Germany, where training associations (*Ausbildungsverein*, sometimes also called *Ausbildungsringe*) have been established (cf. Diart 2009; Schlottau 2003), and in Australia where group training organisations perform similar functions. Such collaborations also aim to make integrated vocational knowing available through employment outside of a specific workplace. This arrangement was in response to problems related firstly to workplaces that used apprentices as cheap labour, and the vocational knowing made available for them predominantly was related to repetitive routine assignments (Lundahl and Sanders 1998). Secondly, changes in the German labour market contributed to workplaces with new kinds of ownership, where automated and computerised production dominated. Furthermore, pressure on cutting costs was high, all of which contributed to decreasing investments in traditional dual vocational education (Lauterbach and Grollmann 1998). For further examples on approaches and strategies for responding to challenges with integration – see Sappa et al. (Chap. 16) who describe the role of Swiss intercompany centres, and Lahn and Nore (Chap. 7) explain the role of the Norwegian training offices. Essentially, a range of measures directed towards operationalising effective integration are necessary.

At the policy and operational levels, the lead agencies responsible for national qualifications, educational institutions and industry bodies need to negotiate the kinds of affordances necessary to support development of competencies through integration. Those negotiations would include the nature of employment contracts, pay rates and expectations around the types of activities that learners engage in while operating within regularity requirements. Trade or industry bodies need to establish appropriate standards of performance and what comprises competence in a given field. These are to be considered within the scope of what is available in particular sites to ensure that students' performance is recognised along what is stipulated in the intended curriculum. Then, there are arrangements to support two main models of learning in work settings (Billett et al. 2012). Firstly, there is direct one-to-one guidance and instructions from experts or co-workers to develop competence and confidence in performing tasks at work. Secondly, there is self-directed learning with educational interventions by in-house trainers or teachers from schools to assimilate learning from different sites. Autonomy or self-directed learning empowers students to deconstruct problems, draw on their previous knowledge and understanding and work out solutions (Messmann and Mulder 2015). According to Konkola et al. (2007), it is the student who needs to identify previously learnt or

familiar symbolic, abstract and action schemas and manage how he/she uses prior knowledge for this purpose – and, as said earlier, become aware of a need to identify situations where these can be used. Even then, specific episodes and opportunities for learning need to be negotiated. Regardless of the model, students need to be given time to practise until they achieve competence – so time schedules form important considerations to be negotiated.

Another important consideration is the scheduling for reflections following work experience episodes to consolidate what learners have integrated and to theorise things they have learnt at work but are yet to connect to what they learnt in their educational school settings. Teachers in Choy's research (Chap. 5) explained how they engaged apprentices in reflective exercises following episodes of experiential learning in the workplace. Such deliberate pedagogical strategies help students reconcile diverse sets of experiences gained in different sites and also contribute to the development of basic vocational judgement on quality standards, as well as recognising signals for emerging problems. Notwithstanding the different models and practices for workplace learning, negotiations for operational arrangements need to ensure that learning is *embedded* and *embodied* within the course of everyday work or during scheduled on-the-job activities. At a minimum, immersion during practice-based learning needs to offer deliberate practices and reflections that are facilitated by designated mentors and teachers.

The actual enactment and experiencing of the workplace component of the curriculum insists that employers actively engage in and support learning in the workplace. The Norwegian VET model (see Nyen and Tønder, Chap. 12), for instance, *requires* employers to invest in vocational training by *providing* and *committing* to apprenticeships. In Norway students who are not able to secure an apprenticeship engage in an alternative third year of vocational training at school to gain experience. Even after employers agree to support learning in the workplace, the roles, responsibilities, obligations, contributions and availability of different actors who are assigned to support learners need to be negotiated. Deliberate affordances, structures for learning within a 'business as usual' situation and designated mentors and teachers are necessary because the richness of experiences that students engage in to help them 'become' a practitioner is contingent largely on these affordances of the workplaces. Appropriate structured experiences also help individuals learn what they are good at, what they need to learn more about and how to reconstruct their dispositions to become one of the practitioners in their vocational communities (Vaughan, Chap. 10). They begin to then realise what it means to be one of the practitioners – how to act, talk and dress in order to be regarded as a participant of a particular work community. That is, they also begin to adopt externally identifiable characteristics. However, these arrangements are contingent on deeper levels of engagement by students and cooperation at organisational levels. Research by Nyen and Tønder (2012) shows that students' engagement in in-depth study projects increases cooperation between schools and workplaces. The point being made is that deep engagement by students, teachers and trainers needs to be negotiated in order to integrate the curriculum of the school with that of the workplace and vice versa.

