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Matthias Pilz · Junmin Li *Editors*

Comparative Vocational Education Research

Enduring Challenges and New Ways Forward

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Dedicated to Madhu Singh

This book is dedicated to Dr. Madhu Singh, former Senior Programme Specialist at the UNESCO Institute for Lifelong Learning in Hamburg/Germany.

She led a plenary discussion and provided a highly regarded concluding summary at the third G.R.E.A.T. conference in Cologne in September 2018. Madhu Singh died unexpectedly in December 2018 in her hometown of New Delhi/India, shortly after her retirement.

Madhu was a researcher with an international reputation but also an excellent writer and impressive presenter. Many committees, international organisations and boards all around the world benefitted from her advice.

Madhu was a great supporter of the Center of Modern Indian Studies at the University of Cologne and a highly respected board member of our German Research Center for Comparative Vocational Education and Training (G.R.E.A.T.). She helped us to build a network of researchers on VET and Lifelong Learning in India. Madhu gave us many fruitful suggestions and inputs that were instrumental in establishing new and supporting current research projects in India. She also pre-reviewed a number of our publications and enhanced the quality of our published outputs to a remarkable extent. Without her contacts and helping hand the book "India: Preparation for the world of work" (2016) would not have been realised.

Many other researchers and VET-administrators have also been influenced by Madhu's contributions, and she will be remembered for her legacy.

Matthias Pilz

Series Editor's introduction

Vocational training is becoming increasingly emphasised worldwide as a means to overcome social and economic challenges, in particular the integration of young people into work and employment and the development of skilled workers. However, VET approaches in different countries are very diverse in addressing these challenges. In many countries, vocational education approaches are very closely linked to general education and higher education. In other countries, qualification approaches, which are aimed only at companies' interests are widespread. In some countries, cooperative VET approaches are well established and focus on the link between workplace and school learning.

As the importance of VET increases, so scientific considerations on VET are becoming increasingly important. And the international comparisons are gaining in importance as well. It is helpful and also necessary to understand the differences and similarities and to learn from each other. Restricted views on national issues are no longer helpful. Comparative Research on VET is broad and extremely diverse. On the one hand countries, cultures and systems are different. On the other hand the research approaches and goals of scientific knowledge vary a lot.

The international community, which deals scientifically with vocational education and training, is also very heterogeneous — or, in positive terms, interdisciplinary. Educationalists are concerned with vocational education and training, but it is just as often sociologists, economists, psychologists or even engineering scientists working in this field. This diversity is an important feature of research. At the same time, it helps to reach agreement on the various scientific approaches and goals. This volume attempts to increase the understanding of subjects, approaches and goals of comparative VET research. The contributions are dealing with methodological questions on the basis of very different approaches and research experiences. Readers will get valuable insights into this topic.

Prof. Dr. Dietmar Frommberger
University of Osnabrück, Germany

Preface

The origins of this book lie in the third international conference of the German Research Center for Comparative Vocational Education and Training (G.R.E.A.T.) held in autumn 2018 at the University of Cologne. The title of the conference was "Lost in VET? Status Quo and Perspectives in the Research of Comparative VET Theories, Methods and Results".

The book also marks the 10th year anniversary of the G.R.E.A.T., which was founded in October 2009. The center already planned, ran and finalised a high number of international research projects funded by highly recognised organisations. The number of publications, most of them in high ranked international journals is remarkable. This book is the third book, published by the center[1].

Besides the research output, more than 50 junior and senior researchers from all over the world visited the G.R.E.A.T. They remained with us for some weeks as a visiting guest, and up to three-years to finish a PhD-thesis in Cologne. We hope that this fruitful cooperation and personal friendships will continue, in the same spirit as the joint research projects we have with partners from many countries.

1 The significance of the title

In contrast to general education, vocational education and training (VET) is characterised worldwide by a high degree of complexity. VET is multidimensional and, sometimes, has diffuse structures. VET is a descriptor which includes such as aspects as pre-vocational education, school-based VET, apprenticeship systems, technical education, higher VET, work-based learning, further education and lifelong learning. These aspects are often unclearly differentiated. In addition, there is the fact that in many countries a large number of different actors and structural elements are involved in the VET system. It should also be borne in mind that in many countries non-formal or informal VET activities dominate. This fact also explains the title of the book "Comparative vocational education research. Enduring challenges and new ways forward". This refers back to the complexity of VET and the resulting lack of understanding or confusion among (foreign) viewers or domestic 'non-experts'.

1 For details refer to: https://www.wipaed.uni-koeln.de/en/research/german-research-center-for-comparative-vocational-education-and-training-great/.

Against this background, it is not surprising that, in contrast to the field of comparative education, there are hardly any conceptual and methodological approaches in the field of comparative VET. Exceptions are, for example, the contribution by Lauterbach and Mitter (1998) and the contribution in the first G.R.E.A.T. volume by Pilz (2012a). In addition, there is a larger number of international comparative reports and research studies devoted to specific topics or problems in selected countries. For instance, the interesting contributions in the two previous G.R.E.A.T. conference proceedings by Pilz (2012b, 2017).

The focus of the third G.R.E.A.T. conference, and thus also the content of this book, was on the theoretical perspectives and the methodological designs of comparative VET. However, focus of the conference was not limited to a purely abstract level. Instead, theoretical and methodological insights were underpinned by practical examples.

The contributions in this book endorse the argument that the development of comparative VET as an independent research discipline is extremely fruitful and should be further developed.

2 Structure of the book

In order to provide the reader with a systematic overview of the various contributions in this book, the following structure was developed and the corresponding contributions assigned to individual parts. The editors are aware that there are overlapping areas and that not all contributions can be assigned to a single part.

To provide an overall theoretical context for the book, Karen Evans introduces the topic of international comparison in VET and impressively demonstrates the need for comparative VET research.

This is followed in Part I: International comparative VET theories and methodologies, by contributions that primarily represent a theoretical focus or place particular emphasis on the methodological side of the comparison.

Part II: Research results on international comparative VET, presents individual comparative studies. In all of these contributions, particular emphasis is placed on the disclosure of the comparative objectives and the comparison methods used. In contrast to many published comparative studies, a stringent presentation of the conceptualisation, the development of the comparison methods, the findings and their interpretation is achieved. In this part, the overarching question as to whether globally developed comparative indicators can be used fruitfully in individual countries is addressed. In Part III: Lessons learnt from comparative VET research in practice, the focus of the contributions is more on a reflective level of comparative research. Thus, the potential and limitations of comparative VET are explored using examples, as well as the self-reflection of the roles and interactions of researchers.

In the closing chapter, Kenneth King develops a comprehensive and global perspective of international VET research. His argument draws upon a historical perspective on the one hand, and on the other, from a focus on the African region.

The three parts of the book, with their diverse contributions from all over the world, reflect the diversity of comparative VET research in a holistic way. Together they demonstrate the conscious and reflective engagement of comparative VET researchers with the complex nature of their discipline.

3 Acknowledgements

We would like to thank all those who presented conference papers and chaired sessions but also all those who attended the conference and, especially, the authors who have contributed to this book. They have been disciplined in submitting their rich and enlightening contributions on time and in incorporating feedback from international reviewers. We should also like to thank the reviewers for their detailed scrutiny and invaluable additions.

We would like to express our particular gratitude to Imke Julia Regel, 1. StEx., Katharina Kremer, B.A. and Kim Phuong Mol for perfect support by formatting and editing the book chapters.

Finally, thanks are also due to the University of Cologne and its Faculty of Management, Economics and Social Sciences for financial support to run the conference.

Prof. Dr. Matthias Pilz
Dr. Junmin Li
University of Cologne, Germany

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Contents

Introduction/Opening Chapter

Comparative vocational education and training research: What purposes does it serve?

Karen Evans[1]

Abstract

Significant overlaps and creative tensions occur at the interfaces of comparative education and development studies, as distinctive bodies of theory inform and shape competing strands of research and discourses of scholarship. Within comparative education, there are long-running debates over the pursuit of generalisable scientific principles or contextualised understanding; between the purposes of policy borrowing, problem solving or helping educators in the 'imagination' of different ways of doing things. Some leading comparative scholars argue that comparative education is quite distinct from any notion of development towards more desirable states. Others contest the 'development-free' view, arguing strongly that development assumptions are deeply embedded in much comparative education work. Furthermore, the communicative domain of inter-cultural education, with a focus on mutual learning and exchange, has very significant overlaps with the 'global dimension' of comparative education, in focusing on education that links researchers, teachers and often students internationally in analysing common problems affecting individuals and communities across borders. How, within these overlapping domains, are we to locate the work of those who carry out cross-national studies in vocational education and training (VET), as research priorities increasingly focus on influences of globalisation, decentralising tendencies, cultural diversification and previously under-researched dimensions of gender, ethnicity and society? This paper, based on the opening lecture given at the third international conference on comparative education and training, explores the challenges of finding 'common cause' in defining the field, while seeking a dialogic approach in comparative VET in which traditions and perspectives can enrich and illuminate each other and, ultimately, what scholars do in practice.

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1 Introduction

> The best light is obtained in the mingled region of interferences between two sources and this region vanishes if the two flows have no common intersection. So at least two sources of light are necessary, if not what is presented is simply a position, which rapidly becomes a directive that is imperialistic, necessary, obligatory. If each centre claims to be the sole source of light outside of which there is nothing but obscurantism, then the only compass readings or pathways obtained are those of obedience. (Serres 1995, p. 178)

The intersections of the fields of comparative education, international development studies in education and the communicative domain of inter-cultural education are waiting for trail-finders, rather than pathway followers, to explore them to the full. My argument is that these intersections create both a space and a natural territory for the creative development of comparative VET research. Comparative VET research, far from being semi-detached or an annex to the broader field of comparative education, can lead the way in modelling a dialogic approach, driven by renewed purposes. Keeping the intersections of comparative education, international development and inter-cultural education in view enables us to bring into focus the challenges and the promise for re-imagining and energising future comparative VET research.

My point of departure is my own initiation into the field of comparative inquiry. Everything we know or think we know has a context in which it was originally developed. My engagement with comparative research did not start until post-doctoral level. My doctoral studies had focused on young workers' learning and development in 1970s Britain. I remember my literature review initially being far too large, as my efforts to be comprehensive led me in ever increasing circles as I engaged with international literature in the English language (which gives expression to voices globally, as a scientific lingua franca, with limitations that I return to later). I learnt about diverse structural and cultural affordances for post-school learning that challenged all my prior assumptions and set me off on various tracks that I was unable to pursue within the confines of the degree. I managed to get my study under control eventually and to finish the PhD with its mainly British focus, but my appetite for the international and comparative dimensions had been whetted. Moving beyond the confines of doctoral study, I was ready to start exploring research questions trans-nationally, but where to start? I discovered the work of Edmund J. King, who wrote *Post-compulsory education in Western Europe,* generating what he termed a framework for the analysis of newness in edu-

cation. In an article marking the end of King's term of office as Chair of the Research Committee of the World Congress of Comparative Education Societies (WCCES) Edmund J. King (1989) captured the global comparative education debate of the time. Addressing the question of the purposes that comparative education should serve, he issued a challenge to the high priesthood of comparative education and their uses of power and authority to create exclusive spaces. The debate revolved around the search for a universal method of comparative education. Based on a delineated process of description, explanation and prediction, a key purpose was to map the educational systems of the world through existing data with the aim of predicting the effects of changes and therefore the prospects for specific types of reform.

King (1989) equated attempts systematically to map the features of education to attempts to 'pin and box the butterfly', urging comparative scholars instead to develop pluralistic methods and embrace uncertainty: "At all costs we should avoid circumscribing our enterprise by defining it too conservatively" (King 1989, p. 379).

For King and other 'contextualists' of the time, the defining purpose of comparative education should be to understand the *actualities* of education 'from the inside', in an array of different contexts. These understandings were to play their parts in theatres of educational decision-making: if comparative education could not contribute constructively to decision-making in those theatres, King (1989) argued, there was something wrong with it.

This thinking had generated the 'framework for analysis of newness in education' as a product of a large-scale comparative inquiry *Post-compulsory education: A new analysis in Western Europe* (King et al. 1974), focusing on the education and training of young adults (16–20 year olds). The study was funded by the U.K. Social Science Research Council and implemented in collaboration with comparative education societies across Western Europe. For a new generation of post-doctoral researchers seeking to internationalise their work, this framework provided a springboard into the comparative education field. The framework's engagement with post-school education and training pathways and the 'life-work-learning' interplay was, and remains, powerful. I advocated use of the framework to others (Evans 2003) and kept its central tenets in mind in constructing my own ensuing comparative inquiries. Using approaches first outlined in Evans and Heinz (1993), exploration of systemic questions has, for me, always entailed a process of embracing the actualities of the participant's experiences, in the contexts of shifting norms and cultural languages of life.

My subsequently appointment as joint editor of *Compare*, the official journal of the British Association for International and Comparative Education (BAICE), extended my horizons and led me look afresh at how the scope of the journal embraced 'newness in education', in its criteria for selection of articles and the

mingling of comparative education and development education perspectives that seemed to differentiate the publication from the other mainstream international comparative journals. I noted that, in topics in schooling (even the most esoteric) were accepted as being in scope whereas even mainstream topics in international VET had often been directed elsewhere, labelled as 'specialist'. Working through the logic that has positioned comparative VET as a kind of semi-detached, specialist annex led me to review the intersecting domains of comparative education, international education and international development studies in education (Figure 1) and to bring the interplay of life-work-learning, whether in lifelong learning, work-based learning or vocational education, more fully into the journal's scope. This rebalancing process stimulated renewed, critical attention to the wider relationships between comparative education and international development and the ways in which scholars are positioned, and position themselves, in relation to these overlapping fields.

2 Exploring intersecting domains

Comparative education has often been characterised as primarily interested in examining and explaining the characteristics and effects of education systems in different national, historical and cultural contexts, driven by (competing) purposes of generalisable scientific principles or contextualised understanding; policy 'borrowing', problem solving or helping educators in the 'imagination' of different ways of doing things. According to Colclough (2010) international (educational) development studies are differentiated from comparative education by the intensity of their focus on understanding the role of education in economic and political change, with reference to the agendas of international bodies and donor agencies, particularly in contexts of changing relationships between lower/middle income countries, emerging economies and the rest of the world.

These enduring distinctions are exemplified in two contemporary publications, a special issue of *Compare* on the legacy of Jullien (Wolhuter 2017), and a new report on skills development in Africa (Walther and Carton 2017). The former revisits the purposes articulated by Jullien, in proposing a scientific approach to comparative education that creates comparative tables that are used to generate comprehensive generalisations in the form of scientific laws. The debate, captured in the 2017 special issue, turns on newly available and unprecedented access to 'big data' that some see as creating conditions for Jullien's plan to be realised (Turner 2017). The continuing debate about different avenues to generalisation and interpretations of what is truly scientific surface in ways that resonate with the 1989 debate between E. J. King and Oliveira at the World Congress of Comparative Education. Generalisation from empirical data, extensive in its coverage but

detached from its context and packaged in comparable boxes is set against contextualism, and the ability to generalise that comes from 'Verstehen', in which historical and cultural forms of knowledge are generative of deeply informed insights and subjective interpretations (Epstein 2017). The latter approach, coupled with a degree of agenda setting from the global South, is found in the Walther and Carton (2017) study in 18 African countries, covering the analysis of schemes, which highlights prevalence of non-linear pathways of young people. The aims to make it possible to better understand necessary changes in these three worlds (education, training, work) according to multiple, segmented, temporal, spatial variations in pathways (Walther and Carton 2017). Diverse experiences and understandings are brought together to challenge dominant assumptions and envision new ways of tackling problems.

Leach, another former journal editor, characterises distinctions between the fields of comparative education and international development as matters of emphasis rather than fundamental difference, with comparativists "more interested in the theory of the system and the model" (Evans and Robinson-Pant 2010, p. 697) as a means of understanding what happens in practice. International development specialists also regard theory as important but tend to have a grounded approach that emphasises new ways of thinking and conceptualising problems that help to challenge erroneous policy assumptions and reframe development activities.

The differences of emphasis are generated by different understandings of the role of theory, in this view, and allow for large areas of overlap and common enterprise between comparative education and international development studies in education. Comparativists who argue for differences of essence distance themselves from this view by arguing that comparative education is fundamentally distinct from the notion of the development towards more desirable states (Cowen 2009) although this stance appears somewhat at odds with Jullien's defining purpose of the philanthropic ideal (Wolhuter 2017).

As a former President of the Comparative and International Education Society (CIES), Arnove (2010) has entered the ongoing debate by offering three defining dimensions for comparative education: scientific, ameliorative, global. Arnove's stance contributes to the case for exploring and expanding work in the intersections of the domains. The scientific dimension, he argues, is crucial since the better the theory and the more inclusive the levels of analysis, the more robust the insights and conclusions. The practical and ameliorative dimension comes with the responsibility to inform and improve educational policy and contribute to greater international understanding. The global dimension encompasses ethical and aesthetic sensibilities, tolerance of diversity and the desire "to contribute to the well-being of others not only at home but across the globe" (Arnove 2010, p. 829).

For comparativists, therefore, the intersections of the domains of comparative education and international development studies in education are judged to be limited or expansive, and the benefits of boundary-crossing in pursuit of shared purposes are perceived as few or abundant, desirable or undesirable, according to how they position themselves in their scholarly endeavours. Such positioning often reflects tribal academic affiliations, and the struggles for power and authority that contribute to the creation and maintenance of territories and bounded spaces (Milana 2018).

So far, my account has been constructed from the standpoint of my early experiences in the British-based scholarly community and comparative education society. Other comparative education societies each have their own development trajectory as well as interconnections through, for example, the Comparative Education Society of Europe and the World Congress (WCCES). Yet the resonances between them in the ways in which they recount power and status struggles in the field are notable. For example, Lauterbach (2008) refers to the comparative research scientists who claimed a monopoly on the field in Germany as being "put into the defensive" (p. 87) in ways that recall E.J. King's (1989) challenge to those who have overplayed their claims to the scientific high ground. Many scholars continue to focus on how to bolster the status of the comparative education as a 'discipline', and comparative vocational education as 'sub-discipline'. I argue that instead of agonising about the barriers to recognition of the discipline, embracing an element of Deleuzian nomadism can lead us to celebrate the mutability of existing structures and their intersections.

The discussion so far has focused on the intersection of comparative education and international development studies. Where does 'international education' fit in? International education is often seen as the communicative domain of intercultural education, with a focus on mutual learning and exchange. Yet international education, in its larger sense, has very significant overlaps with the 'global dimension' of comparative education identified by Arnove (2010): education that links researchers, teachers and often students internationally in analysing common problems and sometimes in action to combat "social ills affecting individuals and communities across borders" (Arnove 2010, p. 829).

Through their commitment to international education, participants in a wide range of international partnership projects have potentially productive overlaps with those committed to comparative education and development studies. They also have much to contribute to 'sharing best practices', and possibly also to stimulating greater interest in pedagogical research. In VET research and development, mutual learning between these domains is already an established feature of many European VET projects and the UNESCO International Centres for Technical and Vocational Education (UNEVOC) where the focus is on the pedagogical approach

that integrates and concentrates the divergent interests of researchers from a multiple of different disciplines (Rauner and Maclean 2008, pp. 27–28).