However, there are likely to be constraints. Because workplaces are contested places (Billett 2001), resources and students' input in projects can often be restricted, especially in circumstances where the risks are high, for example, economic risks related to material, technology, or quality for customers, or security risks arising from insufficient experience and judgement. In her research, Vaughan (Chap. 10) noted that engineering cadets are sometimes only given tasks that demand accuracy (i.e. measurements) and are not allowed to actually perform the next stage of the project, making it difficult for cadet engineers to 'experience the big picture'. In other words, they get trapped by a narrow set of task requirements, constraining opportunities for broader or deeper vocational skills. Her advice is to include an appropriate level of complexity in tasks to stimulate engagement in a range of work tasks. Supervisors can negotiate arrangements by identifying and securing opportunities to enrich learning; provide quality, timely feedback; and offer guidance on competencies to be learnt and about careers in the field.

The areas for negotiations suggested in this chapter can serve not just the learning that students and apprentices engage in to qualify for entry into employment but also form the basis for lifelong learning. Nonetheless, as argued so far integration relies on connectivity by different actors (Choy and Sappa 2016) and negotiations at different levels. Hence greater care is needed to differentiate between the levels, especially when there are limited options for authentic learning experiences.

### *Considerations for Negotiated Curriculum*

The discussions above highlight two levels of negotiations as being necessary for the intended curriculum: firstly, at the level of the national qualification framework to ensure that practice-based learning encompasses experiences that offer sufficient scope and secondly at the operational level so that the purposes of the experiences and how they contribute to the national curriculum are understood and provided by schools and workplaces. Importantly, a shared interpretation of the intended curriculum, learning objectives and outcomes expected by learners, teachers and those supporting learning and integration in the different sites is needed. Furthermore, a plan is needed which has clear arrangements for a sequenced trajectory that is commensurate with students' actual competence and what can be reasonably afforded within set durations for practice-based learning.

### **Stakeholder Roles for the Enactment of Integration**

Learning in different sites is not necessarily linked by the learner alone (Billett 2014). Neither can students remain the only brokers (Lambert 2001). It is the collective contributions of all the stakeholders, their purposes, values and level of commitment that underpin the types of arrangements in place to support integration.



According to Smith (Chap. 6), the relations and connections between different stakeholders form the bases for *socio-personal mediations*, and these influence degrees of personal agencies for work and learning.

Other than teachers, workplace coordinators and administrative staff also play an important part in organising and scheduling learning events. In New Zealand, advisors from Industry Training Organisations (ITOs) (see Chan et al., Chap. 8) oversee students' progress and development, this being a formative approach where learning gaps are identified and new arrangements put in place to ensure that a full complement of activities lead to completion of the agreed learning plans. The example of New Zealand's Maori tribes as partners to embed cultural knowledge is unique among the cases presented in the various chapters in this book. Other workplace helpers include job mentors, industry teachers, site supervisors and co-workers. Much of their input influences, and is influenced by, what transpires at the organisational level and subsequently has some bearing at the national level.

There are formulations of national *intended curricula* and requirements for integration, reflecting various models for vocational education, and, accordingly, involvement of various national stakeholders. These fall under three types of arrangements: (a) mainly school based, (b) dual model of work and school or (c) predominantly general education at secondary school level, with few elements of vocational education. The relations and division of labour between school and work must however not be considered static, rather changing over time (Wärvik and Lindberg, Chap. 15). How the vision of integration has been translated and realised in national curricula varies across different countries (Allais 2012). National stakeholders could be government authorities of different kinds who liaise with other key stakeholders (e.g. professional trade associations, licensing bodies, industry advisory bodies, etc.) to formulate national intended curricula and requirements for integration that serve national needs. Principally, their role is in policy-making, for example, in the form of rules, guidelines and recommendations to facilitate integration. For instance, the Ministry of Education and school authorities in Sweden (Andersson, Chap. 14; Wärvik and Lindberg, Chap. 15), Finland (Nyen and Tonder, Chap. 12) and Norway (Lahn and Nore, Chap. 11) are important stakeholders. So are trade organisations. Interestingly, in Iceland such roles are performed by the upper secondary schools in partnership with occupational councils (Eiríksdóttir, Chap. 8). This leads to large variations in structures and arrangements for work-based learning across trades. Other examples of national stakeholders include the Industry Training Organisations in New Zealand, recognised by the Ministry of Education, (Chan et al., Chap. 9 and Vaughan, Chap. 10), Industry Skills Councils in Australia (Choy, Chap. 5 and Smith, Chap. 6) that set national skill standards for their industry and in-company centres in Norway (Lahn and Nore, Chap. 11), Finland (Nyen and Tonder, Chap. 12) and Switzerland (Sappa et al., Chap. 16). In Sweden, since the 1940s, the labour market organisations have been engaged in vocational advisory councils that contribute to the formulation of the intended curriculum for vocational education (Lemar and Olofsson 2010; Nilsson 1983). Their contributions were in the interests of local and national agendas only.