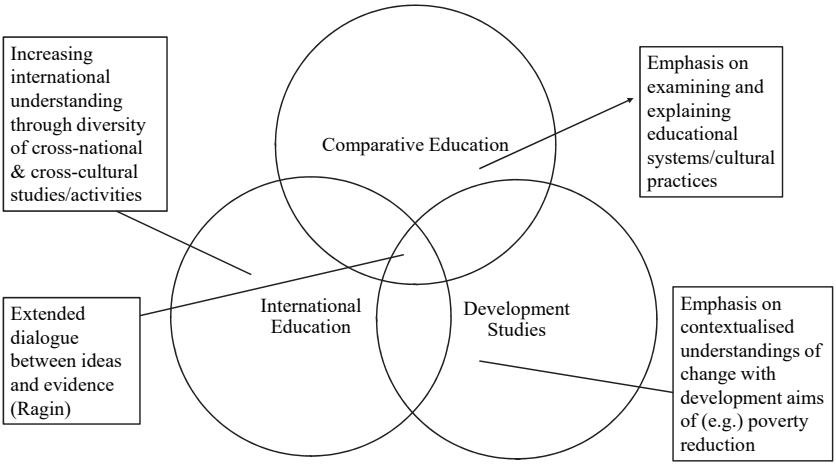

Fig. 1: Intersecting domains of comparative education

(Evans and Robinson-Pant 2010)

The enduring nature of debate about definitions and boundaries of the intersecting domains shows that the distinctions between them matter. But to whom do these distinctions matter, and why? What are the unintended consequences? And, most importantly for future development, to what extent do the intersections suggest potential for improvements?

3 Can we find common cause in the advancement of VET?

The distinctions matter to scholars concerned with how they are positioned and recognised. They matter for identities, status and careers, as these are forged in relation to academic 'tribes' and their power plays. The barriers, and the struggles they engender, are enduring. They are apparent, for example, in the accounts of I-Hsuan Cheng (2010), who, as an early career researcher with a background in researching the contributions of non-governmental organisations to development, perceived the potential for the conjunction of international development and comparative education studies in East Asia to be better positioned to contribute to the transformation of regional relations as well as increased well-being across the region. Yet she observes that international development has not been a dominant and popular

field of study in East Asia. The lower popularity of international development studies she argues is reflective of an imbalance in the research stance whereby the body of knowledge of comparative education has been "generated, mapped and conveyed with an overt and salient preference for industrial countries" (Cheng 2010, p. 832). This bias is compounded by 'conventional thoughts' that block the way of many early career researchers and research students in East Asia to the praxes of embedding international development research in the discourse of comparative education.

The unintended consequences of the disconnection of comparative education and international development studies are profound; mutual understanding, sustainable leverage for international justice, and reciprocal and equal relationships among the developed and developing nations are adversely affected by this disconnection. Embedding the research practices of international development in the discourse of comparative education requires, as Cheng (2010) argues, mutual respect. It can facilitate shared visions and supports the search for compatibility in achieving socially desirable improvements, through education and training, in an interconnected world.

The disconnections between comparative and international development studies are similarly highlighted in the VET field. Supra-national organisations such as the EU, the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD) have given a fresh impetus to comparative VET research, leading Lauterbach (2008) to propose that multi-level programmes of interdisciplinary, comparative inquiry on the international development of vocational education should be supported by improved communicative structures and practices between disciplines and domains.

The search for common cause (Colclough 2010) can be approached through the identification of the shared practices of international development and comparative education scholars, focusing on what scholars in each of these fields actually do in their day-to day work. An exploration of the activities of international educational development and comparative education practitioners reveals that there are 'no monopolies', according to Little (2010). Comparative scholars, self-evidently, do not have a monopoly on systemic and scholarly comparison. In fields of endeavour ranging from pre-school education to continuing vocational education and training, practitioners of comparative education and international educational development engage in change and advocacy activities; and all participate in communicative practices in the pursuit of intercultural understanding. Common cause can be found in these shared activities.

Another approach in the search for common cause is found in the identification of shared challenges. The Handbook of Technical and Vocational Education and Training Research published in 2008 (Rauner and Maclean) captured the

methodological challenges posed by the growing diversification of topics, the expanding scope of valid research questions and changing views of what counts as valid answers. As supra-national and global reports proliferate and become increasingly influential in steering policy debates (Kirpal 2008), those who produce them increasingly look to VET researchers to be able to provide evidence not only on effectiveness of pedagogies but also on the consequences of diverse cultures and traditions of VET. Kenneth King (2011) articulated the challenge: 'The time has come for comparative VET research to tell a story — does it have a story to tell?' The story that VET research can tell is not just about 'skills development' but must also be about the pedagogical approach.

The story of international VET has shown how policy learning is more realistic than policy copying, and the policy learning has to include an appreciation of pedagogical approaches. The popularity of 'products', such as national vocational qualification frameworks, competency-based and demand-led education and training, has been achieved despite the lack a rigorous evidence base. They provided apparent solutions for reform VET agendas, but the VET research story also problematises those solutions, as VET solutions, to have any chance of success, have to be recontextualised according to cultures and traditions of VET. These vary within as well as between countries. Within Europe, the drive for research to capture 'convergence/divergence' has given way to the search for better understandings of how hybrid structures grow from multiple roots, particularly since post-communist countries joined the European Union. Beyond Europe, Kenneth King (2011) notes, in the case of African countries referred to earlier, marked similarities between informal apprenticeship in Francophone and Anglophone West Africa that are 'light years' away from systems in Eastern and Southern Africa, with South Africa experiencing unique challenges. These variations have profound influences in attempts to introduce VET products such as qualification frameworks. Yet, according to King (2011), national frameworks have more amenable to successful implementation across much of South Asia, where training on-the-job to become skilled is widespread and culturally embedded.

The task of capturing the consequences of these diverse VET cultures and traditions is daunting, who are paying more attention than previously to framework conditions and the avoidance of wrong assumptions. Comparative research combined with insights into the locally situated processes of educational development can help them in this. The expectation of improved insights into how policies can be recontextualised and reliable evidence on the framework conditions that determine how they can function demand greater sophistication and a renewed sense of purpose from comparative education. The resurgence in perceived relevance of comparative education can be contrasted, in the VET field, with former times when relevance of comparative scholarship was questioned and often rejected on

the basis that there was little to be learnt from it. This applied particularly in Germany where the dual system was held to be pre-eminent internationally; the argument being that, if Germany provides the gold standard, what of value was there to be learnt from international comparative studies? The lack of attention to German comparative VET research prior to 1990 (Gonon 1998; Grollmann 2008) reflected a view that there were no adequate counterparts to the dual system that could form a useful basis for comparative scientific discourse (Georg 1995).

The greater sophistication and renewed sense of purpose can come, I argue by re-engaging comparative education with international development studies, not by blurring the boundaries but through a dialogic approach.

4 Towards a more dialogic approach

So, where do we find the common causes that can energise dialogue and cooperation? At the highest level of abstraction, all the domains of Figure 1 are concerned with the human condition. Many who identify with these fields in different ways do find common cause in the practices of analysis, advocacy and activity, as Little (2010) has observed. There is a perception that over-differentiation of domains has cursed rather than benefited the endeavours of those who work within them.

One response to this is to seek a portmanteau definition of international education that embraces all. A different response, which is prefigured in Figure 1, is to celebrate differentiation in traditions and perspectives while seeking a more dialogic approach in which mutually respected traditions and perspectives enrich and illuminate each other and, ultimately, what scholars do in practice. An extended dialogue between ideas and evidence, discourses on cases as well as variables, can be constructed, inspired by Ragin's (1991) approaches, with or without the use of the truth tables methodology. Case studies, prevalent among academic comparative studies, can generate better interpretations of findings both from policy related studies and from large scale international surveys of educational outcomes, when drawn on systematically as part of a dialogic approach. (Guenther and Falk 2018) A dialogic approach recognises times, cultures, values and ways of learning as units of comparison (Bray and Thomas 1995). This mode of engagement also recognises that definitions of comparative education, international education and international development are evolving, in relation to each other and in response to wider societal shifts.

The overlaps, between comparative education, international development studies in education and the intercultural domain of international education, are considerable, whether they are acknowledged or not. In each of the domains there are robust (and less robust) lines of research inquiry. A dialogic approach is pursued not for its own sake but because of the promise it offers for strengthening and

improvement of all the domains, maintaining robust lines of research inquiry, while developing more holistic frameworks; improving methods through sharing, mutual testing and innovation; greater critical depth that comes through questioning of dominant assumptions and enhanced awareness of cultural diversities and ethical practices.

Researchers engaged in the comparative investigation of VET are potentially ahead of the dialogic game, in the sense that many are already working productively in the intersections of the fields of comparative education, development studies and international education. Comparative VET is already strongly positioned to work productively in the intersections, which are the natural territory for comparative VET research.

Why do I argue that this is the case? I do so because I believe comparative VET research to be advanced in several key respects. The field is advanced in addressing the centrality of organised work for human functioning and the relationships between VET and societal processes (Lauterbach 2008). Keeping in view the centrality of organised work for human existence, comparative VET research carries out internationally and interculturally comparative studies of specific phenomena of VET in different countries, and also focuses on VET in the context of social and economic development particularly in economy and labour market — keeping multiple levels in view, macro political and governmental ,institutional and individual specific environments and social practices/cultural practices and expectations — connections complex and interdisciplinary. In these respects, comparative VET research is already advanced in showing how the phenomena and framework conditions associated with VET are structurally and organisationally embedded/mediated/differentiated (Pilz 2012). Comparative VET research is also advanced in connecting the two human processes of working and learning, able to explore aspects of 'life-work-learning interplay' transnationally. In these respects, it meets Sawchuk's (2010) criteria for robust lines of research inquiry in the field of work and learning, moving beyond the self-referential debates and adapting criteria, embrace 'more whole' rather than 'less whole' models of education-society interactions.

Moreover, comparative VET research is advanced in forging intercultural communications, establishing relational ties and networks, enabling mutual learning (Beech and Rizvi 2017). Countering uncritical assumptions of uni-linear modernisation perspectives and dominant discourses is also a priority. One aspect of this is language. Mazenod (2018) for example, is active in challenging the language practices in academic knowledge production that limit visibility of non-Anglophone conceptual frameworks that are important in understanding distinctive differences in apprenticeship in local fields of research.

We should continually remind ourselves to question the export of western assumptions, a stance that also has strong implications for the languages in which we work. Williams (2010) draws attention to the ways in which language, and proficiency in only one language, can come to dominate thinking about education and culture. As in other academic fields siloed, self-referential research communities fragment the field, yet they are also productive in generating sustained discussion and challenging perspectives. Sustaining productive differentiation while generating greater cross-fertilisation through dialogue avoids the undifferentiated melting pot or the 'pot pourri' feared by Broadfoot (1999) and many others. The overlaps are considerable, whether they are acknowledged or not. In all domains there are robust (and less robust) lines of research inquiry.

I have argued that the natural territory for comparative VET lies in intersection of the fields of comparative education, development education and the intercommunicative domain of international education. Comparative VET, far from being semi-detached or marginal to the field of comparative education, can lead the way in modelling a dialogic approach. In this de-territorialised territory for comparative VET research, a triadic conception of purposes emerges.

5 A triadic conception of purposes in comparative VET research

The trans-national investigation of educational phenomena associated with VET embraces three purposes that are interdependent. The three dimensions, represented in Figure 2, can be interpreted as opening a space for an evolutionary process in which expert methods, ideas and evidence are brought to bear on new questions, uncertainties and decisions rather than seeking a focus to be sharply defined and universally agreed.

The intersections of the domains open up the comparative investigation of vocational education as a space and evolutionary process, overcoming self-limiting preoccupation with defining an exclusive focus. Comparative VET research shares with the wider VET field commitments to the specialist theories, topics or themes of the VET field, according to Lauterbach (2008). Moreover, VET researchers need to recognise the temporary nature of periodic 'settlements' over what it is important to know more about at any particular time. A given inquiry or research endeavor may be positioned anywhere is this de-territorialised territory, but in this triadic space the inter-dependent dimensions are always in play.

Improvement projects always involve interlocking social relationships and are supported by mutual appreciation of different concepts and ways of seeing problems. They are more likely to be sustainable when they are informed by deep understandings of the social processes involved, exemplified in the example above (Walther and Carton 2017) and in the case increasingly made for moving agenda-

setting away from the global North in effort to engage with educational priorities and development goals conceptualised and set by people from the South fundamentally, they rely on actors being able to take critical stances on what actually counts as 'improvement'. Comparative VET is differentiated from other fields of inquiry by the way it achieves 'criticality', which lies at the heart of the triadic conception of purposes. It is also differentiated by the combinations of intellectual tools it brings to bear on problems. Comparative VET inquiry is uniquely positioned to uncover the ways in which the assumptions of dominant discourses become embedded in development of work practices and the conditions of working life, not only at local level and within national frameworks but also through the international flows of reform ideas and change agendas over time. The capabilities of VET researchers to conduct these inquiries are considerably strengthened in networked, collaborative projects that connect detailed studies of the local to the global. Networks that are designed principally to promote mutual learning are more likely to be effective when they can undertake collaborative inquiry to deepen understandings, evidenced in EU framework projects that incorporate VET development and, for example, in the Asia-Europe network on workplace learning and competence development (Ostendorf and Permpoonwiwat 2017). Moreover, they are more likely to be sustainable when they support socially desirable improvements.

Our pressing task is to strengthen comparative theories, methods, ideas and evidence that are brought to bear on new questions, uncertainties and decisions that matter to users of VET research ('seeking the stones from other hills to polish the jade in our own'). Comparative VET research should be able more clearly to articulate theoretical frames of reference and traceable genealogies in previous work. In meeting social scientific criteria for robustness (Sawchuk 2010), our inquiries into work and learning should be informed by empirical evidence which offers challenges to mechanistic or partial views of reality; and engage with the inherently value-laden or political nature of education.

A dialogic approach means constructing extended dialogues between ideas and evidence in the intersections and overlaps, recognising, respecting and learning from robust lines of inquiry where they conflict as well as where they converge. Our task is to continuously re-appraise knowledge, rework and recontextualise it in culturally sensitive ways. In seeking stones from other hills, the proverb also reminds us not to overlook the jade in our own. It is remarkable how few comparative researchers cite each other's work, looking most often to a theoretical framing drawn from one of the foundational or reference disciplines of sociology, psychology, political economy. Thus, references to Bourdieu, Vygotsky, Schumpeter et al. abound. Comparative VET borrows in a way which undoubtedly enriches the field, but how can it also go beyond borrowing, in developing a body of

canonical work? Building working hypotheses from case study research that rarely cross-references others in the field. Many argue that potential for generalisation from qualitative and case study research in VET is often too readily dismissed, often by the researchers themselves. They show how the qualitative and quantitative research, both using theory and evidence to create, refine or reject normative statements of truth has implications for the use of qualitative research for informing policy, including in the vocational and adult learning space. The reluctance of many policy advisors to use qualitative research is explained at least in part by "the self-deprecating limitations that qualitative researchers impose on their own work" (Guenther and Falk 2018, p. 16). The iterative nature of qualitative research lends itself well to theory development, and confirmation or rejection of normative truth statements. The more we can connect our qualitative, case-study based VET inquiries with each other, connecting, exploring and building results iteratively, the greater the probability that those truth statements will hold generally, and form the building blocks for the next steps in theory generation.

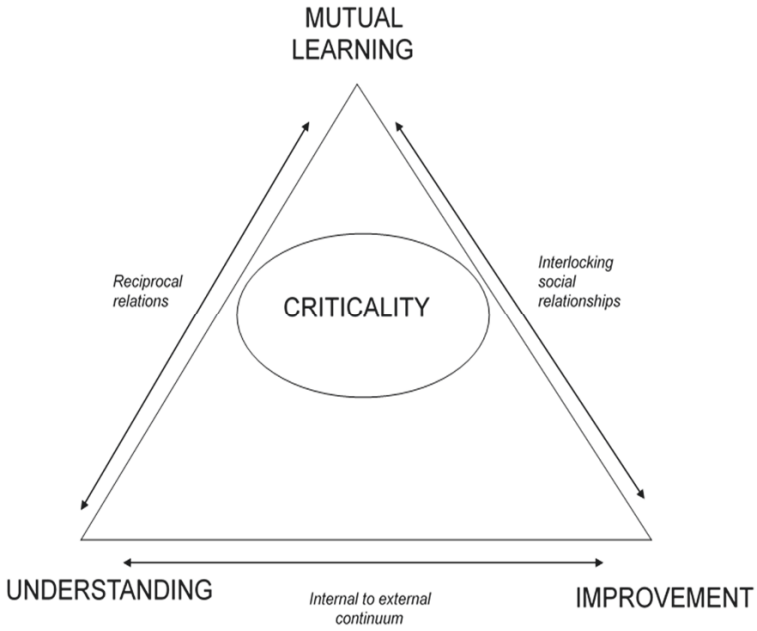

Fig. 2: Triadic conception of purposes in comparative VET research

(Author´s own compilation)

In advancing the trans-national investigation of educational phenomena associated with VET there are some enduring challenges for comparative researchers that require renewed energy, vision and leadership in the field. We need now, more than ever, to sustain an evolutionary approach in the comparative investigation of vocational education and training. We try to 'pin and box the butterfly' at our peril.

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Part I
International Comparative VET Theories and Methodologies

Beyond typologies: Alternative ways of comparing VET systems

Martin Fischer[1]

Abstract

Typologies (like 'market system', 'school system' or 'dual-cooperative system' of vocational education and training (VET)) promise to provide a general overview over the main characteristics of a particular VET system. However, comparing VET systems by typologies has been criticised as prejudice-driven because such typologies are often not the result of a comparison between national VET systems but rather their starting point. Moreover, through typologies a unity is assigned to VET systems, which often does not exist in reality.

In the paper two other possibilities of comparing VET systems are described and discussed: 1) comparison by function and 2) comparison by quality. The first approach is guided by the assumption that VET has (potentially) different functions for the people and the entire society within a country such as the qualification function, the selection of students according to the hierarchy of occupations, the allocation of employees, the utilisation of economic resources and the integration of individuals into society. Following this assumption the question can be answered: How and to which extent are those functions realised through a national VET system?

When comparing VET by quality, it is assumed that features of a VET system can reach a certain quality such as input, process, output and outcome quality. Those dimensions of VET quality can be adapted to different levels of a VET system (micro, meso and macro level) and deliver information about the quality of a VET system as a whole.

Advantages and disadvantages of both approaches will be discussed in final part of the paper.

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1 Introduction: About the difficulties of comparative VET research

International comparative vocational training research has been a field of research for a long time (cf. Lauterbach and Sellin 2000). Authors like Greinert (1998) have suggested typologies for international comparisons (like 'market system', 'school system' or 'dual-cooperative system' of vocational education and training [VET]), which promise to provide a general overview over the main characteristics of a particular VET system. However, with advancing globalisation in general and European integration in particular, however, this field of research has repeatedly been accentuated (e.g., with regard to the transfer of elements of a national vocational education and training system to other countries, cf. Gessler et al. 2019). The starting point is,

- that all countries of the world are equally subsumed under the competitive conditions of globalized economies;
- that vocational qualifications and competences are evaluated in the same way as business location and labour market factors, and
- that there is therefore an alignment of the requirements for different vocational training systems in order to 'produce' vocational qualifications.

Against this background, it is understandable that the transfer of 'elements' that are regarded as successful (particularly for reducing youth unemployment such as the alternance of school-based and in-company vocational training, cf. Petersen 2019) is a highly topical issue for the design of national vocational training systems. But: 'alignment of requirements' does not mean that all states take the same measures in their VET policies and certainly do not achieve identical results. It is precisely because the national VET systems are not identical in their starting point that there are different specific consequences for different systems. Reunited Germany is the ideal case for studying what different effects result when countries with diverging initial conditions are subordinated under a common standard. The vocational training system of the German Democratic Republic (GDR) and its elements have largely disappeared, and a new (West German) training system could only be introduced at the cost of substantial subsidies (Greinert 1999, p. 136). Similarly different effects can also be seen when comparing other national vocational training systems if, as it is the case to some extent in Europe, common standards are set for vocational training: for example, the Europe-wide demand for lifelong learning (Deissinger et al. 2011) has different consequences for individuals, depending on whether they are compiling modules into a qualification collage within a modular vocational training system or whether they have to fear the relative devaluation of their previous vocational qualification in a system based on a rather long term occupational orientation (e.g., the German 'Beruf' concept).

Comparative educational research also faces new challenges. Such research is traditionally promoted in the respective national interest and its task is to keep records (cf. Blumenthal et al. 1995, p. 112). It describes the characteristics of its own national vocational training system and compares these with the corresponding characteristics of other national vocational training systems. By doing so there are great difficulties in finding out what these characteristics are. It is a well-known fact that the word 'Beruf', which gives the German VET system its name, does not even exist in other countries, other cultures and therefore other languages. Thus, in the tradition of comparative educational research, identifying the object of vocational education and training research becomes Sisyphus work: it seeks to compare what is not comparable at the level of pure description, because for comparable facts identical terms of description are missing, and the same terms characterise different facts — such as the word 'professional', which has different meanings in German, English and French. What is missing is the 'Tertium Comparationis' — the standard on the basis of which comparisons could reasonably be made (Lauterbach 2003, p. 91). To be more precise — Dietmar Frommberger and Holger Reinisch (1999, pp. 325–326) have elaborated this in reference to the social scientist Joachim Matthes — it is not a scientifically accurate Tertium Comparationis, which is used in this kind of comparative educational science:

- The reality to be compared is conceptually adapted to one's own;
- the Tertium Comparationis emerges from a projection of one's own society, and
- the classification of a VET system (such as modern versus traditional) is not at all the result of the comparison, but has already been placed in it as a non-explicit cultural interpretation.

Furthermore, research to date has not been able to provide empirical evidence of the competitive advantages of individual systems, and for methodological and research methodological reasons it is not even possible to quantify the contribution of a VET system to socio-economic development because the multitude of responsible factors cannot be reliably isolated (cf. Tessaring 1998, p. 36; Büchtemann and Verdier 1995). Nevertheless, a connection is assumed between national qualification potentials (resources of work-related competences available) on the one hand and technical, organisational and economic competitiveness on the other (cf. Georg 1997, Deissinger et al. 2011). The fact that this connection does not have to be understood as a static but a dynamic relationship is illustrated by the fluctuations in national transition rates in training and work (e.g., also in Germany, cf. Baethge 2014), which are related not only to the character of the respective VET system itself, but also to economic and demographic developments, and also to

governance problems and their reforms of VET (e.g., by introducing elements of the dual apprenticeship system in France, Italy, Spain and U.K. in order to increase labour market attractiveness of VET) that have been and are being implemented in many countries. However, these dynamics vary from country to country (Hanf et al. 2012).

If comparative vocational education and training research produces or shall produce findings that can be used in education policy, then a theoretical foundation of common questions is necessary that are more or less inherent in all national vocational education and training systems, that are socially relevant and that at the same time address the development dynamics and transformability dimension of vocational education and training.

2 Comparison by function

Approaches to solving the above questions for comparative standards of international VET research can be found in analyses of social functions that a VET system can serve. Wolf-Dietrich Greinert first presented a structural functionalist approach to characterise the German dual system (Greinert 1998) and for historical international comparison (Greinert 2000), proposing general functions of VET systems that can potentially be found in all national VET systems despite different conditions. In this context, Wolfgang Hörner (1993, p. 19) speaks about functional equivalences that make it possible to equate different phenomena with regard to their function.

Greinert (1998, pp. 145–148) assumes that vocational education and training systems are social systems of action that provide solutions to problems for society as a whole. According to this view vocational education and training fulfils certain functions (more or less) for society in each country — however vocational education and training is organised individually across nations. Such functions are the selection and allocation function (the distribution of people in the education system and to the labour market), the qualification function (the support of the acquisition of occupationally relevant competences), the utilisation function (costs and benefits of vocational education and training in the context of economic purposes) and the integration and retention function (integration of citizens into society through participation in vocational education and gainful employment or retention in these areas). For Greinert himself, the description of the social functions of vocational education and training was obviously the prelude to and prerequisite for a typology of models ('school model', 'market model', 'dual-cooperative model'), to which he then devoted his main interest. Beyond and before model building, however, it seems reasonable to use the above-mentioned functions as 'Tertium comparationis' for comparing vocational training systems. This is because the

term ‘model’ suggests a consistency and stability of a vocational training system that may not always exist: for example, the cooperation between learning venues between companies and schools that gave Germany's ‘dual-cooperative model’ its name, among other things, is the quality of vocational education and training in Germany which is most missed by trainees (Ebbinghaus and Krewerth 2014; Rauner and Piening 2015), i.e. apparently more ideal than reality. Matthias Pilz (2017) also criticises the weaknesses of existing typologies and uses other characteristics to develop a new approach that also leads to a typology.

Let us first take a closer look at the individual functions which, in my opinion, could act as a benchmark between vocational training systems:

2.1 Selection and allocation function

Each national vocational training system is assigned the task of providing the labour market with adequately trained persons in the required quantity (allocation function). If one segment of the labour market lacks the workforce required or if there is an oversupply of skilled labour in another segment, this is interpreted, among other things, as a failure of the VET system. Such misallocations have been observed for some time in the British vocational education and training system on the basis of a shortage of skilled workers in the construction and infrastructure industry (Arcadis 2017); in the German vocational education and training system, the lack of nursing staff marks such a misallocation (Bundesagentur für Arbeit 2019). However, such misallocations can be reduced or even compensated by immigration of suitably trained workers (so that there is no disproportion in the allocation of labour visible), and it is also somewhat short-sighted to blame the youth unemployment rate alone on the respective national vocational training system, because the abundance of workers also has to do with economic influences, otherwise the strong fluctuations of the youth unemployment rate in individual southern European countries such as Greece (cf. Ioannidou 2018) in recent decades would not be explainable at all.

The allocation function is ensured on the one hand by the range of specialist training programmes available, and on the other by selection, i.e. by selecting particularly suitable applicants for a training programme. The concept of selection implies incentives for suitable applicants and access restrictions for unsuitable applicants. However, selection does not only mean that applicants for training places and jobs are only *being selected*, that is, they are merely the object of selection. Young people also aspire to certain training programmes and respective occupations on their own initiative, i.e. they *make a selection* on their own initiative and are therefore also subject to selection. For this reason, the selection and allocation function of a vocational training system is (more or less) to strike a balance

between the qualitative and quantitative requirements of the labour market on the one hand and the interests and aptitudes of young people on the other. The vocational training system regulates access to training courses, occupations and occupational positions (selection function). The VET system distributes people among the social hierarchy and division of labour. This selection is also intended to cover the qualitatively different skilled labour requirements of the employment system (allocation function: the right person in the right place).

2.2 Qualification function

The allocation function of the VET system has a lot to do with its qualification function. The VET system is intended to meet the qualification needs of the employment system, i.e. to provide a sufficiently large number of people with vocational training. And these persons should not only be trained at all, but also *adequately* trained. The qualitative, subject-related balance between the requirements of the labour market and the starting conditions of VET participants is thus established (to a greater or lesser extent) by the qualification function. This raises the question of how teachers and trainers on the one hand support and students and trainees on the other hand succeed in the acquisition of competences that are relevant to gainful employment. Many factors play a role in answering this question: training profiles, curricula, teaching-learning content, teaching methods, the design of teaching/learning processes, examination procedures, etc. In addition, the respective prerequisites of teachers (e.g., qualified training personnel) and learners (e.g., training motivation) must also be taken into account, as must their actual actions in the teaching/learning processes. The qualification function of a vocational training system is to ensure that trainees acquire skills that can be used to cope with their job tasks in gainful employment and to create further general or interdisciplinary prerequisites for the exercise of gainful employment (e.g., general education, civic education). It is therefore a matter of creating laboring capacity with regard to the requirements of gainful employment in a society. Individuals as well as the vocational training institutions attended by them play a part in this production of work abilities.

2.3 Utilisation function

Why do companies, institutions and individuals participate in vocational education and training at all? Both the providers and the clientele of the vocational education and training system expect economic benefits from participating or passing through the system. The utilisation function addresses the costs and benefits of

vocational education and training for the state, the economy and people willing to undergo vocational training. Vocational education and training is an investment in the future and this investment requires material, personnel and time resources, i.e. first of all costs. 'Labouring capacity' is a latent entity that must be activated and updated in order to be effective. It is therefore not a question of immediate work action or work performance, but a matter of preparatory investment for these (Neuberger 1991, p. 3). No matter who invests these resources in detail, for the acting subjects the invested costs should be worthwhile: for the state the flourishing of the economy as a whole marks the target perspective, for the business enterprise the company profit and for the individual the earnings in the time after and possibly even during the training. Investment in vocational education and training competes with other ways of acquiring work capacity. It may also be possible for the individual to find access to gainful employment or to earn a living by means of state or private alimony even without training. Business enterprises may be able to obtain trained workers on the labour market or design the job requirements in such a way that no training is necessary. States can leave training tasks exclusively to companies or individuals, so that the so-called informal system of vocational training is regarded as the world's largest training system (Arnold et al. 1998, p. 44). The utilisation function of a vocational training system is therefore to generate the economic benefit of the resources spent on training — differentiated according to the state, companies and individuals and according to their respective alternatives. Studies (Rauner 2008) show that cost-benefit ratios can vary greatly even between apparently similar VET systems (e.g., Germany/Switzerland).

2.4 Retention and integration function

However, the functions of vocational training systems potentially go beyond direct economic calculations. The emergence of the German vocational training system towards the end of the 19th century with the predecessor of the German vocational school — the continuing education school — as an antirevolutionary institution to close the educational gap between elementary school and military service (Greinert 1998, p. 45) or the strong anchoring of the French vocational training system in the principles of the French Revolution ('freedom, equality, fraternity': integration via merits rather than on the basis of privileges due to aristocracy, cf. Ott 2015, p. 222) refers to the integration function of vocational training systems. The vocational training system potentially contributes to the integration of young people into the existing socio-economic system. It gets people 'off the streets' (retention function), equips them with appropriate patterns of thinking, behaviour and loyalty (integration function) and contributes to the integration of people into society through participation in vocational qualification and gainful employment or retention in these areas.

The retention and integration function thus has an objective and a subjective component. The objective component is to ensure that individuals can earn a living through vocational training and employment. The subjective component is the individual or collective willingness of individuals to do so. This willingness has many facets that have to do with the question of the general willingness to integrate, which is discussed above all among immigrants, but is not only relevant there. It also has to do with different strategies for shaping one's own professional biography (from the wage worker habitus to the self-employed habitus, cf. Fischer and Witzel 2008) and, not least of all, can lead to attitudes that are described in terms of occupational identity, occupational ethics and company commitment (Heinemann and Rauner 2008).

It is noteworthy that these functions cannot be regarded as free of overlap. Some functions influence each other, e.g., the qualification and allocation function: One of the prerequisites for the transition to the employment system is appropriate vocational qualification. Some functions can also contradict each other in part, e.g., selection and integration functions: If a strict selection takes place during the transition from general schooling to vocational education and training, it is more difficult to realise the integration function.

Nor can the above-mentioned functions be assessed without reference to the potentially divergent interests of the state, the economy and the citizens that they bring to bear. From the point of view of the state, for example, an oversupply of trained workers may appear to be a misallocation and, from the point of view of the citizens concerned, an inadequate utilisation of their training; from the point of view of the economy, however, such a situation can be quite functional, since it guarantees an immediately available reservoir of labour as economic development increases and helps to defend the wage demands of the currently employed workers. How the interests associated with the above-mentioned functions are represented in a society is determined by the embedding of these functions in the social balance of power. For this reason I suggest two more categories which are not functions in a strict sense, but describe the embeddedness of VET in a society: organisation and innovation.

2.5 Organisation

Looking at other countries shows that the functions of a vocational training system can be organised and, if required, institutionalised in very different ways. The organisation of a VET system can therefore not only be explained by its functions, but also by the historical assertion of interests associated with these functions. “No vocational training system in an industrialised country can claim to have developed its structures on the basis of functional requirements and the logic of industrial qualifi-

cation requirements" (Georg and Sattel 1992, p. 65). This realisation now means that although the organisation of a vocational training system is not a function in the true sense, it is indispensable for the question of which functions in the course of historical development could be realised at all, in which way or hardly at all.

2.6 Innovation

The more comparative VET research aims at supposedly safe ground by describing the general and perpetual characteristics of national VET systems, the more outdated their results will be by the time they reach the light of day. On the one hand, this is due to the particular development dynamics of vocational education and training, which, unlike the general education system, is much more directly linked to the labour market and its fluctuations, as well as to the fluctuating demands and needs of private employers. On the other hand, this is also due to the fact that comparative vocational training research has so far hardly developed any categories, which means that the dynamics of VET development itself can be made the object of research, as Ingrid Drexel and Martine Moebus (2000) have clearly pointed out in their analysis of European vocational training research.

Vocational education and training provides services for the employment system much more directly than general education. VET is therefore directly confronted with changes in the labour market and in the world of work. This suggests constant innovation. Thus, similar to the category 'organisation', 'innovation' is also not a function but a comparative standard about if and how innovation measures are organised in a national VET system.

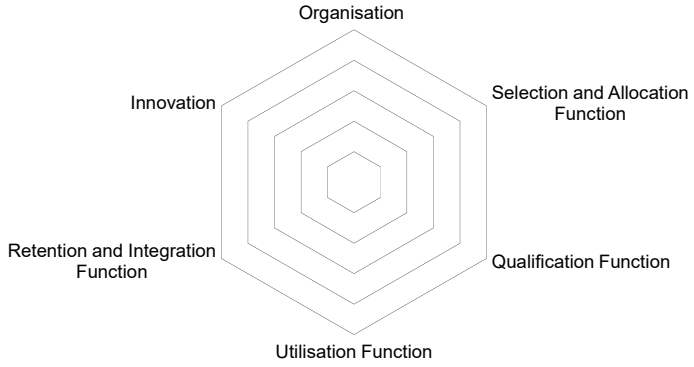

Fig. 1: Evaluation matrix for VET systems

(Author's own compilation)

With the topos 'innovation' the question is posed of who intervenes in the current form of the national vocational education and training system, and in what way, and thus possibly changes the quality of a vocational education and training system. The question of the quality of vocational education and training is a connection to a second possibility presented here of comparing national vocational education and training systems with one another.

3 Comparison by quality

A worldwide debate has developed on the quality of vocational education and training, which is supported in Europe by the intention of developing a common European labour market and a common European education area. Especially in industrialised countries, the competence of skilled workers — and thus indirectly the quality of vocational training — is regarded as a key factor for the prosperity of the economy and the integration of young people into society. However, vocational training systems are organised very differently in the member states of the European Union, which makes it difficult to identify transnational starting points for quality development. In some countries there is a purely school-based vocational training system, in some a company-based vocational training system, in some a school-based vocational training system and in others a company-based vocational training system, and in some countries the institution of the training occupation does not exist at all. This applies all the more to the global comparison, where so-called informal vocational training systems and, more precisely, a number of *different* informal vocational training systems play a major role. So where should quality development start?

Traditionally, quality assurance in many countries has been based on input quality: Are there obligatory framework plans for training? What about the technical and personnel infrastructure, is the training personnel qualified?

The input quality factors of vocational training were also at the forefront of the work of the German 'Sachverständigenkommission Kosten und Finanzierung der beruflichen Bildung' (1974) (Expert Panel for Vocational Education Costs and Funding) — the so-called Edding Commission. This commission pointed out major qualitative differences between training occupations and companies which offer training and blamed input factors such as the (non-)existence of training plans, the qualifications of training personnel, etc. for this. The report makes clear that input quality at the system level (e.g., on the basis of legal regulations) can differ significantly from input quality at the level of the individual company.

It is therefore appropriate to look at quality in education in a multi-level analytical way and to differentiate between macro level (education system level), meso level (level of individual educational institutions) and micro level (level of

teaching-learning processes). The work of the Edding Commission also introduced the distinction between the input dimension of quality (the existing or to be ensured company framework conditions of training) and the output dimension (outcome quality: qualifications, completion rate, competences and satisfaction of trainees and trainers). The Edding Commission had provided initial arguments to the effect that guaranteeing input quality at the macro level (e.g., through laws and ordinances) does not necessarily mean that quality is produced at the micro level (in the training behaviour of the individual companies) and that process and result variables must therefore be considered in addition to the input variables of quality.

This means that in the analysis and further development of VET quality, dimensions of quality along the training process (input, process, output and outcome quality) combined with levels of quality development (micro, meso, macro level) must be considered.

3.1 Dimensions of quality along the training process

Training processes require certain inputs, e.g., technical and personnel infrastructure, learning venues, training resources, training plans, etc. The quality of these prerequisites is indicated by the term input quality. These specifications are then combined in the teaching and learning process using selected didactic elements and filled with life, whereby the process quality of training (more or less) is realised in the hope of stimulating an output, i.e. a learning result. The output quality then concerns this learning result that is to be achieved within the framework of a training measure, e.g., the acquisition of vocational competences by the trainees. The outcome quality refers to the utilisation of the acquired competences in vocational work and on the labour market. This refers, for example, to the placement of the trainee in an employment relationship that is adequate for the training at the end of the training.

Criteria and indicators can be assigned to these dimensions of quality to determine the respective input, process, output and outcome quality more precisely:

Input quality (also referred to as structural or potential quality) accordingly affects the quality of the input factors of training. Indicators for this are the material, organisational and personnel equipment, the qualification of the training personnel, the quality of the teaching and training (framework) plans, work materials, teaching and learning materials, entry requirements for trainees, etc.

Process quality (also called throughput quality) concerns the teaching/learning process and its didactic design. Indicators are e.g: the quality of the methods and media used, the availability of training personnel and the frequency with which work processes are explained, the degree of orientation towards the training

framework plan or adherence to training plans, the quality of the relationship between the trainer and the trainee, etc.

Output quality (also result quality) refers to what has been achieved at the end of training - e.g., passing the final examination and achieving the formal qualification, final grade and rate, acquiring vocational capacity to act, improving the quality of trainees' learning outcomes, competences and satisfaction of trainees and trainers, etc.

Outcome quality concerns the transfer of what has been learnt in the context of productive gainful employment and its utilisation on the labour market and thus tends to require longer periods of observation. Indicators are, for example, the development of learning competence and the independence of trainees, the promotion of individual learning biographies, the reduction of dropout rates, take-up rates in enterprises, training periods following training, youth unemployment rate, etc.

Tab. 1: Vocational company training quality framework matrix

VET Quality	Input	Process	Output	Outcome
Micro Level Teaching & Training	e.g.: qualified VET staff is available for trainees	e.g.: mistakes of trainees are accepted and problems are solved in a solution-orientated manner		
Meso Level Companies, Vocational Schools	e.g.: qualified VET staff is available in the company		e.g.: high apprentice retention rate	
Macro Level Government, Federal States	e.g.: ordinance on trainer aptitude is in force			e.g.: social inclusion via VET and recognized occupational work

(Fischer et al. 2014, p. 148)

In this way, VET quality (project, company or system related) can be developed and assessed, and quality changes can be identified.