More recently transnational organisations have become important stakeholders in the national agendas, regardless of the model of vocational education. For example, the European Qualifications Framework (EQF), through the formulation of common learning outcomes in terms of knowledge, skills and competence and common level descriptors, has been implemented in more than 100 countries and transformed into National Qualifications Framework (NQF). According to Allais (2011), some countries have successfully adopted NQF, whereas others have struggled with borrowing. However, this borrowing and lending of curriculum and qualifications framework are not so easy because what works in one country does not necessarily have to be the same in another. That is, ideas are developed, tested and operationalised in contexts framed by cultural and historical conditions, traditions and resources. These then need to be unpacked and accommodated within new sociocultural conditions. Allais (2011) explains this as follows:

[W]hat is 'borrowed' or 'learnt from' another country is the model as it is described on paper at a particular time and the desirable goals associated with it, and not the model as it was implemented in practice with all the problems, experiences, and changes made to the model along the way. /.../ From the point of view of policy borrowing, the consequence is that the policy borrower often does not see the problems. /.../ Often what is borrowed is a snapshot of a moving target. NQFs are complex, dynamic, and evolving policy instruments. (p. 257)

The point made here is that despite common augmentation and a policy pressure for increased integration between school and work, we might expect that the local conditions for enactment of a curriculum for integration are played out very differently in different national contexts.

An *international curriculum for integration* formulated by transnational organisations like the European Commission (2010), UNESCO (2016) and World Economic Forum (2014), for instance, focuses on policy-making as production of common ideas. International aspirations cannot be ignored, especially when more and more enterprises are operating at a global level, directly or indirectly, and need workers who are conversant with transnational influences on their vocations and economic goals. Transnational organisations also have influence through reviews of national education system and policy recommendations (e.g. OECD 2014) and country reports such as those produced by ReferNet, a Cedefop network represented by the European Union member states and Iceland and Norway (Cedefop 2017). However, as is argued by Grollmann (Chap. 4), global considerations tend to focus at the macro level, with particular interest in labour market outcomes, and less attention being paid to curriculum.

### ***Considerations for Stakeholder Roles for the Enactment of Integration***

The role of key actors such as students, teachers and workplace supervisors – regulated by different kinds of connections – seems to be more active and related to local circumstances than to national characters because they work more directly for

effective integration. Importantly, Sappa, Aprea and Vogt (Chap. 16) contend that connective teaching and training depend on the extent to which those in charge of supporting students (i.e. boundary-crossing facilitators) are themselves connected to each other. Fundamentally, those responsible for supporting learning in the workplace need to be able to 'read' and 'know' the work contexts and situations for specific tasks in order to apply appropriate pedagogical tools at the right times. Investments are needed to train the various stakeholders in preparing them so that they can support student learning and actively facilitate integration. Pylväs, Rintala and Nokelainen (Chap. 7) suggest reduction in administrative and financial burdens on employers and others who support students in the workplace.

Again, regardless of the roles of key stakeholders, preparing learners before, during and after workplace learning experiences underpins effective learning for integration (Billett 2015). That is, learner preparedness is quintessential. In the next section, we will discuss this further.

## Learner Preparedness

A range of factors influence how students can leverage what they already know for developing vocational capacities in educational sites and in workplaces. These factors include how they engage and interact with the settings, their awareness of learning potential in different situations, willingness and agency to participate in purposeful activities for learning in work settings. Since interpretations of vocationally relevant knowing and learning, i.e. notions about 'being' and 'becoming', can vary across schools, within and across occupations and workplaces, preparing learners for integration and transition to employment can be challenging for those responsible for organising integration through vocational experiences.

Teachers' interventions before, during and after episodes of workplace learning are emphasised as being vital for successive growth of learner agency. Such preparation is fundamental not only for purposes of integration during studies but also for lifelong learning in a range of situations, likely with little or no guidance or facilitation. During initial integration, students need to be prepared for, and supported with, ontological and epistemological development, what it means to 'be' a practitioner in a vocation, and ways of knowing how to 'become' a competent or proficient worker in their chosen field. Their learning during workplace experiences must give a sense of what they need to learn and do to 'become' and assume a new identity as a practitioner or worker.