3.2 Different perspectives on VET quality

The question about which quality characteristics could be used to fill the framework proposed here is met with completely different assessments. Whereas in

Germany, for example, the qualifications of training personnel were regarded as decisive for training quality over decades, and the qualifications of so-called part-time trainers (skilled workers who provide training in addition to their work) in particular were considered to be in need of improvement, a company survey conducted by the German Federal Institute for Vocational Education and Training (BIBB) (Ebbinghaus 2005) revealed that, from the point of view of the companies, the qualifications of the trainees are particularly important for the quality of training. In an earlier BIBB survey (Feller 1995), trainees took a different view and were the most satisfied with part-time trainers, ahead of all others (full-time employees, superiors, vocational school teachers).

The term quality itself says nothing about what quality is. That depends on the criteria that are applied in each case. Empirical surveys show that the various social groups involved in training each apply different criteria that correspond most closely to their interests. From the point of view of the education administration, which is concerned with input variables designed to ensure the qualification function of training, the regulations governing the qualification of trainers play the most important role. Companies are more concerned with output variables, namely securing their skilled labour requirements, i.e. the allocation function of training — if input factors come into play from a company perspective, then these are the prerequisites that trainees bring with them. The quality of the relationship that is realised within the process dimension of training seems to be more important to the trainees themselves — and that is where the part-time trainers obviously have the most to offer.

None of these assessment perspectives is to be regarded from the outset as completely absurd. This means that VET quality must be regarded from several perspectives. Only the putting into relation of the different view and action perspectives finally results in an idea of what VET quality could be!

The review of the scientific findings on the topic of 'VET quality' thus gives reason to see input, process, output and outcome quality in context or to establish such a context. A system of quality indicators or factors for vocational training to be developed must take this into account. However, the relationship between input, process and outcome variables is probably non-deterministic: Despite the high input quality in the German VET system, quality problems can arise at the process level if, for example, the quality of the relationship between the trainer and the trainee is not given. In Switzerland, more so-called high-risk students than expected can successfully complete vocational training (Stalder 2011), i.e. output quality is not defined exclusively by input variables. And finally, there may also be recruitment problems in companies, irrespective of the skills of the trainees, if companies reduce recruitment rates due to the economic situation, location and recruitment policy, i.e. outcome quality is not synonymous with output quality. When assessing the quality of a vocational education and training system, the

'interfaces' between input, process, output and outcome quality must therefore be examined very carefully. Neither can the outcome quality of a VET system be inferred from the input quality alone, nor conversely from the outcome quality to the input quality. Very simply, one possible indicator for outcome quality of a VET system, namely youth unemployment, is often regarded as an effect of input quality. However, the temporarily similar youth unemployment rate in the U.K. and Germany does not yet prove that the input quality of the vocational training system is the same in both countries, because the U.K. hardly has a vocational training system with job descriptions, training framework plans, defined qualifications of the training personnel, etc.

If such a quality framework, e.g., for two different countries, is filled by appropriate studies, it can be illustrated what is meant by input, process, output and outcome quality with regard to the micro, meso and macro levels (cf. Henkes and Schemme 2013). These possibly different quality understandings can be compared with each other and their reasons can then be examined in more detail. It may also be possible to derive measures for each individual country that could lead to an improvement in quality in that country. With regard to the system comparison, however, the individual categories of the quality matrix (cf. Tab. 1) can be very different: If, for example, the development of input quality in the German VET system has traditionally been concerned with the technical and personnel equipment of training enterprises, this aspect may not even be covered with regard to the input quality of a school-based vocational training system because enterprises only play a marginal role in it. This observation once again raises the question of the significance of the approaches presented here for comparative VET research.

4 Discussion

The comparison of VET systems across *functions* provides answers to the questions of how these functions are realised in the systems to be compared, in which organisational forms these functions are reflected and which reform steps are undertaken in each country. However, the comparison of functions does not yet answer the question of which quality development steps can or could be undertaken in each case. This question is rather answered through the comparison by *quality*, but primarily in relation to each individual vocational training system.

If comparative vocational education and training research is not only to remain in the process of describing phenomena and typologies, but also to contribute to the quality development of vocational education and training, it is necessary on the one hand to take note of the culturally shaped prerequisites for vocational education and training in the individual nations so that starting points for quality

development can be found at all. In the past, too little attention was often paid to these prerequisites (Tessaring 1998, p. 5).

On the other hand, research requires transnational categories for the necessary theory-based assessment and design of developments in vocational education and training, which also help independently of certain (possibly non-existent or differently organised) institutions. Categories are also needed that address the dynamics of VET development (Drexel and Moebus 2000) and the design dimension in VET. Such categories can be based on potential functions of vocational education and training for society as a whole, such as meeting the demand for skilled labour (category: selection and allocation function), acquiring the skills of trainees (category: qualification function), costs and benefits of vocational education and training (category: utilisation function), transitions at the first (transition from school to vocational education and training) and second (transition from vocational education and training to vocational work) transition level (category: retention and integration function). These functions are realised in each nation through the interaction of social framework conditions (such as laws and standards), the work of training institutions (such as companies, inter-company training centres, schools or families) and the actions of teachers, trainers and students/apprentices, or rather: more or less realised. These interactions have grown historically in every country, have cultural connotations (category: organisation) and are subject to a process of change and renewal in the context of economic, labour market and educational policy development (category: innovation). The levels of vocational education and training (macro, meso and micro levels) determine and influence the input, process, output and outcome quality of vocational education and training.

In this respect, the two ways of comparing systems in vocational education and training research presented above can be brought together: The various quality dimensions of VET (input, process, output and outcome quality) can be used to answer the question of how ‘well’ the VET functions mentioned have been implemented in a particular country or in a comparison between several countries. However, ‘well’ is a tricky term in this context: even within one country there are different and therefore often diverging views on what constitutes ‘good’ quality in vocational education and training. This is all the more true for the comparison between different countries, where culturally determined connotations of vocational education and training may have an even greater impact. For example, the answer to the question of whether vocational education and training is regarded as a task for business enterprises at all — irrespective of how this task is currently carried out in a country — is culturally determined. The answer to the question as to whether vocational education and training beyond universities opens up adequate career paths for young people at all or is not only intended for the losers in the educational race is also culturally determined. Such cultural imprints are

themselves subject to change, as can be seen, for example, from the greatly changed educational aspirations in Germany ('run to the universities').

What can be stated 'objectively' with regard to the system quality of a VET system is therefore at best which needs and interests have prevailed with regard to VET and which have possibly been violated — i.e. the balance within the national VET system: The input quality of a particular VET system e.g., might be high, but the system is unbalanced if the graduates from VET do not have the chance to utilise their qualifications on the labour market. The German pilot programme "Quality Development and Assurance in In-company Vocational Education and Training" has taken this fact into account by recognising that the quality of vocational education and training must be regarded from a multi-perspective viewpoint and that quality development must therefore also be pursued from a multi-perspective viewpoint (see also Markowitsch and Grollmann 2019). A system of indicators for high-quality training has been developed on the basis of the theoretical examination of the topic of 'quality' and on the basis of the results from the pilot projects of the programme (cf. Fischer et al. 2014).

The quality framework proposed here (see Tab. 1) invites quality development measures along different dimensions of quality (input, process, output and outcome quality) as well as in relation to the different stakeholder groups such as trainers and apprentices (micro level), companies, schools and chambers (meso level) and the state, regions and society (macro level). This alone reveals the interdependence and relative importance of each individual measure and indicator. It is recognised that quality in vocational education and training does not consist solely in the fulfilment of one or more quality criteria, but in a balanced development of the functions of a vocational education and training system in which the different perspectives are at least mediated between each other.

Comparing VET systems by function and quality is one hand promising as it might help to avoid stereotypes. On the other hand it is a crucial question (and also a possible limitation) *which* categories are involved when functions and qualities are discussed: educational functions, self-actualisation functions, personal growth stimulated by VET etc. do not play a dominate role so far.

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A framework for the comparative study of institutional-employer partnerships in vocational education and training

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Abstract

This paper develops a framework for the comparative study of institutional-employer partnerships in vocational education and training (VET). A focus on partnership implies here primarily a meso-level examination of organisational relations, boundaries and issues of power and control. Bernstein's concepts of classification (strength of insulation between categories) and framing (locus of control) are used to sketch out possible relationships between educational institutions and employers. Four models (identified A–D) are arranged, exemplifying ideal type partnership arrangements and suggesting distinct pedagogical contexts. While classification is employed as a means of identifying the boundaries between discourses and workplace roles, framing is suggested as a means of registering elements of control (i.e. sequencing, pacing, selecting) in the dynamics of work and in pedagogy. These meso-level arrangements sit within broader macro contexts which suggest specific logics of education and work, and it is important to acknowledge that partnerships may be constrained by structural or agentic forces prevalent in this macro domain. The distinctive advantage of discrete meso-level frameworks, however, is that they provide a language for comparative work on partnership in VET that can bridge national or sectoral contexts, illustrating key differences and similarities that can then be further explored on return to addressing the macro dimension. The argument is briefly illustrated comparatively with examples from VET research that include a partnership focus.

1 Introduction

The comparative study of VET provision has made considerable progress in developing heuristics for system-level comparison. There has been considerable discussion about differences in the character of national VET systems, and on the role

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of social institutions and governance structures in shaping the nature of VET within those systems (Busemeyer and Trampusch 2012; Gonon 2013; Pilz 2016). These analytical frames assist researchers and policy-makers in their quest to make sense of developments in VET provision and the changing relationship between education and work. They also enable nuanced explanation of VET specifics, providing the tools for locating developments in VET in any one system within a broader canvas of institutional change on an international scale.

However, it could be argued that existing models categorising VET systems have not as yet fully developed heuristics that enable a better understanding of how the relationship between education and work plays out at the meso-level in partnerships between employers and educational institutions, and in terms of the various dimensions of pedagogic practice found in VET programmes. The tendency to revert to macro-level debates may also lead to a situation in which we overlook some of the potential similarities and differences between VET partnerships and programmes across jurisdictions (states, regions or nations). A consequence of this could be to neglect some of the pressures for change at VET systems that may emerge initially through tensions at the meso-level, or through employer or student dissatisfaction with existing VET provision.

This paper presents an initial development of a heuristic which can be used to develop comparative analysis of VET partnerships and programmes across sectors or jurisdictions. Drawing on Bernstein's (2000) work on classification and framing (power and control) and on previous analysis of employer-institutional partnerships in teacher education, four models of partnership are developed which represent ideal types of employer-institutional relationship. These partnerships also have implications for the forms of VET programme developed, and this is illustrated through a brief review of a number of studies of VET provision in various countries. This discussion enables us to further reflect on how a better understanding of the character of meso-level relationships can add to comparative analysis of VET, including at the macro-level.

2 Comparative analysis of partnerships between institutions and employers

The domains or 'fields' of education and work can differ in terms of their logic, purpose, values and process. And the degree of difference may vary by national context and over time, resulting in variable forms of permeability, separation and continuity (Bernstein 1990; Hordern 2018). Within the domain of education, we find institutions, schools, technical colleges, other VET providers, and universities, which characteristically have had particular *educational* concerns around the curriculum, individual development and societal socialisation. On the other hand,

the domain of work involves industrial organisations and employers with *workplace* or industrial concerns which may include issues of competence, efficiency and occupational socialisation, often shaped by market or bureaucratic imperatives. In some contexts, educational concerns may be distant from those of the workplace. However, as a consequence of policy or socio-economic change, educational and workplace concerns can align more closely, with educational institutions co-ordinating with employers to support young people's preparation for work. Social and institutional relations existent between educational institutions, employers, representative bodies and professional associations are also likely to strongly influence how occupational standards are determined for VET provision (Hordern 2018). Certain employer voices may be particularly prominent, orientating VET towards specific organisational or employer-specific concerns. Nevertheless, qualification frameworks and policies at a national level may constrain the employer specificity of VET provision.

The variability and complexity of the relationship between bodies within the domains of education and work suggests the need for analytical tools that can help distinguish the strength of boundaries between these domains, and to identify dimensions of control within partnership relations between institutions and employers. Elements of Bernstein's work has been employed to help explore these manifestations in VET (Gamble 2004; Wheelahan 2007). A focus on strength of boundaries suggests the notion of "classification", which can be used to delineate the "degree of insulation" (Bernstein 2000, p. 6) between the workplace and the institution. Classification focuses on the strength or weakness of boundaries or levels of insulation "between agencies, between agents, between discourses, between practices" (Bernstein 2000, p. 6). For example, Neves et al. (2004) identify how power relations operate in teacher education through strength of classification, resulting in types of boundaries between novice teachers, between teacher educator and novice, and between aspects of disciplinary discourse and practical knowledge.

Classification can be used in tandem with "framing", which identifies "how meanings are put together" (Bernstein 2000, p. 12) within the contexts of the institutional-employer partnerships. Framing "regulates relations, within a context", shaping how "the principle of legitimate communication" (Bernstein 2000, p. 12) is acquired. Framing is about "control over the selection of communication […] and control over the social base" (Bernstein 2000, pp. 12–13) which makes communication possible. Bernstein identified an instructional dimension to framing (instructional discourse) and a regulative aspect (regulative discourse). The "instructional" focuses on "selection, sequence, pacing and criteria", while the "regulative" focuses on "the rules of social order" which relate to "expectations about conduct, character and manner" (Bernstein 2000, p. 13). Strong framing implies

that the educator has "explicit control" over the dimensions listed above, whereas in weak framing the trainee, apprentice or novice teacher has more "apparent control" (Bernstein 2000, p. 13).

With these variables in mind, we can develop the following lines of inquiry about any partnership relation in VET:

(i) How strong are boundaries between partners (classification)? And what affects this boundary strength? Possible influential factors may include some of those discussed in macro-level analysis of VET, including the regulative and normative institutional environments which shape VET provision, varieties of capitalism and the extent of social partnership arrangements and their legislative underpinning (Busemeyer and Trampusch 2012; Graf 2016).

(ii) How is the pedagogic discourse organised and controlled (framing) within both the educational institution and the employer? Here we ask 'who controls what' in the instructional process (instructional framing): apprentice or employer? Lecturer or student? And what are the norms of social conduct and culture within the educational and workplace settings (regulative framing)? *Strong* classification between employer and institution as identified in (i) suggests greater potential for variance in framing between instructional contexts. However, if there are *weaker* boundaries between partners then there may be a similar approach to framing across all contributors to a programme — representing a potentially more coherent student experience. Höhns (2018) has provided a detailed discussion of how framing may vary dependent on the pedagogic discourse within workplace contexts.

(iii) How is *work itself* organised within the workplaces concerned (framing)? Such framing can be examined in terms of its pacing, sequencing, selection of task and activity, and evaluation of performance. For each dimension we can ask — who is in control? The employee or the organisation? When this is established we can then also ask if the specific way in which work is organised coheres with the organisation of pedagogic discourse in the workplace, as there is no guarantee that these will be the same. Are the learning opportunities assumed by those concerned with the development of permanent employees, apprentices or placement students actually supported by the dynamic of work itself? The discourse of work may be shaped by management control, employment relations, industrial context, sec-

toral agreements, and the extent to which employees are said to require discretion and autonomy for their work.

(iv) How strong are the boundaries between roles in learning contexts (classification)? Identities and roles that an individual may assume may include 'apprentice', 'employee' or 'novice', but also those of 'student' or 'learner'. We can also ask if boundaries between roles are necessarily problematic, whether the roles can easily co-exist and whether different roles bring multiple objectives or practices that can result in tensions. In a strongly classified relationship between partners as in (i) we might assume, for example, that roles would also remain strongly bounded. Students on placement in workplace would retain their student identity and may struggle with integration, while an apprentice would retain her worker identity while visiting an educational institution for a classroom-based course.

3 The four models of VET partnership and programme development

The variables and areas of inquiry sketched out above support a differentiation between common models of employer-institutional partnership in VET contexts. A focus on classification and framing helps us detect what specifically is distinct about different partnership arrangements, and (within each specific empirical example) develop a fine-grained rich description of specific partnerships.

As a template for investigating partnership in VET, recent comparative work on teacher education proves useful. Maandag et al. (2007) undertook a comprehensive survey of collaborative arrangements between teacher education institutions (TEIs) and employers (principally schools) in five European countries (Germany, England, Netherlands, Sweden and France). The work made use of a "checklist for international comparison of teacher education" that included questions that relate to "structure and context" of programmes, "division of roles" and "location of training activities" (Maandag et al. 2007, p. 155), in addition to those that relate to the curriculum, induction and examination. Their comparative work drew on five models of partnership and programme organisation: a work placement model, a co-ordinator model, a complementary 'partner' model, a network model, and a 'training school' model (Maandag et al. 2007, pp. 153–154). However, the co-ordinator model is described as a "variation" (Maandag et al. 2007, p. 153) on the work placement model, and thus could be considered slightly superfluous to the analysis. It is contended here that the models eventuating from this work can be translated effectively into inquiries into partnership and programme development in the VET context, and thereby improve our analytical grasp of how

organisations may (or may not) co-ordinate to support students. Hordern (2014a) has previously undertaken a similar exercise in respect of teacher education. The models are described below, along with brief illustrations drawing on research into VET partnership and programme development in various countries, including England, Germany, South Africa and Sweden.

Model A is termed the work placement model. It suggests that occupational formation should be 'front end' or 'front loaded' (Winch and Clarke 2003), with the majority of preparation taking place in educational institutions, with short placements at work. There are strong boundaries implicit in the model between the sites of education and work, with students spending time in workplaces specifically as students on placement, independent of the workforce. In terms of classification and framing, the pedagogical discourses of 'education' and 'work' are likely to be strongly classified and clearly separated from each other. It may also be the case that work is framed very differently from the pedagogy of the VET programme, and this may lead to some dissatisfaction from students if workplace experience does not offer the learning experiences that may be expected. In such a model the opportunity for incoherence between the discourse of learning and the discourse of work is considerable. However, there may be opportunities for coherence between vocational programmes and general education, and in many cases vocational and general aspects may be part of the same overall programme. When students spend time on placement, there is likely to be a strong classification of roles in workplaces, with students partially insulated from the workplace practice community (i.e. from employees and management), and this may also restrict opportunities to learn. On the other hand, the work placement model may offer potential for critical reflection on existing practice, and support a gradual transition into the occupation.

There are numerous examples of this form of vocational provision, and it is common in those systems which predominantly offer a vocational school approach to VET. In Sweden, for example, where since the 1960s the majority of vocational provision for young people has been "closely integrated into the general education system" (Persson and Hermelin 2018, p. 477) within a system that "constrains the possibility for industrial involvement" (Persson and Hermelin 2018, p. 481), meaning that VET provision has to meet overarching educational objectives. Persson and Hermelin describe a technical education programme which has attempted to break this mould, drawing employers closer in the vocational offer. However, in many such programmes workplace experience is offered through "opportunities for project work and employment in the summer periods" (Persson and Hermelin 2018, p. 486), rather than through a more sustained longer term workplace experience, suggesting that a form of a work placement model may persist. However, work placement models may also represent inadequate forms of VET

provision. Esmond (2018), focusing on England, explains how marginal workplace experience has been for much college or school-based vocational provision, with educational institutions required "to source and organise appropriate placements, rather than government placing obligations on either employer or student" (p. 195). Experiences of work have thus been "relatively short" and "foundational" and "located outside the labour market" (Esmond 2018, p. 195), while offering some introduction to the occupation or the sector more generally. The consequence is a form of framing that is clearly geared to the educational programme, and clear boundaries between the roles of students and employees in workplaces. While such an approach may have an advantage for occupations with higher status with lengthy occupational preparation and a gradual introduction to the complexity of workplace activity, in other occupations a lack of sustained and meaningful workplace experience throughout a preparatory programme could be an obstacle to progression and entry to the labour market.