Pylväs, Rintala and Nokelainen (Chap. 7) stress the significance of developing more than vocational or occupational competences by including competences in social interactions and self-regulation to become what they describe as an 'accountable employee'. Along these lines, 'becoming' also includes developing particular attitudes, values and sense of pride, typical of the vocation, for example, as a craftsman in carpentry as described by Vaughan (Chap. 10). Values for 'becoming' are explained by Rose (2005, p. 205) as: 'Aesthetic and craft values would direct one's

choice of tools, materials and techniques, as well as stimulate their problem-finding and problem solving approaches'. Although dispositional attributes such as having certain values that are reflective of good practice are difficult to assess and tend to be circumstantial, they form an important consideration for induction into the community of practitioners or professionals (e.g. carpenters) as well as for creating an identity. Sappa, Aprea and Vogt (Chap. 8) maintain that identity development fosters integration. Until students understand and foresee themselves as becoming different, i.e. transforming into a competent practitioner, they cannot identify the gaps in competences and therefore what is expected to be learnt to cross the boundaries between 'not being' and 'becoming'. Vaughan (Chap. 10) argues that creating an identity as a practitioner involves navigating several *vocational thresholds* during experiences in everyday work practices to 'become' and 'know practice'. The idea of vocational thresholds, diversity and biculturalism in the New Zealand context has significance for other nations with culturally diverse workforces. Furthermore, considerations of diversity are important in a global context, now that learning and work tend to be more transnational. As reported by Vaughan (Chap. 10), recognising *threshold junctures* can be a disorientating experience for students; hence, guidance from agents such as teachers or workplace mentors is recommended.

Eiríksdóttir (Chap. 8) argues that the timing and duration of work-based learning can influence students' interests, motivation and progress with developing competence and becoming practitioners. She recommends an attentive introduction to the vocation to provide 'a sense of place and purpose as well as introducing the students to what working in the trade entails' (page 159) and also to make career decisions that are well informed, meaningful, effective and fit for purpose. This is similar to what Vaughan (Chap. 10) advocates. However, Eiríksdóttir cautions that some students may be too young and unprepared for work or not have sufficient basic knowledge and skills to appreciate place or purpose. On the other hand, work-based learning later in the programme can help students transition smoothly into employment, but for some this may come late in terms of decisions on whether their chosen vocation was the right one for them. Therefore, the sequencing of learning activities designed to prepare learners about the realities of work life needs to be scheduled early in the programme.

The authors of the chapters in Part II of this book call for attention to the importance of students participating in practices that are *vocationally relevant* for them. Nyen and Tønder (Chap. 12), for instance, make a distinction between *not shielded* and *shielded* learning situations and point out that both (shielded and not shielded learning) can be of high or low vocational relevance for students. Shielded situations can be easier to accomplish in educational settings where students work in a more controlled environment, without unexpected happenings such as those that could potentially arise in other authentic work settings where students are exposed to working life demands, like pressure from customers or clients or when mistakes pose serious consequences. 'A high degree of relevance means that the students get to know and experience a trade, not only a narrow part of it' (Nyen and Tønder, Chap. 12, p. 236). If they perform only simple routine tasks, they are unlikely to develop broader kinds of vocational knowing that are learnt if exposed to more chal-

ling tasks. So, other than a negotiated set of experiences from shielded and not shielded situations, learners need to be able to correctly recognise the two types of situations, consciously exercise their agency and seek guidance when needed.

Further to the situations that Nyen and Tønder (Chap. 12) speak about, Bound, Chia and Lee (Chap. 13) point to the in-between spaces for learning which stretch beyond schools and worksites. It includes access through technologies, social media and the Internet or other situations outside the two main settings. Although not recognised as conventional spaces for learning, learners need to acknowledge these as rich sources and to integrate them in order to supplement and complement learning in the two traditional sites (schools and workplaces). Another example of in-between spaces was identified by Paul (2017), where teachers used web platforms to initiate reflective questions, prompts and questions to the supervisor. Guile (Chap. 3) also elaborates on the in-between spaces and considers integration as a mediated relationship between education and work, as learners move in-between and recognise the different contexts as a given. His conceptualisation suggests mediation between the *processes* of learning and *performing* work tasks – something that requires deliberate preparation before students engage in experiential learning.