In a complementary partnership (model B) education institutions and employing organisations undertake distinct roles in conveying particular forms of knowledge and practice as part of occupational formation, but these roles are coordinated to complement each other so that partners share responsibilities for the programme and its curriculum. In such an arrangement strong classification remains between institution and workplace. There is no *necessary* coherence between the framing of learning discourse in education institutions and in workplaces: these are likely to these remain distinct, but there may well be a mutual acknowledgement of the value and role of each specific learning mode. The workplace curriculum (Billett 2006) starts to assume greater influence on what gets taught, but this may not translate easily to learning in the institution. The roles of student and worker may also remain strongly classified, and VET students on such programmes will need to invest time and energy in their capability to work across the two distinct discourses. Transition between learning contexts may be difficult if co-ordination between partners becomes piecemeal or restricted. Furthermore, relations between partners may be subject to the governance structures of an overarching regulatory framework.

Complementary partnerships can be extensively identified throughout VET systems, and are likely to be widespread within the European dual systems in Germany, Denmark and elsewhere, particularly where distinct roles have developed between institutions and employers as part of an overall programme. At higher vocational level there is considerable evidence of such partnerships, both in coordinated market economies such as Austria, Germany and Switzerland, where an "institutional divide" has historically characterised the relationship between VET and higher education (Graf 2016, p. 1), but also in liberal market economics such as England where a principle of institutional autonomy has often been highly influ-

ential, even where partners have mutual interests (Hordern 2014b). While many of these partnerships may be highly durable and thus notionally successful, the partnership may become increasingly fragile if the institutional contexts influencing the separate partners changes, with incentives to act in ways that could put the partnership under strain. Furthermore, the existence of complementary partnerships (for example in the dual system in Germany) does not necessarily suggest a stable or unitary framing of the learning discourse. As Höhns (2018) demonstrates, VET programmes in such systems may incorporate a range of framing strength, including less regulated contexts in which learners report "actively taking control over elements of framing" (p. 329) or having "selected learning content by themselves" (p. 326), *and* very strongly framed contexts in which "the acquirer's need to learn" (p. 325) was disregarded. In such cases the regulative framing of what Höhns terms the "pedagogic Beruf discourse" (p. 325) which underpins the dual system in Germany is challenged and compromised in specific workplace contexts.

Wedekind and Mutereko (2016) provide an interesting example of the vulnerability of a complementary partnership through their example of 'weakening links' in a partnership between the 'pulp and paper' industry and the chemical engineering department of a South African university to develop intermediate technical staff. While the partnership and its programme had historically been successful in producing engineers for industry, difficulties had arisen due to a lack of recognition of the nature of work-integrated learning, which "the government's funding formula does not value" (Wedekind and Muterko 2016, p. 384). Furthermore, lecturers have experienced "university pressure to publish", and "increasing requirements by the institution to include new components in the curriculum, such as electives and core modules" (Wedekind and Muterko 2016, pp. 384–385). This was coupled with a decline in "bursary funding" from employers and a shedding of "focused industry input", despite the fact that "experts seconded by PPI are still on the payroll of PPI" (Wedekind and Muterko 2016, pp. 385–386). Increasingly, seconded industrial staff "do not teach pulp and paper students only, but other engineering students in modules that transcend pulp and paper technology" (Wedekind and Muterko 2016, p. 386), suggesting that the regulative framing of the academic environment is more powerful than the driving objectives of the programme itself. In essence a process of 'academic drift' may be taking place in the institution, and this may be concomitant with an increasing reluctance from employers to see value in the programme offered if it no longer meets their changing needs. The previously complementary partnership could progressively fragment.

In the network model (model C) the roles of education institutions and work organisations become more interchangeable and less bounded. Institutional and organisational staff share roles and cooperate in teams to develop curricula and run programmes within their partnership structure. There is a weaker classification

between institution and employer, and this allows for a more coherent and uniform learning discourse across institutional and workplace contexts. This greater flexibility may also enable the framing of work to gain greater synergy with learning discourse, although this is by no means guaranteed. This is partly because there may remain strong boundaries between the partnership itself and the other elements and activities in both organisations. The programme offered by the partnership may become distinct from the rest of organisational activity, and this may lead to difficulties for those completing the programme and making a transition into future roles following graduation.

Such programmes are likely to achieve weaker classification between educational and workplace roles. But simultaneously the programme may result in strong boundaries distinguishing programme activity from other organisational operations if the collaboration is sufficiently intense. There is potential for programmes developed to be highly 'educational' but also to be closely related to that knowledge particularly valued by work organisations, which may be highly organisationally-specific. The durability of the programme may depend on partner relations, unless there is an institutional arrangement which provides a regulative imperative to maintain the network partnership.

Guile (2011) provides an example of a partnership that appears to have 'network' characteristics. A university and an industrial partner co-operated to design a Foundation Degree programme for aircraft engineering that specifically aimed to "address the skill shortage" in the industry while "incorporating … licensing requirements within a degree framework" (Guile 2011, p. 453). The programme was developed both for "new entrants" and "career switchers" (Guile 2011, p. 451) entering the industry. Through the partnership process a shared framing emerged to shape learning discourse, and boundaries have softened. The partners worked together "to sequence the modules into a learning programme", "formulating" the principles behind the curriculum "jointly" to create a more unified approach to learning, and tackled a "potential stumbling block" (Guile 2011, pp. 457–458) together. Staff from the partners "liaised closely with one another" (Guile 2011, p. 460) to support students transitions into and within the workplace, but have also had to broaden their expertise "by supporting a mix of young and more mature adults to work alongside one another and with their workplace supervisors" (Guile 2011, p. 462).

The "hybrid organisational forms" (Graf 2016, p. 2) emerging as a consequence of new requirements for higher vocational education in Austria, Germany and Switzerland could also lead to a growth in programmes exhibiting network model characteristics, including in the more historically co-ordinated VET systems. In Graf's analysis, hybridity occurs when there is an integration of "learning processes" and "governance structures" (Graf 2016, p. 4), as well as reducing the

strength of boundary between VET and higher education (HE). For example, in Austria the VET colleges "represent an addition" to "the traditional institutional logics and forms of education in the fields of VET and HE ... drawing on both of them" (Graf 2016, p. 6) to meet societal and industrial demands for higher vocational education. In Germany, "co-operative arrangements … between firms and different educational providers within the dual studies framework" and "largely determined by internal negotiations and a cooperation agreement between the training firm and the organisational provider" (Graf 2016, p. 7) demonstrate considerable potential for new forms of regulative and instructional framing to emerge and a more unified learning discourse across learning sites. The "limited degree of standardisation" and more "loosely regulated environment" in higher education can be seen to work to the advantage of individual firms with interests in developing specific higher vocational pathways (Graf 2016, pp. 7–8). Flexible and more responsive than the more regulated complementary models, this form of network arrangement is a "rapidly expanding hybrid segment at the nexus of VET and HE" (Graf 2016, p. 8).

Finally, a workplace immersion model (D) corresponds to those forms of professional and vocational education that involve immersion in workplace practice, with limited opportunities to learn away from the workplace in educational institutions. The employing organisation takes on the responsibility for providing all education/learning activities for practitioners, and manages the programme to its best advantage. In such contexts there tend to be strong boundaries between a dominant domain of 'work' and a more marginalised domain of 'education': there is a strong classification between institution and workplace. The predominance of workplace concerns may also orientate the framing of the learning discourse in the workplace towards however work itself is framed (paced, sequenced, selected and evaluated). Organisational identities are likely to be more potent than learner or student identities.

Such immersive approaches may also be preferred by advocates of embodied or participative forms of expertise (Shalem and Slonimsky 2013). In exceptional cases, work organisations may share the logics of the education domain (through a collegiate or cooperative form of organisation). Moreover, workplace immersion could provide considerable access to forms of specialised knowledge, if the practice of the workplace itself is strongly underpinned by specialised knowledge and appropriate guidance from experienced practitioners is available (Hordern 2018). Again, this would be subject to the nature of the regulative framing – the norms that structure workplace practice.

Immersive approaches have in recent time increasingly been advocated by professional bodies in the U.K. as routes for practitioners to accredit their expertise. In teacher education in both England and the U.S.A there have been moves

to open up workplace-based forms of qualification (Barrett and Hordern 2019). In Human Resources work, the Chartered Institute for Personnel and Development (CIPD), the professional body for HR practitioners in the U.K. and also present in many countries globally (e.g., in Asia and Middle East) has introduced an 'Experience Assessment' route, which involves the collation of evidence regarding workplace practice that relates to the professional body competences. This culminates in a "a half-day interview … with an experienced CIPD assessor" who "will explore your evidence in more detail" (CIPD 2019b) and come to a judgement on its appropriacy. The CIPD HR apprenticeship at level three (for HR support practitioners) offers a similarly immersive approach, albeit with the involvement of a training provider to support apprentices. Time away from the workplace may be minimal, and training courses may be offered online or at a distance, not necessarily offering opportunities for peer-learning with others. The end point assessment is a 'consultative project' which involves the apprentice working 'on a real project in the workplace relevant to their role' (CIPD 2019a), while HR qualification certificates are 'optional' at this level and apprentices may instead present a 'statement of knowledge' (CIPD 2019a) authorised by their training provider. The apprenticeship is completed successfully via a 'professional discussion' with a CIPD assessor, who awards a pass if evidence has been provided in respect of "the skills and behaviours required in the apprenticeship standard" and all 'components' required have been met (CIPD 2019a). Such immersive approaches may perhaps be particularly prevalent in less co-ordinated market economies, where workplace-specific competence has historically been foregrounded, sometimes at the expense of educational objectives and more durable forms of expertise (Young 2006).

4 Concluding remarks

This elaboration of a meso-level mode of analysis of partnership and provision suggests the potential for a more nuanced understanding of power and control in VET contexts. It is clear that considerable variability of VET provision can be found within some national VET systems, and indeed some systems may allow for greater diversity of provision than others. The examples from England here (Esmond 2018; Guile 2011) illustrate how relatively fluid or fragmented VET systems may give rise to a range of VET provision. Some of this provision may be highly innovative, but other programmes may continue to offer substandard forms of occupational preparation and socialisation, as a consequence of an absence of regulation or an excessive reliance on immersive approaches. However, to an extent the diversity of provision may also be experienced in more structured systems where nominally partners are working within the same framework and addressing

the same objectives, but there is still scope for a range of pedagogic discourse. This may have considerable implications for learners. Höhns's (2018) research shows how variable framing can be at the instructional level, even within a national VET system with well-developed and regulated forms of partnership working and role specification. The pressures on some sectors experiencing rapid change may necessitate continual innovation in VET provision in order to meet emerging industrial requirements, and this may have an impact on the framing of the learning discourse. If the discourse of the programme does not keep pace with changing work requirements then both companies and vocational learners may become dissatisfied, providing impetus for further change.

A meso-level analysis sits between the macro level systemic analysis and inquiry into the classroom and workplace contexts of learning (at the micro-level). There is little doubt that the political economy of the nation state at the macro-level strongly influences the parameters of meso-level vocational organisation in partnership and programme development. Examples of models A, B, C, and D outlined above will be facilitated or hindered considerably by the prevailing conditions of the VET system in which they are located. A profile of any given system may offer an indication as to why a particular partnership or programme has failed to sustain over time, or the reasons why a programme which started as an example of one model has evolved into another. However, it could be problematic to make deterministic assumptions about VET partnerships and programmes within a given VET system. The changing nature of work is likely to stimulate ongoing demands for adaptations in vocational provision from both employers and students or apprentices themselves. As a result, meso-level pressures may stimulate recalibration in modalities of classification and framing, giving rise to new dynamics of learning that may better suit the demands of stakeholders. Eventually this may also give rise to pressure for change at the system level, leading to changes in the roles of the state, employers, other social partners and educational institutions. This suggests the ongoing importance of continuing to develop heuristic devices that can enable a comparative view of the meso-level, while considering new ways of understanding how the meso-level articulates with the governance, regulatory, and partnership structures that exist at a macro-level.

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Tools and means to understand different TVET models in developing countries: An approach to the epistemological opening up of international TVET in development cooperation

Stefan Wolf [1]

Abstract

The topic of my text is a critical reflection on concepts used in international comparative technical vocational education and training (TVET) research to analyse initial and continuing vocational training in other countries. Specifically, when cooperating on developing and transferring TVET policies, the challenge is to quickly understand the diverse concepts of skills development and TVET in the respective partner countries. Firstly, we must consider the varieties of skills development and TVET models; secondly, we must regard them in their respective contexts. Therefore, I will offer a brief presentation of typologies used in development cooperation to break down the characteristics of vocational education and training in different countries. The main emphasis, however, lies on the heuristic analysis concept of work culture in the context of existing qualification and skills development models. A case study of its use as a heuristic will be critically discussed, the central questions being the scope, limitations, problems and strengths of this tool. The conclusion is that the analysis concept is still too demanding for routine use in development cooperation and needs to be revised by means of a detailed questionnaire and a work guide.

1 Introduction

International cooperation with developing and emerging countries has been a focus of German international policy since the emergence of development politics as a political field in the late 1940s, and then increasingly since the 1960s. Until the late 1990s, the main emphasis was on cooperation in the technical vocational education and training (TVET) domain. Until this point, Germany has been working hard — for decades and in different programmatic forms — to implement the

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dual vocational training concept, which was perceived as the most successful model for developing and emerging economies (Stockmann 2014).

The efforts to transfer German dual vocational training to developing and emerging countries have shown very little evidence of success over the decades; as a result, the programme has been made more flexible, taking a step back from the transfer of the German dual TVET system (Gold 2005).

A decisive success criterion for these activities is to know and understand how TVET works in the respective developing and emerging economies. As we know from the analysis of classical European vocational training models, the form in which TVET takes place is a historical but nevertheless contingent result of social, economic and political processes and thus deeply anchored in societies (Greinert 2017).

Any attempt to understand 'foreign'/'alien' vocational education and training faces a principal challenge: we tend to base this exploration on comparisons intended to simplify orientation. The other possibility is to retreat into the familiar, into what is generally accepted to be right, common sense. Both mainstreaming approaches are problematic, especially when dealing with developing and emerging countries, for the following reasons:

1. Comparisons tend to adapt the seemingly strange, the 'other', to familiar patterns of thought and to evaluate it according to one's own standards. This always involves mutual misunderstandings and misinterpretations. (Georg 1997). Translation cannot quite do justice to specialist terminologies, since TVET concepts are closely linked to the conditions within the country (see Bosch 2016). For example, the German term of 'Lehrlingsausbildung' is far different concept as e.g., the English term 'apprenticeship' or the French term 'apprentissage', and if we use simple translation we will not meet the different concepts in the different countries and will fail to understand each other.
2. Unfortunately, the recourse to what is generally regarded as the right approach, the 'common sense' of international development has a very limited capacity to provide insight into TVET practices in developing countries. The idea of that 'common sense' of international vocational training in the context of development cooperation has emerged from the interaction of two interest spheres: on the one hand, the state administrations of developing countries — and on the other, the major development agencies (World Bank, Gesellschaft für internationale Zusammenarbeit [GIZ], United States Agency for International Development [USAiD], etc.) of the global North with their action and policy agendas pursued since the dissolution of the colonial empires in the 1960s. Little reference was made to the specific conditions of the developing countries. The plan was a development path towards the replication of the

> 'Western development model', with vocational education and training making an important contribution through the provision of the human capital for growth (Georg 2006). In most of the developing and emerging countries, for example, we find a formal, school-based TVET system governed by state bureaucracy. In many countries, its quality is quite low.

This state-bureaucratic vocational training is presently being reshaped by Western development agencies, which want to transform it to a demand-oriented, flexible training model relevant to employment and the labour market — without, however, abolishing school-based, state-bureaucratic control. However, these reshaping concepts of the global North changed over the decades but were subject to historical economic trends and most developing countries have followed these different trends. In scientific literature, this mechanism is discussed as 'imposed vocational training transfer'. Essentially, only those developing countries that began to build up their own academic and administrative capacities and TVET expertise at an early stage (partly with the support of German universities) — such as South Korea, China and Malaysia — were able to escape this trend.

Because of the limitations outlined above, both mainstream approaches to 'foreign' TVET require critical reflexive distance consisting of sensitivity to difference and an ethnographic view (Hüsken 2006; Thole 2010). In addition, there needs to be a change of perspective, one that takes into account the "terminology of the country of comparison" (Georg 1997, p. 5.) and attempts to explore the context of its vocational training institutions.

> This is the only way to gain access to an understanding of the intrasocietal connections between vocational training measures and organisations, on the one hand, and other areas of society (such as company recruitment and personnel policy, labour market and career structures, industrial relations, etc.), on the other. (Georg 1997, p. 5)

This ambitious programme to do proper comparison in development politics also requires a theoretical foundation for analytical approaches. It needs a way to understand and communicate the highly complex and often difficult to grasp observations, experiences and perceived realities of 'foreign' vocational education and training and to avoid to above sketched simplifications. We propose to rely on two different sources of support:

Firstly, on *typologies of TVET models*, as these allow a comparison to be made using a tried and tested analysis frame, while at the same time permissibly simplifying the complex characteristics of VET for easier communication in an acceptable way. Secondly, in order to understand the above-mentioned 'intrasocietal connections' on a below level or meso-level, it makes sense to turn to the *concept of work culture*.

The latter also makes it easier to understand unfamiliar forms of vocational education and training resulting from interrelationships with social subfields. Moreover, it can be used in specific economic sectors, such as tourism or agriculture, to understand the prevailing modalities of education and training. At the same time, the *concept of work culture* could help make plausible assumptions about the effective further development of TVET.

2 Internationally comparative vocational education research: The typologies

Various scientific disciplines have produced numerous international comparative TVET typologies. From this plurality, the present article concentrates on two typologies. It does not claim to explore the full scope of the existing typologies for facilitating communication and understanding of TVET in cooperation with developing countries. In particular, the paper aims to highlight the need for further study of scientific typologies as tools for facilitating understanding of TVET models in development policy.

1. The typology of the ideal types of the classical European vocational training models by W.-D. Greinert, which emerged from a cultural and socio-historical reconstruction of the solutions to the labour force qualification problem in the three European countries Germany, England and France during industrialisation, sheds light on the social regulatory patterns of a society, understood as a social and culturally founded basic current, analogous to Chomsky's generative grammar, which enables the members of society to get along, which is ‘good vocational training’. This basic current stabilises the paths of development and at the same time indicates the direction. Greinert's typology clarifies that the paths of development can neither be pursued randomly nor by state or technocratic intervention.
2. The typology of Busemeyer et al. is based on a long research tradition: the comparative political economy of Western welfare states research. It illuminates the design of skills formation systems in initial vocational training through the interplay of business involvement and public commitment.

3 The ideal types of the classical European vocational education models

W.-D. Greinert’s concept reformulates the three classical European vocational training models (Greinert 2003; Greinert 2005; Greinert 2017) as ideal types following M. Weber’s (2006) analytical approach to the study of society. In his

historical analysis, Greinert (2005) formulates the concept of social regulatory patterns — basic trends or currents that control the development of qualification for employment models. In reality, especially if one takes a detailed look at specific economic sectors or areas of society, alternative regulatory modes can be found in addition to these ideal types (Deißinger 2003). In developing countries with a strong school-based state bureaucratic model, for example, there is also predominantly tradition-based informal mass education (e.g., in Egypt or in many countries south of the Sahara) or we can find in developed countries the real types of German dual apprenticeship or the French alternance model for craft education.

Speaking of control and regulation concept, Greinert asks: "What makes communication partners in the social action system of **vocational education** follow regulations and accept similar patterns of interpretation of their actions?" (Greinert 1995, p. 31, highlighting in the original). His answer is that the social problem can be solved by referring to regulatory patterns.