Another aspect that warrants a process for students' preparation relates to connectivity. Sappa et al. (2016) propose four approaches to connecting learning between sites. These are (a) preparation based on a sequential and linear combination; (b) a broader perspective through engagement in different types of learning situations, correct procedures and rote learning; (c) encompassing perspective on learning in different situations and applying conceptual knowledge to make sense of workplace procedures; and finally (d) a circular process of developing critical thinking and acting. They regard all four approaches as being equally important and complementary. Regardless of the approaches, teachers stand as 'key connectors for integration', but with support from others involved, such as workplace supervisors, mentors and co-workers, students can be actively engaged for integration. According to Choy, students '... need to be independent and inter-dependent learners, who co-participate and contribute to productivity and at the same time actively access and engage in learning' (Chap. 4..., p.104). Strategies for independence and interdependence can be taught before students commence episodes of experiences in work settings.

To support learners' agency, facilitative pedagogies for learner preparedness are necessary for collaborative planning of learning trajectories. It therefore becomes important for students and those who assist them with learning to seek teachable moments (Bailey et al. 2004) during the course of everyday work processes. Planning of learning trajectories includes, firstly, identification of work assignments or work tasks suitable for learners at particular phases of their development and, secondly, an analysis of these assignments in terms of what knowing is needed for completing those tasks. Further, workers who routinely perform these assignments could assist with information about common difficulties or mistakes – this helps the supervisor to be proactive in their work with students and to avoid problematic situations. Difficulties or mistakes could also form a basis for the production of short instructional videos that can be uploaded on smartphones, computers or tablets.

However, learners could also identify specific and difficult aspects of tasks while working with others, and these could be documented using digital photos or videos and shared with VET teachers or supervisors to learn more from the problem-solving.

These kinds of situations call for a discussion between schools and workplaces on whether a problem demands more supervision than is possible for the workplace to provide or whether it is the VET teacher who should be responsible for teaching, either in the workplace or at school, depending on the problem, and also on the resources of the workplace (Lorenzo 2012). Another possibility offered in the German model is the use of interactive online textbooks that can be accessed both in school and at work (Dittman and Zielke 2009). Furthermore, e-portfolios could be used for formative as well as summative purposes, also for enhancing students' awareness and reflections on their emerging vocational knowing as well as for challenging themselves. The Norwegian case (Lahn and Nore, Chap. 12), however, concludes that experiences so far seem not to have considered the pedagogic uses of portfolios or the gains previously identified by Smith and Tillema (2001). This could likely reflect limited experience in using e-portfolios.

### *Considerations for Learner Preparation*

Learner preparation should not be left to random unreflective influences through work practices and incidental learning. The accounts in the various chapters of this book support Billett's (2015) notion of preparatory sessions before, during and after work-based learning by engaging in debriefing, reflections and reconciling learning for the entire curriculum. Thus, three fundamentals for preparation of learners are proposed. These are:

#### 1. Understanding Occupations and Pertinent Requirements

This involves identifying and appropriating customary aptitudes and dispositions (e.g. attitudes, values and pride) that are typical of practitioners in particular occupations, the variations in these qualities and what it means to be and to become a practitioner. The understandings can be sourced from exemplary profiles of practitioners that learners could consider and aspire to acquire.

#### 2. Recognising and Navigating the Passage Through Integration

This intent focuses on the importance of students gaining an understanding of the social-cultural arrangements, learning spaces and thresholds that they need to navigate and, moreover, recognising what are the shielded and non-shielded situations and the in-between spaces that are important considerations for learning. Hence, students need to become aware of the challenges and strategies they need to use in order to navigate the terrain at worksites. These understandings will shape how they exercise their agency and what types of opportunities and guidance they need to seek. Discussions about concepts and ways these can be applied in different con-

texts can help develop skills in agency, negotiate specific opportunities that allow the application of particular procedures and conceptualise and justify solutions to complex problems.

### 3. Applying Appropriate Pedagogical Strategies

The sequencing of selected activities that match phases of development forms the bases for teaching and learning approaches, that is, to schedule learning activities that provide a developmental pathway, from simple to more complex tasks which are of relevance yet are of sufficient duration for the student to gain competency. Moreover, sequencing needs to also consider situations and strategies for independent and interdependent learning. In any case, as argued by Bound et al. (Chap. 13), without interventions from teachers and trainers, creation of new spaces and social relations will remain limited.

What we propose in terms of learner preparedness leads to strengthening learner agency, which Smith (Chap. 6) advocates. The notion of learner agency assumes that the learner already knows what is needed to complete the task before commencing. However, their agency and readiness may be challenged by teachers' as well as supervisors' expectations and be counter-productive to effective learning.

## Summary

The main argument of this chapter is that just providing practice experiences in workplace settings is not sufficient. Billett (2015) contends that '... there is a need to enrich and augment those experiences through preparation, engagement and opportunities to share and reconcile what has been contributed by these experiences to their overall education programs and objectives' (p. 17). It is in this context that key considerations underpinning a framework for integration are highlighted in this chapter. Central to the case for a framework for integration is the contention that goal-directed activities, quality of interactions with others and practice architectures form the foundations for learning to meet work requirements in particular workplaces, as well as forming a foundation for similar work to be performed in other like settings.

In sequencing and organising the curriculum, teachers need to be familiar with what students are expected to learn, the types of affordances in different work settings, how these change over time (affordances too are snapshots of moving targets) and students' accessibility to opportunities that offer a balance between activities of low risk yet high potential for experiences. These can then be negotiated when designing a curriculum for experiences in the workplace. Furthermore, teachers also need to include reflective sessions to integrate learning at different times and in different settings. In the main, there are preparations and arrangements to be organised before, during and after students' engagement in practice-based learning. Aply, the arrangements at three points as suggested by Billett (2015) are summarised in Table 18.1.

**Table 18.1** Preparing student before, during and after work experiences

Before work experience	During work experience	After work experience
Design and develop a workplace learning curriculum	Sequencing and aligning learning activities to meet the curriculum in both sites	Reflect on learning experiences, align with the learning curriculum and review competence
Ascertain and negotiate roles, responsibilities and expectations of each actor	Arrange for direct and indirect guidance from more experienced workers who can support students	Review personal epistemologies and recognise the rich contributions from different sites
Prepare students to navigate challenges and become active agents of their learning	Active and purposeful participation and interactions by students	Generate critical perspectives for lifelong learning

Source: Billett (2015)

Further to the preparatory requirements, Billett (2015) suggests a set of seven considerations in readiness for learning in the workplace. These are:

1. An orientation to understand requirements that underpin effective engagement in the workplace
2. Identifying and developing relevant capacities for engagement in practice settings
3. Clarifying the goals for learning and ways to engage in order to achieve those goals
4. Establishing the roles and expectations of the different parties in the workplace
5. Developing personal epistemologies that play an agentic role as learners
6. Developing procedural capacities for effective job outcomes
7. Preparing for contestations and ways to navigate around these

In a Cuban example explained by Lorenzo (2012), an appointed teacher provides guidance either at work or takes the student back to school for more specific interventions over a short period (e.g. half to a full day in duration). This takes away the pressure from productivity flows in the workplace and also allows the teacher and the student to learn without the constraints of workplace-specific requirements. Furthermore, it provides relief to the workplace supervisor.

For all intents and purposes, aside from preparations for learning during their studentship or apprenticeship, integration needs to also consider ‘pedagogy for human being’, as advocated by Barnett (2004, p. 257). This is to extend learning beyond just knowledge and skills for particular vocations or occupations. This notion aligns well with imperatives for the theoretical concept of lifelong learning (not necessarily the political ideas about lifelong learning, which are more human capital driven) and portability of competencies across vocations, occupations and for life-wide learning. However, as contended earlier, establishing consonance insists on shared roles and the responsibilities of key stakeholders and those who assist learners, because the act of integration is not performed by the learners alone. The point being made is that although individual agency of learners plays a signifi-



cant role, as argued by Smith (in Chap. 6), it is the collective contributions of stakeholders, their purposes, values and level of commitment that underpin the types of arrangements put in place to support integration. For this reason, partnerships between schools, workplaces, authorities and individuals need to be nurtured and maintained to support students and at the same time secure mutual gains. This, along with the considerations suggested in this chapter, can enhance integration.