Regulatory patterns provide a meaningful basis for understanding and establish the legitimacy of social actions. Thus, they facilitate the coordination of complex interactions in a social sub-sector, i.e. TVET or qualification for employment:

> The values, norms, attitudes, beliefs and ideals of a society influence the development of vocational education and training systems, work organisation and industrial relations, as well as the more or less stable interrelations of nationally specific qualifications for employment with other social subsystems such as the general education system or the various regulatory patterns of the employment system. (Greinert 2003, p. 281)

Through these regulatory patterns, members of society can then easily agree on what constitutes successful or unsuccessful TVET. Thus, a 'common sense' on vocational education and training has been established from the historical process.

With this approach, TVET studies open up a meaning-oriented, socially constructive understanding of culture in its comparative analyses of vocational qualification (Reckwitz 2011).

This assumes a 'contingency of human life forms' constituted in systems of meaning. The systems of meaning, in turn, arise from the given historical conditions and necessities in a social process, i.e. the human life forms are consequently "normal, rational, necessary or natural … in relation to their specific, contingent systems of meaning" (Reckwitz 2011, p. 8).

As a result, the dichotomies or normative settings as postulated by modernisation and political development theories, e.g., between modernity and tradition or conception of teleological ends of the social process, are then consequently obsolete. From a historical comparative perspective, Greinert has identified and described three basic types of classic European vocational training models:

1. In the regulatory pattern of the *tradition* type, 'traditional, customary legitimate activities' determine vocational education and training.
2. In the pattern of the *market* type, vocational training is 'directly determined by the production factor labour and qualification signals from the labour market' and at least
3. In the pattern of the *bureaucracy* type, vocational training is regulated 'exclusively on the basis of legal regulations by the state or its bureaucracy' (all quoted by Greinert 1995, p. 32).

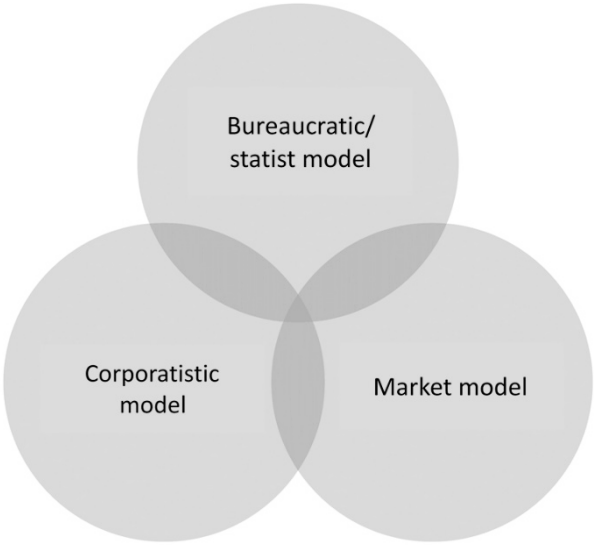

Fig: 1: Ideal types of the classic European TVET models

(Greinert 2017)

In the historical differentiating of the three modern industrial states, the relationship between labour, capital and education can be analytically separated as followed:

In Great Britain, the relationship between labour, capital and education can be described as dominated by the primacy of the economic, in a model of market relationship.

In France, the relationship between labour and capital is dominated by the primacy of the political. The structurally disadvantaged labour force is qualified by an education sector (including vocational training), which is regulated and

financed by the state. The labour force encounters capital in a state-regulated framework.

In Germany, the primacy of the social is dominant. The relationship between labour, capital and education is marked by the mediation of intermediate organisations such as chambers of commerce or associations. Relationships are shaped more in a social negotiation process and less in a contrast or conflict, as in the other two models (see Greinert 2005).

The regulatory patterns described above as the basis for cultural understanding in complex social interactions can be assigned specific legitimation principles derived from the European history of ideas. These are the three principles that create social stability and regulate social activity: "Tradition (or the professional principle) — liberalism (or the market principle) — rationalism (or the scientific principle)" (Greinert 2005, p. 15).

The corporatistic vocational education model is derived from the principle of tradition, since it is oriented toward agreements and patterns of activities handed down from generation to generation. In this model, we usually find associations (business and trade associations, trade unions and workers' associations) which will extend classical communities. In Germany, they have a legal basis, but this is not the only possible approach. They can also function as tradition-based, informal structures shaping the respective qualification for employment, as can be found in the Egyptian construction industry (Assaad 1993) or in bazaar training in Afghanistan (GIZ 2013).

The market TVET model is based on the principle of liberalism and builds on the market rules of supply and demand. With the implementation of the capitalist economic system, providers of qualifications (employees) exchange themselves on a labour market with demanders for work services (entrepreneurs) on the basis of the exchange ratio of qualifications for wages. We encounter this type in different forms in all capitalist modes of production.

The principle of rationalism is to be found in the bureaucratic-statist TVET model. In the process of modernisation, bureaucracies have spread widely, developing into rational modern state apparatuses and large enterprises (Weber 2006). We find this type of TVET in state-organised vocational school models worldwide, since the European idea of a bureaucratically rational state administration based on scientific principles has spread internationally via colonialism and development policies (Eckert 2005; Quijano 2010). In developing countries, vocational education and training is usually organised in this bureaucratic form.

The regulatory patterns and legitimation principles operative in TVET, as well as their interactions with other areas of society (Lutz 1991; Maurice et al. 1980), give structure to the social understanding of shaping the qualification for employment. However, they are not iron cages that determine the behaviour of

social actors in relation to qualification for employment. Rather, they function as framework conditions that are partly determined and partly determinative (Wolf 2018).

4 A comparative political economy typology: Skill formation systems

The second concept comes from comparative political economy. Comparing the relationships between states and enterprises in initial TVET development internationally, this discipline distinguishes between different skill formation systems. In the genesis of this approach, German TVET was of particular relevance (Hansen 1997; Thelen and Busemeyer 2011). Using it to supplement Greinert's concept can help understand foreign modalities of vocational education and training.

Derived from comparative political economy, the concept focuses on the political design of TVET as part of economic activity. It illuminates the relations between companies and the state.

International comparative political studies — in particular, on the varieties of capitalism (Hall and Soskice 2001) — clearly indicate the structural possibilities for the development of qualification for employment (Busemeyer and Trampusch 2011b; Thelen 2003).

In general, these studies distinguish between liberal forms of the market economy and those which are characterised by a greater degree of organisation beyond the market rules — the so-called coordinated market economies. The former include the U.S. and Japan; among the latter, there are Germany and the Scandinavian countries. The diverse literature on this research (for an overview, see Busemeyer and Trampusch 2011a) clearly shows the development of very different concepts of qualification for employment.

This concept distinguishes between different forms of initial qualification for employment, i.e. initial training. In liberal market economies, market-based training activities for qualification for employment can be analytically distinguished into two models. In the liberal model, companies generally invest little in basic training, recruit on the basis of the cognitive and social skills imparted by the general education system and then organise task- and company-specific induction training or other forms of on-the-job-training to cover their qualification requirements (Wiemann et al. 2018). In this type, the focus is often on academic education. It should be noted, however, that with this type of skill formation there could also be variations that do not have an extended and qualitatively attractive higher education, as in some countries of southern Europe or in many developing countries. This case is described as the "the residual model" (Busemeyer and Schlicht-Schmälzle 2014, p. 57).

Tab. 1: Various possibilities of organising TVET in advanced industrial democracies

Public commitment to vocational training	High	Statist skill formation system e.g. France, Sweden, …	Collective skill formation system e.g. Germany, Denmark, Austria, Switzerland, …	Cooperative model of TVET (market/state interplay)
	Low	Liberal skill formation system e.g. USA, Great Britain, …	Segmentalist skill formation system e.g. Japan	Market model of TVET (market mechanisms interplay)
		Low	High	
		Involvement of companies in initial vocational training		

(Author´s own compilation, based on Busemeyer and Trampusch 2011b, p. 12)

Using Japan as an example, K. Thelen (Thelen and Kume 1999) points out an alternative to the liberal form — namely the segmental form, which relies on greater investment by companies in initial training. Here, companies train people for their own recruiting interests and internal careers. It is important to clearly distinguish this from the collective concept: in Japan, large companies only take care of their own requirements when teaching trainees. They do not consider their whole sector, e.g., the automotive industry.

Coordinated market economies exhibit cooperative forms of qualification for employment. Here, too, two different forms must be distinguished. Germany is exemplary for the collective form. It is characterised by high commitment to continuous training activities — beyond the immediate requirements — on the part of companies, even the smallest ones. In the collective model, industry associations usually find common solutions to overcome the weaknesses of training activities by individual companies, such as poaching by non-training competitors or risky, high-investment training costs. Through the social and economic recognition of training qualifications, the certificates gained can be used on the general labour market, and not only for internal promotion within the company. This validity ensures the mobility of employees and facilitates recruitment by companies (Thelen 2003; Thelen and Busemeyer 2011).

Another cooperative form that can develop in coordinated market economies is the state form of initial qualification for employment. Such qualifications are

often organised as school-based TVET models, provided that the public sector invests in training and is strongly committed to regulate and organise it (Busemeyer and Trampusch 2011b, p. 12). Clearly to say that the school type of vocational training is here not the differentiation criterion as we can also found it in liberal market economies. But mostly public school forms exist there to smaller extent, with low public commitment and regulation power and often work as private business service provider.

In most developing countries, we are facing a mixed form, as we find a formal, state-run vocational training system there, which would correspond to the statist model. At the same time, however, the lack of economic resources and the low societal interest in formal qualifications for employment leads to a reduced material (often contrary to the statements in official policy papers) involvement of the public hand at all levels (secondary, post-secondary and tertiary) of the education system, so that we can call it a residual model.

5 Bridging the two perspectives of the typologies

Although the two typologies originate from completely different scientific disciplines and very different analytical concepts, we can state that a connection can be established between the social regulatory patterns formulated by Greinert (2017 etc.) for the governance of TVET on the one hand and the typology of skill formation systems on the other. We can dare to link them and thus establish an analytical heuristic, thereby facilitating an understanding of TVET models in development cooperation.

We can conclude plausibly, since the specific regulatory patterns open up very specific and limited possibilities of what an understanding between the state and companies can look like in initial vocational education and training. By creating legitimacy for social action, they create a framework that also enables the coordination of complex interactions and facilitates compliance with regulations without direct instructions, as they provide meanings and a sense of social action.

Thus, in societies whose regulatory patterns of vocational education and training are characterised by liberalism and the market, we will find predominantly enterprise-based, liberal models of ‘initial education’. There, an organisational space is created in which the rules of supply and demand and the competitive interests of companies dominate.

The Japanese model of employment qualification, which, as already mentioned, differs from the liberal model in its segmental character, with companies tending to invest more in ‘initial training’, can be understood by combining a liberal attitude and market-based mechanisms with traditions. Thus, we find in the example of the company Toyota a clear connection with the modern, invented

tradition from the shogun realms of Japanese history and the attitude of the samurai warriors in business practice (Lorriman and Kenjo 1994; Ohno 1988).

The regulatory pattern of rationality and the state bureaucratic design of vocational training, which according to W.D. Greinert forms the basis of the French ideal type, can be found in the etatist model of the skill formation system, which is characterised by a high level of state involvement and low company activity in initial training.

The collective model is based on the regulatory pattern of tradition, which, however, is associated with the primacy of the social, and prefers collective bargaining between social actors to regulate social interaction rather than market mechanisms and bureaucracy.

With the help of the typologies presented here, we can discuss the characteristics and development prospects of TVET on the macro level and could reach shared understanding — despite the cultural limitations of our conceptual apparatus. When communicating with experts from developing and emerging countries, it should be borne in mind that these two typologies are derived from scientifically examining the past and present of the industrialised countries of the global North. Uncritical or unreflected transfer should be avoided in order not to end up in the epistemological impasse of propagating a colonial perception (Melber 2000) of the TVET reality in developing and emerging countries. We believe that international TVET research will evolve toward a post-colonial ethnography of TVET models in developing countries as a methodological solution for overcoming the indicated limitations.

6 Work culture as an analytical instrument to shed light on the societal aspects of TVET

The here proposed approach of a research perspective using selected analysis tools of the typologies of TVET for the evolution of a post-colonial ethnography of international TVET in development cooperation explores the interdependence of qualification for employment at the macro level of social phenomena. This consideration can be made more precise at a lower, the meso-level by using a supplementary analytical instrument. It is based on the analytical approach of W.-D. Greinert, but specifies the interdependence of vocational qualification with other social sub-areas by using an analytical framework of six dimensions. We call it the work culture background of TVET, short ‘work culture’ (Arbeitskultur). The tool is theoretically founded on an interactionist, socio-constructive definition of culture as

> A dynamic result of social processes …, in which social actors compete for their position in society and communities in contested social fields of action. In order to ensure their capacity to act in society, they are forced to interpret, process — both collectively and individually — and reformulate the influences that flow toward them from the material and cultural world if the social process so requires. Thus, the social actor creates new systems of meaning, new symbolic orders or an innovative individual style. (Wolf 2011, p. 549)

This dynamic understanding of culture was adapted for TVET purposes, opening up a theoretically profound possibility for understanding the different forms of TVET practice and the behaviour of social actors in this context (Wolf 2015). It provides a perspective for the epistemic openings of international TVET studies outlined above, e.g., toward a post-colonial historical hybrid perspective in company management (Becker-Ritterspach and Raaijman 2013) — or when considering qualifications for employment (Erwerbsqualifizierung).

The concept of 'work culture' was developed to specify and advance the Oxford model (see Phillips 2009, among others) of the stages of policy borrowing in education. It serves to decipher the context in which the training measures are embedded, and which is central for transfer activities (see Barabasch and Wolf 2011). In a nutshell: context matters. While classical concepts of the interaction between TVET and societal subfields describe connections to the general education system and the employment system, the heuristic analytical concept of 'work culture' goes further and looks at how the links for example with economic processes are structured (Greinert 2012). The concept was elaborated through an interdisciplinary meta-analysis of existing comparative studies related to the social reproduction of the labour force and the qualification for employment.

This research distils six distinct social dimensions reciprocally linked to the specific forms of vocational training resp. qualifications for employment as shown in figure 3. And all these must be considered in their specific interrelations with qualifications for employment and TVET.

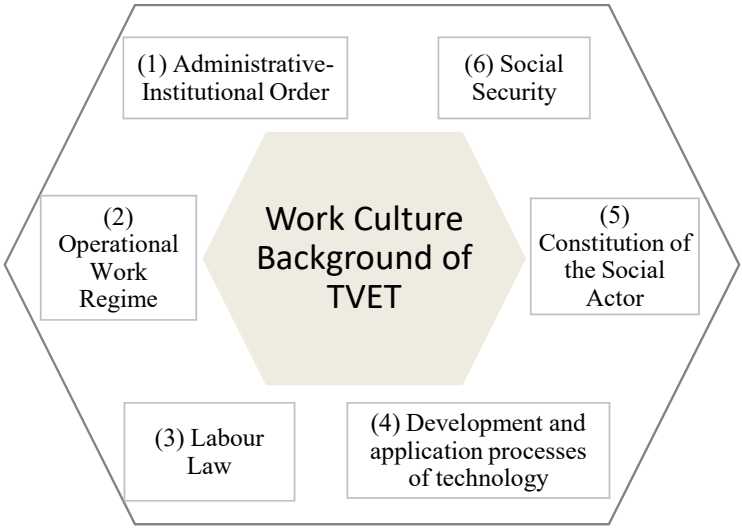

Fig. 2: Work culture and its six partite analytical frame

(Author´s own compilation)

Thus, we have a criteria-based analysis frame that structures the observation and exploration of foreign vocational training — for example, during field trips. Each dimension provides specific questions and perspectives on TVET like specific spectacles as we use for seeing things more precisely. The collection of questions helps quick orientation when carrying out desk studies, making observations or conducting discussions with experts on site. However, detailed analysis requires a dialogical approach to avoid drawing premature conclusions and reproducing preconceived ideas. The questions are used to discuss with local experts how their own VET was shaped and to develop shared deeper understanding through dialogue. It must be clearly emphasised that the concept of 'work culture' is a heuristic in the sense of the above-mentioned methodological considerations of difference sensitivity and post-colonial epistemology. It is not suitable for statically checking off questions in a report on 'foreign' vocational education and training. The following will illustrate the heuristic tool and shows some questions of each dimension. Nevertheless, it needs to clarify that the 'work culture' concept is a dynamic approach that needs more case studies to develop more broadly. And more general and conceptual it is an approach to use in dialogue with experts and with the reality of the respective country or sector.

1) The first dimension to be considered is the administrative-institutional order of qualification for employment.

The classical/traditional functional analyses of TVET, which is largely determined by T. Parson's structural functionalism concept (e.g., Parsons 1964), only examines this area. With the 'work culture' analysis tool, the focus is on who shapes the concrete TVET design, and which institutions are responsible. The above-mentioned typologies can be used profitably in this context. In France, for example, it is the National Ministry of Education; in Germany, responsibility is shared at federal and state level, including trade unions and creating a complex multi-level governance system. In many other countries, the TVET sector is governed by market mechanisms and varies in its specific form from context to context. Very often, reality presents us with a mixture of different orders, from a school-based formalised system and traditional TVET regulation to a market-driven system of training activities. Additional relevant perspectives to look after are for example the different pathways within the TVET system as well as the dynamics of access and transition to the labour market and/or to further education systems. Examining this dimension we can ask more questions e.g., about the country's or economic sector's certification systems, the role of national qualification frameworks or the implementation of any systematic of a recognition of prior learning. The (non-)existing bridges between the TVET strand and the general school and education system is of relevance here, too. When examining all these, it is crucial to consider not only the formal regulations but also the informal institutional arrangements (Lauth 2017) that influence the specific TVET form.

2) The dimension of operational work regime raises many questions:

- How is the order of work structured?
- Who works with whom and how?
- What are the workers' categories?
- How are the command and communication structure at work? For example how comes the information from the managerial level of engineering to the shop-floor?

Knowledge from industrial relations research should also be included in the investigations to clarify this dimension. Further and deeper questions arise from the recommended dialogical processes using the heuristic tool 'Arbeitskultur' also as any specific study design also can enable researchers to penetrate more deeply into the operational regulations of companies.

Comparative studies, e.g., on 'effet societal' (Lutz 1991; Maurice 1991), have shown that many internal regulatory patterns and their respective cultural systems of meaning are closely linked to the TVET system (Lutz 1976). The recruitment

of labour is also affected, while the differences in the TVET system cause or demand different regulatory patterns and organisational forms within operational activities (Maurice et al. 1980; Regini 1997). This changes the forms of work organisation: the German version is described as flat and task-oriented, while in France, a strict hierarchy combines operational organisation forms with extremely detailed task descriptions (Wolf 2009).

3) Labour law and its impact on TVET provide a third perspective for the analysis of vocational education and its interaction with society. Comparative legal studies (Mückenberger 1998) show the general effects of the interaction, which are reflected in the specific design of labour law: for instance, the social concepts concerning prosperity, social security and freedom. Let us consider a few examples:

While in England labour law regulations are organised on market relations, i.e. freedom and social security are understood as freedom *from* the state, in France the state is the decisive authority. It also guarantees the freedom of political articulation, freedom and security exist here *through* the state. In Germany, legal regulation is the result of collective agreements, such as 'Tarifautonomie' (free collective bargaining) or collective labour law, but it may also involve state intervention.