## References

- Allais, S. M. (2011). The impact and implementation of national qualifications frameworks: A comparison of 16 countries. *Journal of Education and Work*, 24(3–4), 233–258.
- Allais, S. (2012). Claims vs. practicalities: Lessons about using learning outcomes. *Journal of Education and Work*, 25(3), 331–354.
- Bailey, T. R., Hughes, K. L., et al. (2004). *Working knowledge: Work-based learning and educational reform*. New York: Routledge Falmer.
- Barnett, R. (2004). Learning for an unknown future. *Higher Education Research and Development*, 23(3), 247–260.
- Billett, S. (2001). Learning throughout working life: Activities and interdependencies. *Studies in Continuing Education*, 23(1), 19–35.
- Billett, S. (2006). Constituting the workplace curriculum. *Journal of Curriculum Studies*, 38(1), 31–48.
- Billett, S. (2014). Integrating learning experiences across tertiary education and practice settings: A socio-personal account. *Educational Research Review*, 12, 1–13.
- Billett, S. (2015). *Integrating practice-based experiences into higher education*. Dordrecht: Springer.
- Billett, S., Henderson, A., Choy, S., Dymock, D., Beven, F., Kelly, A., James, I., Lewis, J., & Smith, R. (2012). *Continuing education and training models and strategies: An initial appraisal*. Adelaide: National Centre for Vocational Education Research.
- Brennan Kemmis, R., & Wärvik, G.-B. (2011). Editorial. *International Journal of Training Research*, 11(2), 90–100.
- CEDEFOP. (2017). *Sharing knowledge about vocational education and training*. doi: 10.2801/168888.
- Choy, S., & Sappa, V. (2016). Australian stakeholders' conceptions of connecting learning at TAFE and workplaces. *International Journal of Training Research* <https://doi.org/10.1080/14480220.2016.1200237>.
- Diart, M. (2009). *Potentiale des ECVET-Leistungspunktesystems für GVA im Handwerk* [The potentials of the performance system ECVET for collaborative cross-border vocational education and training (GVA) in craft]. Köln: Forschungsinstitut für Berufsbildung im Handwerk an der Universität zu Köln (FBH).
- Dittman, D., & Zielke, T. (2009). Didaktische Parallellität und Lernortsflexibilisierung (DiPal) – Praxisbeispiel kfz4me.de [Didactic parallelism and flexibility of learning-sites – the praxis example kfz4me.de] In: C. Fenzel, G. Spöttl, F. Howe, & M. Becker (Eds.), *Berufsarbeit von morgen in gewerblich-technischen Domäne* [The work of tomorrow in the domain of technical business] (pp. 74–79). Bielefeld: W. Bertelsmann Verlag GmbH.
- Edwards, A. (2005). Relational agency: Learning to be a resourceful practitioner. *International Journal of Educational Research*, 43(3), 168–182.
- European Commission. (2010). *The Bruges Communiqué on enhanced European Cooperation in Vocational Education and Training for the period 2011–2020*. [http://www3.weforum.org/docs/GAC/2014/WEF\\_GAC\\_Employment\\_MatchingSkillsLabourMarket\\_Report\\_2014.pdf](http://www3.weforum.org/docs/GAC/2014/WEF_GAC_Employment_MatchingSkillsLabourMarket_Report_2014.pdf)

- Gherardi, S. (2009). Community of practice or practices of community? In S. Armstrong & C. Fukami (Eds.), *The Sage handbook of management learning, education, and development* (pp. 514–530). London: Sage.
- Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education, 40*(2), 350–367.
- Kemmis, S., & Smith, T. J. (Eds.). (2008). *Enabling praxis: Challenges for education*. Rotterdam: Sense Publications.
- Kilbrink, N., & Bjurulf, V. (2012). Transfer of knowledge in technical vocational education: A narrative study in Swedish upper secondary school. *International Journal of Technology and Design Education, 23*(519–535) <https://doi.org/10.1007/s10798-012-9201-0>.
- Konkoloa, R., Tuomi-Grohn, T., Lambert, P., & Ludvigsen, S. (2007). Promoting learning and transfer between school and workplace. *Journal of Education and Work, 20*(3), 211–228. <https://doi.org/10.1080/13639080701464483>.
- Lambert, P. (2001). Oppimistehtävät kehittävän siirtovaikutuksen tuottajina [Tasks as producers of developmental transfer effects]. In: T. Tuomi-Gröhn & Y. Engeström (Eds.), *Koulun ja työn rajavyöhykkeellä. Uusia työssä oppimisen mahdollisuuksia* [On the border between school and work. New possibilities for work-based learning] (pp. 96–147). Helsinki: Yliopistopaino.
- Lambert, P. (2003). Promoting developmental transfer in vocational teacher education. In T. Tuomi-Gröhn & Y. Engeström (Eds.), *Between education and work: New perspectives on transfer and boundary crossing* (pp. 233–254). Amsterdam: Pergamon.
- Lauterbach, U., & Grollmann, P. (1998). The dual system – A static system? *TNTEE Publication, 1*, 67–78.
- Lemar, S., & Olofsson, J. (2010). Bilaga 4. Om lärlingsrådets funktioner [Appendix 4. On the function of apprenticeship councils]. In: Nationella lärlingskommittén (Ed.), *Gymnasial lärlingsutbildning – utbildning för jobb: erfarenheter efter två års försök med lärlingsutbildning*. SOU 2010:75 (s. 283–s. 324). Stockholm: Fritzes. Retrieved in January 2011 from [www.regeringen.se](http://www.regeringen.se)
- Lindberg, V. (2003). *Yrkesutbildning i omvandling: en studie av lärandepraktiker och kunskaps transformationer* [Vocational education in change: A study of learning practices and knowledge transformations]. Stockholm: Lärarhögskolan i Stockholm.
- Lorenzo, J. M. A. (2012). *Integración Educación-Trabajo: Necesidad de La Formación Profesional* [Integration of school and work: A necessity for the formation of professionals – in Spanish]. Editorial Académica Española.
- Lundahl, L., & Sanders, T. (1998). *Introduction: Germany and Sweden – Two different systems of vocational education?* TNTEE Publications, 1 (1). <http://tntee.umu.se/publication>, Downloaded June 15, 2001.
- Messmann, G., & Mulder, R. H. (2015). Conditions for apprentices' learning activities at work. *Journal of Vocational Education and Training, 67*(4), 578–596.
- Nilsson, L. (1983). Vocational education in Swedish secondary schools: Trends and Reforms. *European Journal of Education, 18*(1), 31–43.
- Nyen, T., & Tønder, A. H. (2012). *Fleksibilitet eller faglighet? En studie av innføringen av faget prosjekt til fordypning i Kunnskapsløftet. Fafo-rapport 2012:47*. Oslo: Fafo.
- OECD. (2014). *Skills beyond School: Synthesis Report*. OECD reviews of vocational education and training. OECD Publishing. <https://doi.org/10.1787/9789264214682-en>.
- Paul, E. (2017). *Skriftbruk som yrkeskunnande i gymnasial lärlingsutbildning. Vård- och omsorgselevers möte med det arbetsplatsförlagda lärandets skriftpraktiker* [Literacies as vocational knowing in Upper Secondary Apprenticeship Education: Apprentice students' participation in literacy practices during workplace based learning in health care and social work]. Diss. Stockholm University.
- Poortman, C. L., Reenalda, M., Nijhof, W. J., & Nieuwenhuis, L. F. M. (2014). Workplace learning in dual higher professional education. *Vocations and Learning, 7*(2), 167–190. <https://doi.org/10.1007/s12186-014-9111-2>.

- Rose, M. (2005). *The mind at work: Valuing the intelligence of the American worker*. New York: Penguin Books.
- Säljö, R. (2003). Epilogue: From transfer to boundary crossing. In T. Tuomi-Gröhn & Y. Engeström (Eds.), *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 311–322). Oxford: Pergamon.
- Sappa, V., Choy, S. & Aprea, C. (2016). Stakeholders' conceptions of connecting learning at different sites in two national systems. *Journal of Vocational Education and Training* <https://doi.org/10.1080/13636820.2016.1201845>.
- Schlottau, W. (2003). Verbundausbildung sichert hochwertige Ausbildungsplätze. In: Bundesinstitut für Berufsbildung (BIBB), Verbundausbildung: *Organisationsformen, Förderung, Praxisbeispiele, Rechtsfragen*. Bonn: BIBB.
- Smith, K., & Tillema, H. (2001). Long-term influences of portfolios on professional development. *Scandinavian Journal of Educational Research*, 45(2), 183–203.
- Steiner-Khamsi, G. (Ed.). (2004). *The global politics of educational borrowing and lending*. New York: Teachers College Press.
- Tuomi-Gröhn, T., & Engeström, Y. (Eds.). (2003). *Between school and work: New perspectives on transfer and boundary-crossing* (pp. 311–322). Oxford: Pergamon.
- UNESCO. (2016). *Annex revised recommendation concerning technical and vocational education (2001)*. [http://portal.unesco.org/en/ev.php-URL\\_ID=13145&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=13145&URL_DO=DO_TOPIC&URL_SECTION=201.html). Downloaded February 2017.
- Valsiner, J. (2000). *Culture and human development*. London: Sage.
- Veillard, I. (2012). Transfer of learning as a special case of transition between learning contexts in a French work-integrated learning programme. *Vocations and Learning*, 5(3), 251–276. <https://doi.org/10.1007/s12186-012-9076-y>.
- World Economic Forum. (2014). *Global Agenda Council on Employment. Matching skills and labour market needs building social partnerships for better skills and better jobs*. [http://www3.weforum.org/docs/GAC/2014/WEF\\_GAC\\_Employment\\_MatchingSkillsLabourMarket\\_Report\\_2014.pdf](http://www3.weforum.org/docs/GAC/2014/WEF_GAC_Employment_MatchingSkillsLabourMarket_Report_2014.pdf)

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