These general effects certainly influence TVET shape, but there are also some very specific interactions, which raise several questions:

- Are there collective labour law provisions (such as works councils in Germany) which enable employees to codetermine training and further education issues?
- How is protection against dismissal regulated; is there job security for formally qualified employees that can positively influence the attractiveness of training?
- How are employment contracts regulated; is there such a category as a 'trainee' or other legal constructs for in-company learners?
- What significance do formal certificates have for remuneration and job assignment?

Many other questions will arise in dialogue and are to be asked and an attempt will be made to answer them.

4) A further dimension with considerable influences on TVET form is the field of direct manufacturing or service provision, where new technologies and applications are being developed and used. The long tradition of industrial sociology and comparative management research teaches us that work and cooperation structures are not as rigidly determined by technology as had been previously assumed. Technological-rationalist logic has not been confirmed (Lutz et al. 1958; Knebel

1963). Operational decision-making processes and implementation strongly depend on cultural meanings. They are not purpose-driven — not 'rational' in a narrow economic or technological sense. Rather, they are a social interaction whose micro-political and cultural rules determine the participants' behaviour. The same applies to technological development. Research has shown that the solution best adapted to the social conditions prevails in technology development (Düll and Lutz 1989, for the other corresponding studies, see Wolf 2011). Here, qualified workers have a positive effect on technical innovations (Toner 2010).

However, since the history of technology development in a specific country is complex, the 'work culture' concept narrows it down by focusing on the application contexts of technology. It poses the following questions (along with many others):

- Which technologies are used in production, services or on the construction site?
- Who works with advanced technologies in the processing of goods and services?
- Who makes which technical plans?
- To whom are these plans communicated?
- What is the degree of mechanisation and automation?

Here, the analysis methods developed for work- and business-process-oriented TVET research can be profitably used. There is one precondition, though: the study design on which the respective 'work culture' analysis is based must enable this deep view of operational reality. Questions to experts are an obvious choice in this regard. Mostly, the deep insight to the reality of companies are limited and often restricted for research.

5) The fifth dimension focuses on the constitution of the social actors. Here, a distinction is made between individual and collective social actors. Some questions are:

- Are there 'social partner' as collective actors?
- Are there any (formal or informal) associations of workers? Like the informal guilds in the Egyptian construction industry.
- Are there collective bargaining forms at work and at the shop-floor?

Collective actors — especially trade unions (Wolf 2017), but also employers' associations — play an important role in TVET design. We often find state-organised employers' associations in developing and emerging countries. This raises a question: do such associations play a role in TVET as independent social actors,

as voluntary associations of economic actors (on the role of associations in shaping social change, see Streeck and Schmitter 1985) or only as extended arms of the state and its bureaucracy? Voluntary mergers of companies can significantly reduce the entrepreneurial investment risks associated with labour qualification, such as poaching and free-riding by non-investing companies. Also, families and communities can play an important role as collective actors but are often not or only insufficiently considered in TVET analyses. The issue of gender bias — including societies in which women are expected not to work at all or work only in very limited areas — overlaps with the analysis of the individual social actor.
Regarding the individual social actor, the key questions are:

- What social identity and self-conception do workers have?
- Are there processes of professional socialisation?
- How is 'skilled work' (Facharbeit) reproduced?
- Is gainful industrial employment regarded as a mere transit station, e.g., to starting a small business (e.g., Blum 1998)?

The questions listed here are not to be understood as a finished list, but the future development of the analysis towards a post-colonial ethnography of TVET requires an openness to further questions that contribute to the identification of social actors and their interrelation with the form of vocational education and training. For example, without this openness it would not have been possible to identify the special role of informal 'guild structures' and their relevance for the qualification for employment in Egypt's construction industry (Wolf 2013).

6) The final dimension addresses social security. Here, we consider the fundamental questions of how society deals with the elderly, the weak and the sick:

- How do these aspects connect to employment qualification?
- Does a permanent job play a special role in social security?
- Does formally qualified skilled work offer special protection if one becomes dependent on these social mechanisms?
- Does it matter whether one has learnt a profession or has earnt his/her income as an unskilled worker?
- How is the care of the elderly and sick regulated? Are there state, collective or private care systems? (The latter usually correspond to family associations.)
- How are these related to organised forms of work?
- Is there an advantage regards to social security modalities for formally qualified workers? (Estevez-Abe et al. 2001)

7 Outlook

The first studies using the 'work culture' tool are available. They show its flexibility, range and application possibilities (Ioannidou 2018; Pilz and Wiemann 2017; Wolf 2013; Wolf et al. 2016). Discussions with development cooperation experts suggest that this analysis tool is also well-suited to considering individual economic sectors in developing countries, enabling more detailed statements about labour qualification and development prospects.

Especially in discussions with company representatives in developing countries, typologies can be used to complement the tool of *work culture*. This enriches the discussions on workforce qualification and places them on a broader footing than mere business considerations of human resources management.

In our opinion, both analysis tools presented here — the typologies and the *work culture* approach — can also be fruitfully used in the preliminary analyses of development projects related to TVET, be they programmes aimed at employment, economic development or 'pure' vocational training. Even if these preliminary analyses cannot explore the complexity of foreign qualifications for employment in all their depth, the tool still helps open up perspectives, avoid hasty conclusions and challenge the colonial perception on TVET in development cooperation.

The concepts presented here can be sharpened further by use in field research. They promote an ambitious undertaking: creating a theoretical and practical foundation for international TVET in development cooperation. The epistemological opening towards sensitivity to difference, the post-colonial ethnographic approach and the corresponding cultural studies perspective, as outlined above, offer sound theoretical foundations on which a joint effort can be built.

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Part II
Research Results on International Comparative VET

The learning outcome approach to European VET policy tools: Where are the arguments and the evidence?

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Abstract

The principal argument of this paper is that vocational education and training (VET) policy should be free of internal contradictions, be based on sound evidence that it works elsewhere and on good reasons to suppose that it will work in the area of proposed implementation. This argument will be applied to three European VET policy tools, specifically European Qualification Framework (EQF), European Credit System for Vocational Education and Training (ECVET) and European Skills, Competences, Qualifications and Occupations (ESCO) and it will be shown that they fail on all three of these criteria. All three of these tools rely on the flawed learning outcome approach to qualification design. This approach has internal inconsistencies, it can be shown to have failed in other countries and no effort has been made to ascertain whether it could work in the complex world of European VET. Lessons are drawn for future EU policymaking in this area. The paper is a contribution to research into comparative European VET, with a particular emphasis on the challenges of comparing different VET systems and qualifications.

The paper thus looks at the rise of the learning outcome approach in England in the 1980s and its application in the Netherlands and South Africa. All the evidence shows that it was a failure. In addition, attention is drawn to inherent design flaws that ensure that it cannot become the basis for qualification design. This is demonstrated in detail through examination of these three policy tools. Of the three, the EQF is the one which still holds some possibilities for development. ECVET could play a limited role if it abandons the learning outcome approach. ESCO is the least promising and consideration should be given to its withdrawal.

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1 What one might hope for from policymaking

Although we all live in an imperfect world and know that policymaking cannot be a straightforward process governed by technical rationality, nevertheless it is reasonable to expect some minimum standards of care and attention to past experience in the formation of policy. It can be taken for granted that technical rationality by itself will not work because of the need to reconcile different interests that may be in conflict over both aims and means. We should expect this to be the case at the European as well as at the national level. Unfortunately, however too often policymaking and implementation fails a threshold test of quality and this is the case with the European vocational education and training (VET) policy tools. One area in which this is apparent is the diversity of interests which need to be satisfied in constructing a European policy instrument. Powerful institutions in powerful countries cannot be ignored by policymakers if they expect their proposals to be accepted. Failure to realise this is a fundamental deficit of leadership (De Jouvenel 1957).

One expects policies to be coherent. They should be intelligible and contain no contradictions, either explicit or implicit. The central concepts that underpin them, as well as the consequences that flow from them, should not be flawed by such faults. Almost any policy will have disadvantages as well as advantages. However, the advantages should outweigh the disadvantages if the policy is to be implemented. This point should apply to all the partners whose interests are affected by the policy. A key point here is that consequences, both foreseen and as yet unforeseen, should as far as possible be considered. This will normally involve extensive consultation with those affected and with experts who are in a position to consider the unforeseen ramifications of policies (Joergensen 2018).

One of the problems with policy formation is that interested parties would like to have evidence that it is likely to be successful (in the sense described above). It may be that this is not available. But it is often possible to assess evidence for the success of similar policies carried out at other places and times and, although these cannot be a certain guide to the likely success or failure of one's proposed policy, very useful lessons may be learned about the success of failure of previously implemented similar policies and in particular about the reasons for their fate. Particularly important will be a careful investigation of the 'support factors' (Cartwright and Hardie 2012) that are associated with the actual implementation of the policy. These will include known factors such as linguistic and cultural conditions prevailing but also and more problematically, factors that are difficult to detect without good local knowledge. In the case under consideration this would include knowledge about how diverse interests are likely to be affected by policy change.

A policy rarely succeeds by itself alone, it depends on a concatenation of favourable conditions for this to occur. Policymakers need to ensure as far as possible that such conditions obtain in the jurisdictions in which they seek to implement their policy. This is a particular challenge if the policy is to be implemented over multiple jurisdictions with widely differing political, institutional, cultural and linguistic conditions as is the case within the EU. If a policy does happen to be successful in one location ('it worked there') policymakers need to ask themselves whether 'it will work here' and what are the factors that are likely to lead to success of failure.

2 EU VET policymaking and the learning outcome approach

The EU has, over the last twenty years, been concerned to make the European economy "the most competitive in the knowledge society" (Mehaut and Winch 2012, p. 369). Development of skills and competences is not part of the EU's own competence however, so the means to be adopted had to be within the scope of those competences. A way of circumventing this problem was to develop qualification frameworks that did not involve intervening in national qualifications themselves, but rather by specifying outcomes that qualifications should embody. This would be done through the Open Method of Coordination (OMC), which involves the individual countries voluntarily agreeing to implement a policy recommended by the Commission. The general idea was that, by launching an outcome-based framework for qualifications, individual countries could be persuaded to create or to rewrite their own qualification frameworks to conform to the template developed by the EU. This was the case with the European Qualification Framework (EQF) and European Credit System for Vocational Education and Training (ECVET). In the case of Qualifications and Occupations (ESCO), a somewhat different approach was adopted which nevertheless put the focus on labour market relevant outcomes rather than on content and curriculum.

The learning outcome (LO) approach focuses on what an individual understands and can do, whether or not that understanding is developed formally through education or informally through experience. It can be presented as a pragmatic tool, focused solely on what the labour market needs, thus making it highly attractive to both employers and potential employees. However, the promotion of learning outcomes is by no means an ideologically innocent project. Allais (2014) identified two ideological tendencies, apparently distinct, which combined to create a powerful constituency for the advocacy of LO approaches. The first is the so-called 'progressivist' tendency in educational philosophy whose ancestors are Rousseau and Dewey. Progressivism emphasises the autonomy of the learner and the reformulation of the teacher as 'facilitator' whose role is to make available

learning opportunities rather than to direct impart knowledge or skill. Learning primarily takes place through experience and experimentation. A structured curriculum and didactic methods of teaching are to be avoided.

The second tendency is public choice theory (Orchard and Stretton 1994), the doctrine that the behaviour of public officials is driven by self-interest, either expressed through individual behaviour or through manipulation of the institutions in which they work. One can find the genesis of this view in Adam Smith (1776/1981) and more recently in the work of the economist Gary Becker (1964/1993). On this view formal educational institutions, including curricula and practices of teaching, are not structured for the needs of learners (consumers), but for those of producers (teachers and educationists). The learning outcomes movement could thus present itself as a liberating force for 'learners' (apprentices and students) and also as closely aligned to the desires of employers who are primarily interested in what job candidates can do rather than in what educational processes they have gone through.

However, there is a third strand to the LO movement, one which again is strongly influenced by Adam Smith's ideas. This is the realisation by Smith that the process of making something, itself a complex operation requiring planning, coordination, control and evaluation, could be broken down into a series of discrete, simple operations provided that they were co-ordinated, controlled and evaluated by someone. For example, the manufacture of a pin could be decomposed into 12 simple, sequenced tasks, each carried out repetitively by one individual on a production line, the whole process overseen by a 'line manager' (Smith 1976/1981). Although requiring little skill, each of these small tasks could be described in terms of the skills or competences needed to carry them out. There is a one to one match between task and competence. Although Smith does not spell this out, the tasks of the line manager can also be specified and translated into competences.

The National Vocational Qualification (NVQ), launched in England in 1986, is a pure example of this approach (Jessup 1991). Each task is matched with a skill (or competence). These skills are said to be acquirable and assessable independently of other skills that may have been acquired. They can be precisely specified and ideally, they should leave no room for interpretation or ambiguity. However, they were arranged in a cognitive hierarchy from levels 1 to 5, roughly speaking taking one from a simple repetitive manual operation (level 1) to the kind of complex activity undertaken by a graduate (level 5) (Raggatt and Williams 1999). A few observations should be made about some of the challenges involved in introducing such a radical innovation in vocational education qualifications. First, there is an implicit contradiction in the claim that a skill can be acquired independently of any other, if its exercise depends on the possession of another skill. This is likely to be the case with a skill of any complexity and is implicitly recognised in the cognitively levelling of skills. Second, any knowledge requirement for

the possession of a skill has to be implicit, detectable only within the exercise of the skill be an individual. Third, complex abilities are likely to be exercised in a range of diverse circumstances, which means that their specification cannot be unambiguous but needs interpretation. This was effected in the NVQ structure through 'range statements' which specified the range of circumstances in which the skill was exercised. The NVQ incorporated independent skill-based assessment in operational conditions, and unambiguous descriptors for skills, although at higher levels these had to be interpreted through range statements. 'Independence' meant that learning outcomes did not depend on the achievement of other learning outcomes. However, the use of a cognitive hierarchy through the use of level classification also meant that this was implicitly the case (see Brockmann et al. for further explanation).

The NVQ was hailed as a breakthrough in VET by the U.K. government and received some, if not universal support from employers. The U.K. was successful in marketing the idea to other countries, including the Netherlands, Australia and South Africa. However, the flaws that became apparent with the English NVQ appeared in other countries as well. The Netherlands rowed back from its earlier attraction to the NVQ, Australia modified the underlying concept of competence and South Africa, which had adopted a large-scale and 'fundamentalist' interpretation of the learning outcomes approach, found itself confronted with insurmountable problems which should have been apparent from a careful study of the NVQ reform. By 2015 England had itself become disillusioned with the substance, if not the appearance, of the NVQ and the specification of guided learning hours (GLH) in the new regulations for vocational qualifications (Ofqual 2016) known as the Regulated Qualification Framework (RQF) meant that the original conceptual framework for the NVQ was abandoned. Content and structured teaching, together with assessment that included a non-workplace element, became prerequisites for qualification recognition. We have to ask why, despite this rich international experience, the EU became fixated on an LO approach to qualifications and why it persisted with it despite the evidence from various jurisdictions that it was fundamentally flawed. We have to ask: 'What, if anything, was learned from the learning outcome experience prior to the adoption of learning outcomes by the EU?'

3 The EU's aspirations

Unsurprisingly, the EU considered that there were very good reasons for adopting a learning outcomes approach to qualifications. Previous attempts to classify qualifications in the 1980s according to inputs had foundered on the complexity and variety of curricula in different jurisdictions. The use of a small number of outputs (learning outcomes) promised to reduce this complexity to a manageable number.

The primary purpose of a qualification framework was to aid the construction of a European labour market in which qualifications from any EU country could be recognised for what they were by an employer in any European country. If this could be achieved it would greatly assist labour mobility by providing reliable information for employers about the capabilities of putative employees from other jurisdictions. It would also assist mobile employees to know what qualifications were required of them by employers in other jurisdictions (European Commission [EC] 2018).

The decision was taken to develop a policy tool that was outcomes-based, was comprehensive and capable of use in the labour market. In addition, it was intended to promote the development of outcomes-based NQFs across the EU, thus in effect converting existing qualifications to an outcomes-based architecture, at least nominally. In contrast to the European Credit and Transfer Scheme for Higher Education (ECTS), which was explicitly based on awarding credit for hours of study, the European Qualification Framework (EQF), launched in 2008, was designed around the NVQ conception of learning outcomes, even though this was not officially acknowledged. It should be noted that there is an overlap between ECTS and EQF and it is claimed that the two frameworks are compatible. Although there had been preliminary work outlining the principles according to which the EQF was supposed to work (e.g., Coles and Oates 2005), neither the EU nor its agencies had conducted research or a systematic evaluation to either assess the viability of outcomes-based qualifications introduced elsewhere (such as in England) or whether a framework based on outcomes was likely to work in the extremely complex environment of the EU.

One has to assume that the manifest attractions of an outcomes-based approach were too tempting to delay their implementation. The outcomes-based approach promised the harmonisation of qualification architecture across the EU and beyond. The information collected within an outcomes-based framework would allow employers and prospective employees the information that they needed as to what abilities and knowledge were contained within a qualification from any country. Furthermore, credit could be awarded for a qualification depending on the abilities of a candidate to demonstrate outcomes specified in qualifications which were themselves designed on an outcomes basis. The EQF, the first of the VET policy tools, based on the outcomes approach had the potential to assess qualifications independent of curricula and to allow qualifications to be built up without formal engagement with educational institutions.

4 The European VET Policy tools

The EQF was the first of these, developed by DG Education. It is an eight level framework classifying outcomes from elementary to doctoral level. Attributes of

qualifications are divided into three categories: Knowledge, Skills, Responsibility and Autonomy. There is the potential, within this structure, to further elaborate for example what is understood by 'knowledge' or 'responsibility and autonomy'. This could be done, for example within an NQF or through a sector-specific framework (SQF). It could even be further elaborated into an occupational qualification framework, although to the present writer's knowledge this has never been done (see Brockmann et al. 2010).

The EQF has a hierarchical structure. But it is claimed that the outcomes statements in each column are unambiguous and independent of each other. There is thus within the framework the fundamental flaw that plagued the NVQ: the requirements are mutually contradictory. If a framework is constructed hierarchically, then the achievement of outcomes at the higher levels presuppose achievement of those at the lower levels. The outcome statement is not independent since it depends on achievement of at least one outcome at a lower level. It might be replied that this does not matter since the presupposed outcomes are implicit in the higher level outcome, but in this case the outcomes statement is not unambiguous, since it will need to be interpreted. To take an example from Winch (2014), a tour bus driving qualification may at level 2 specify that the driver operate the vehicle in a fuel efficient manner. The level 1 qualification requires that the driver operate the bus safely. It would be outrageous for a responsible authority to award the level 2 qualification without being satisfied that the level 1 standard had been reached. But how could this be done without requiring that the candidate demonstrate the ability to drive safely in all the relevant conditions prescribed in the level 1 qualification? Clearly the level 2 standard is not independently specifiable if this is the case. If one insists that the level 2 standard can be achieved without assessment of the level 1 standard, then the level 2 standard cannot be unambiguous since it contains, concealed within it, all the attributes needed for achievement of the level 1 qualification. One can hardly award a candidate who does not already possess the level 1 qualification the level 2 qualification without ensuring that the candidate satisfies all the level 1 outcomes. But then there are in effect, two level 2 qualifications, one for those who possess the level 1 qualification and one for those who do not.

This is clearly an untenable state of affairs and one that could have been safely predicted had those in the EU responsible for the EQF taken a look at outcomes-based qualifications elsewhere particularly those, such as the NVQ, whose doctrines about outcomes were incorporated into the EQF. Furthermore, a straightforward exercise in conceptual analysis would have quickly shown the internal incoherencies in the learning outcomes approach. Research into its implementation would have reinforced that demonstration. It is an interesting question as to how the EU manages to handle such a situation. A fiasco can be avoided by loosening some of the attributes that learning outcomes were originally said to require. This

has to be done implicitly because it is painful for powerful bureaucracies to admit errors. Nevertheless, one can trace, through the story of implementation, how this loosening can be achieved if anything is to be salvaged from the EQF.

The hierarchy at the heart of the EQF cannot be abandoned, since to do so would be to also abandon the attempt to model national qualifications. It is instead easier to treat the learning outcome descriptors as in need of some interpretation, either in terms of needing further specification (e.g., for sector specific purpose) or as in need of prerequisites (e.g., in terms of requirements at a lower level for the satisfaction of a descriptor at a higher level). Since most national qualifications within EU countries are designed along these lines and are not even explicitly based on learning outcomes, this is a much easier strategy to adopt in order to accommodate national requirements. 'Constructive ambiguity' over the meaning of 'learning outcomes' allows the EQF to fight another day. Constructive ambiguity might seem disastrous from the purist policy perspective, but it also attests to the adaptability of the EQF framework, for all its inadequacy as an instrument for VET reform.

The European Credit Transfer Framework for VET (ECVET) (EC 2017) is an outgrowth of EQF. Founded in 2009, it is intended to be an instrument for the portability of part qualifications both to other qualification routes and directly onto the labour market. Its operation depends on two innovations congenial to the outcomes-based approach to qualifications, although by no means directly dependent on the outcomes conceptual framework. The first is *modularity* or the idea that components of qualifications consist of self-contained units that can be assembled to complete a full qualification, the assemblage of the appropriate modules being both a necessary and sufficient condition for the achievement of the full qualification. The second is the idea of *credit*. Each module has a credit value and the full qualification is awarded when a sufficient number of credits has been achieved through the completion of a sufficient number of modules. Typically, this is done through the award of 'credit points', a certain number of which is assigned to each module or submodule (often called a 'unit').

ECVET immediately ran into problems with the idea of a credit point award across Europe, as the successful operation of such a system depends on a uniformity of credit point awarding procedures across Europe and none was or is in the foreseeable future likely to be available. However, there needs to be some computational procedure for the award of credits. The second problem that ECVET encountered very quickly was that its principles run directly counter to the idea that credit accumulation is not sufficient for the award of a full qualification. This is the case, for example, with qualifications within the German dual system, which depend on a final assessment for the award of the full qualification, signifying 'Berufliche Handlungsfähigkeit' or complete and reflective occupatio-

nal capacity relating to one of the recognised dual system qualifications (Ertl 2002). German trade unions in particular were never likely to accept an innovation which threatened the foundations of a VET system which they see as essential to the maintenance of a properly functioning labour market. This relates to an elementary point about policymaking mentioned earlier concerning the need to take powerful interests into account when formulating policy proposals.

However, there is a fundamental problem with ECVET conceived of as an outcomes-based instrument. The problem relates to the computation of credit. Even if credit points cannot be awarded, there is still the problem of how to assign credits to modules. An obvious answer seems to be to assign credits to outcomes. But how is this to be done without some measure of the effort required to complete the module and achieve its specified learning outcomes? One can assign some sort of weighting to the significance of the module relative to other modules, but one cannot construct a complete credit award based solely on the importance of modules relative to each other. One needs an objective measure which will be trusted by those who have a stake in the credits. It is hard to avoid the conclusion that this has to be the effort involved in completing the module and, if this cannot be directly achieved, then a realistic proxy is time needed to complete the module. Time needed will encompass both the extent and the difficult of content and is a recognised and objectively measurable criterion. One could even say that this is a labour theory of value in operation (Marx 1887). The value of the module is in relation to the effort expended in achieving it.

There have been various attempts to evade this basic truth in order that the fiction of an outcomes-based policy tool can be maintained. But such equivocation is, ultimately, hopeless (see the careful analysis in Debowski and Stechly 2015). There is really no alternative to a proxy for effort and effort implies content to be mastered. The effort expended is related to the extent and difficulty of the material to be mastered in order to achieve the outcomes specified for successful completion of the module. And the material to be mastered is the content that underpins the qualification. And, if that is the case, then achieving the stated learning outcomes depends on the content to be mastered. ECVET cannot function as an outcomes-based tool. As in the case of EQF, constructive ambiguity may serve for some time to conceal this basic fact. However, in terms of how it operates, ECVET cannot be a purely learning outcomes instrument, it will need to take account of content, however indirectly.

Somewhat confusingly, since 2013 a new VET policy tool has been in existence or at least in development. This is European Skills, Competences, Qualifications and Occupations (ESCO). Unlike EQF and ECVET, ESCO originated in the European Directorate responsible for employment and was developed independently of the other two. The idea of ESCO is to create an inventory of know-how on the one hand

and occupations on the other which can be updated continuously according to labour market needs. Know-how is characterised as skill and is subdivided into occupational and transversal skills. There are currently 2,942 occupations and 13,485 skills on the ESCO register (EC 2019a; EC 2019b). The animating idea of ESCO is that country-based skills observatories will do the research necessary to identify new and obsolete skill demands from employers which can then be used to update the occupational and skills databases. In turn occupations can be reconstructed according to the changing needs of the labour market.

The architecture of ESCO is very simple. It is based on the principle used in the International Standard Classification of Occupations (ISCO) which uses a digital classification to associate high level occupational groups (1 digit), through occupations (2 digits) suboccupations (3 digits), ending with quite detailed work descriptions (4 digits) (ESCO 2019). ESCO is designed to take the classification further, with more detail at the work description level than ISCO provides. Within ESCO there is a direct correlation of occupations with skills, although there are also 17 skill groups which are quite general descriptions of transversal abilities, although it is not clear how these are to be used within occupational descriptions. There is no hierarchy within the skills classification and knowledge requirements for occupations are subsumed within the skill classifications (ESCO 2019).

The skill descriptors are descriptions of work activities. They are specified independently of each other. However, given that there are 13,485 skills and 2,942 occupations it is evident that a small number of skills are to be shared amongst a large number of occupations. Evidently, many skills will appear in more than one occupational classification. This means that each skill will need to be interpreted for its specific occupational context and it cannot therefore be said that it is an unambiguous descriptor. Internal coherence, the problem noted with NVQ and other 'pure' forms of learning outcomes approaches, is maintained through the dropping of a hierarchy of know-how. The aim of unambiguous description of work activities appears to have been abandoned, although exactly how it is to be dealt with in the detailed description of occupational activities remains unclear. ESCO remains, however, an outcomes-based classificatory system for skills and qualifications, and also retains some of the problems associated with such classifications.

First is the fact that the lack of hierarchy within the classifications risks obscuring important relationships between different kinds of know-how, particularly the polymorphic nature of some transversal abilities, which can be manifested through the exercise of different mixes of skills. Communication, planning, evaluation and co-ordination would all be examples of such kinds of know-how. Second is the reduction of knowledge to skill within the skill inventory. This obscures the often complex relationships between different kinds of knowledge on the one hand and be-

tween knowledge and ability on the other. Occupational knowledge, whether it be situation-specific or systematic and discipline-based is an essential resource in occupational judgement and, crucially is manifested, if only implicitly, in a wide range of abilities exercised in different situations. It cannot simply be reclassified as a skill. Third, the embedding of a particular broadly-based skill within an occupation requires interpretation of that skill within a context of application.

The implication of the use of the term 'skill' applicable across a wide occupational range suggests that the skill is transferable across occupational contexts. Since most skills are highly occupationally specific this is an unrealistic assumption and general skills classifications such as the ESCO one will be of limited labour market use unless they receive careful occupational interpretation. Even apparently transferable abilities such as reading and writing, particularly the latter, demand the understanding of highly specific genres such as report writing for medical purposes on the one hand or the creation of captions for greetings cards on the other and cannot be seen as a unitary skill applicable across a wide range of occupations.

ESCO, like its North American cousin O*Net (O*Net 2019) has an underlying disaggregative philosophy of work analysis dating back at least to Adam Smith's *Wealth of Nations* (1776/1981) whereby the production of a good or service is fragmented into a discrete number of simple operations. While such a classification and its manifestation in Taylorist management techniques in the early part of the Twentieth Century might have had a role to play in mass manufacturing and indeed still does in many areas, it is inadequate as a means of describing work processes that do not depend on this kind of fragmentation, instead depending on the application of knowledge and autonomous judgement and action to the production of higher value added goods and services (Streeck 1992, Hodgson 1999). ESCO in many ways looks like a throwback to an earlier period of industrial production and seems utterly unsuited to the high value added quality model of economic activity that the EU aspires to. Its crudity is surprising given that the other system which adopts such an approach to work activities, O*Net, does take into account both knowledge and broader abilities (called 'skills') as well as detailed work activities, thus enabling a more detailed and realistic profile to be built up for occupations, even though it still falls far short of an adequate descriptive framework for highly qualified professional work.

Neither does ESCO take into account the experience of those other countries that were early adopters of outcomes-based qualification frameworks such as the English NVQ, which has now been abandoned in its original formulation in its country of origin. The reasons are complex, but one of them was the unsuitability of an outcomes-based framework for capturing the complexity of many contemporary occupations. Another, related to this was the reluctance of many employers to rely on a qualification that had so many inadequacies (Roe et al. 2006). There

is a real danger that ESCO could suffer the ignominious fate of being ignored by employers, the constituency that it was most designed to appeal to.

5 What can be salvaged?

The EQF, ECVET and ESCO are all the result of a hubristic policymaking process, which, transfixed by the goal of creating a transparent European labour market, deliberately ignored the valuable lessons provided by the hard-won experience of other countries' experiments with outcomes-based qualifications, such as England and South Africa. The result is that EQF and ECVET are not used widely, if at all, in European labour markets and ESCO, five years after its initial construction, is still a work in progress, with little prospect of widespread labour market adoption. The reason for this is clear in the case of ESCO. It is far too crude a system for capturing the complexity of modern (or indeed, not so modern) work. Furthermore, the 13,000+ skills are still too general to be of much use in constructing occupational profiles without further detailed interpretation, requiring sectoral and occupational expertise. It is hard to see how ESCO could ever be made viable without a radical redesign which would take years of work and much expense.

EQF is not in such a dire position. Although it is too sparsely populated with useful categories to be of direct labour market use, its very sparseness makes it like an almost blank canvass on which sectoral and occupational descriptors can be etched. Indeed, that is probably the most promising way in which to use it. Some work has already been done. Syben (2008), using the EQF structure, set out what a SQF for the construction sector in Europe could look like. Limited attempts at constructing frameworks for particular occupations have been made, such as for bricklayers (Brockmann et al. 2010) and furniture making (Galla et al. 2013). More recently there has been an example of an EU country, Poland, using its EQF-derived National Qualification Framework (NQF) to begin the construction of SQFs for different sectors. Frameworks are now available for construction and telecommunications.[2] Clarke et al. (2019) have also sketched out what a sectoral framework for low energy construction could look like, within the broad EQF architecture.

However, the EQF and ECVET are only viable if 'constructive ambiguity' is practised, with the independent specifiability and non-ambiguity requirements of learning outcomes approaches dropped and the importance of content being tacitly

2 For telecommunications, see http://refernet.ibe.edu.pl/images/SQF-tele_internet_EN.pdf, for construction, see https://www.google.com/search?q=sector+qualications+framework+for+construction&rlz=1C1GGRV_enGB759GB759&oq=sector+qualications+framework+for+construction&aqs=chrome69i 57.11959j1j7&sourceid=chrome&ie=UTF-8

admitted into the construction of sectoral and occupational adaptations of the EQF. It should also be recognised that the filling out of EQF on a sectoral and occupational basis across Europe will be an expensive and longterm exercise, undertaken only in those sectors where there is a clear economic motive for doing so.

6 Conclusion: What have we learned?

The EU's excursion into remaking the European labour market through the creation of VET policy tools has not been a happy one. Failure will never be admitted by those responsible. Instead, the various tools will be quietly allowed either to fall into disuse or to be adapted to provide a more realistic response to the considerable challenge of creating a common framework for European VET. The transformative goals of all these tools will need to be dropped in favour of an approach that respects different national traditions.

It was always unrealistic for EU officials to think that they could re-engineer the way the European labour market worked through such means and folly to think that this could be done without taking into account the valuable lessons that history provides of the fate of LO-based qualifications. It was also folly to consider it unnecessary to think through the idea of an LO framework and to assume that it was conceptually unproblematic, when attention to the debates on learning outcomes would have told them otherwise. The electorates of the EU nations have a right to expect something better from their policymaking elites than the promotion of schemes that are less than optimally thought through and where available evidence has been systematically ignored.

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The Swiss PET system and similar programs in Germany and Austria

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Abstract

Professional education and training play an increasing role in the education system, because young adults expect to continue their education beyond their initial vocational education and training (VET). Being able to professionally reorient oneself or upgrade one's know-how in order to improve career opportunities is not only a question of the attractiveness of VET, but also a condition for employers who need a workforce with upgraded skills. Switzerland, Austria and Germany have all created their own approaches to further VET-based education (at postsecondary and tertiary level), that are somewhat similar, but also different in many respects. Considering the European trend of increasing 'academisation' it seems important to understand which other pathways to higher qualifications and accordingly jobs with more responsibilities exist and how they compare and contrast to each other. This book chapter presents a description of the different approaches to professional (or further) VET education in the three countries and compares them. Particular attention is paid to the structure and role of school-based tertiary education and professional examinations taking Switzerland as the country of reference for this comparison.

1 Introduction

In Switzerland, the most influential further education programs were merged to form 'professional education and training' (PET). These include professional examinations and colleges of higher education and are located at a tertiary level. Similar programs also exist in Germany and Austria but are not united under a certain term by law. Boundaries between post-secondary and tertiary education are defined only indistinctly. The definition of UNESCO's International Standard

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Classification of Education (UNESCO Institute for Statistics [UIS] 2012) states that tertiary education

> builds on secondary education, providing learning activities in specialised fields of education. It aims at learning at a high level of complexity and specialisation. Tertiary education includes what is commonly understood as academic education but also includes advanced vocational or professional education. It comprises International Standard Classification of Education (ISCED) levels 5, 6, 7 and 8. (UIS 2012, p.46)

The ISCED definitions leaves a wide room for manoeuver, which will be further explained in this book chapter.

2 Professional education and training in Switzerland

The master craftsmen qualification has a long tradition in Switzerland and permits those who hold it to train apprentices or open up and run their own business. The master craftsman examinations (Meisterprüfungen) have evolved into Federal and Advanced Federal Diplomas of higher education examinations (eidgenössische Berufs- und höhere Fachprüfung). Not limited to the crafts anymore, there are around 240 Federal and 170 Advanced Federal Diploma examinations today (Kuhn 2016, p. 6). Together with the colleges of professional education (höhere Fachschulen) the examinations form the tertiary-level professional education in Switzerland (PET) (höhere Berufsbildung). It is also often referred to as the Tertiary A-sector, Tertiary B being universities, universities of teacher education and universities of applied sciences. PET was established on vocational tertiary level in the Federal Vocational and Professional Education and Training Act in 2002 (Schweizerische Eidgenossenschaft 2002). It emerged from the large sector of continuing education and training. The combination of professional examinations and colleges of higher education to PET was part of the larger plan to upgrade VET qualifications, following the idea of PET being 'equal but different' ('gleichwertig aber andersartig') to the universities. A special trait of the whole VET system in Switzerland is its federal status. While mandatory schools, baccalaureate schools and universities (apart from the two Federal Institutes of Technology in Lausanne and Zurich) are governed by the cantons, highest powers for VET and PET lie with the federal government, facilitating better coordination but still allowing regional adjustments by the cantons[3].

The main goal of the federal professional examinations is to provide the applicants with the opportunity to prove the competences (they have) acquired by

3 Portrait of the Swiss Education system: https://www.sbfi.admin.ch/sbfi/en/ home/topics/vocational-and-professional-education-and-training/das-duale-system.html. Accessed: 19 April 2019.

working in their profession. While the Federal Diploma of Higher Education is meant to acknowledge profound professional knowledge in the field of an occupation, the acquisition of an Advanced Federal Diploma prepares for leadership positions and complements general skills in the profession to build up expert knowledge. If both examination types exist for one profession, the Federal Diploma is the entry requirement for the Advanced Federal Diploma Examination. In any other case, entry requirements for an examination are the Federal Diploma of Vocational Education and Training (Federal VET Diploma, eidgenössisches Fähigkeitszeugnis [EFZ]) and usually several years of work experience in the relevant vocational field. The different requirements for different professions make it almost impossible to accurately compare examinations[4].

For most other federal PET examinations, solely the content of the examination itself is regulated by the State Secretariat of Education, Research and Innovation (SERI). Preparation is not much needed in theory, as professionals have been working in their vocational field for several years, therefore the preparation for exams can be undertaken individually. Nevertheless, more than 80% of examinees attend preparatory courses offered by various public and private institutions as well as the professional organisations (Organisationen der Arbeitswelt [OdAs]) (Kuhn 2016, p. 12). Preparation for examinations is generally combined with a part-time working arrangement with students continuing to work in the profession in their field of study.

In contrast to the examinations, the degree programs at colleges of professional education leading to an Advanced Federal Diploma of Higher Education from college of higher education (eidgenössisches Diplom HF) are federally recognised. Entry requirements are very similar to those of the examinations. Skills obtained at the end of a degree programme are comparable to those of an Advanced Federal Diploma of Higher Education, with the difference that they are obtained in a federally recognised school-based programme. Traineeships complement the studies. There are 33 core syllabi with a total of 52 fields of study. Formation at a college of higher education takes usually three years when studying full time and four years for part-time students. The amounts of part-time and full-time students are about the same (Bundesamt für Berufsbildung und Technologie [BBT] 2011).

The federally regulated Tertiary B-sector accounts for roughly a third of tertiary degrees in Switzerland (Baumeler et al. 2014, p. 31). The largest share in PET degrees are Federal Diplomas, followed by the college of higher education degrees and Advanced Federal Diplomas of Higher Education (Baumeler et al.

4 For example, for some jobs, e.g., policeman/policewoman, the Advanced Federal or the Federal Diploma are entrance requirements to the profession. In this case, several mandatory preparatory courses are to be attended before an examination can be taken and the profession be carried out.

2014, p. 5). In addition to the federally regulated examinations and colleges, there are descending numbers of PET qualifications not recognised by the government, accounting for only a very small fraction of all tertiary degrees (SERI 2016, p. 18). What is quite remarkable is the age difference between students of Tertiary A and Tertiary B. Due to the already completed VET qualification and the required professional experience the students in Tertiary B often enter the tertiary sector at an older age than their academic counterparts. While the average age at university entry is 21 years, beginners of PET programs are normally around 30 years old. This is mostly due to the professional/PET examinations where the usual entrance age is above thirty.

The distinguishing features of PET diplomas are the possibility of entering tertiary education without a baccalaureate, the close relation to the working environment and its organisation, the less scientific approach compared to universities of applied sciences, the focus on practical knowledge and the connection of theory with working experience. The previously acquired knowledge is combined and complemented with theoretical approaches. The participants often profit from each other's (work life) experience. However, the position of examinations and colleges is very different, especially considering funding.

A non-PET career perspective for VET graduates wishing to enter tertiary education is the Federal Vocational Baccalaureate (Berufsmaturität). During their three- or four-year apprenticeship to acquire a Federal VET Diploma or in the year following graduation, apprentices can attend additional courses to obtain the Federal Vocational Baccalaureate. This opens entry to universities of applied sciences and after an additionally, usually one-year long course, and a final examination called university aptitude test (Passerelle), to any Swiss university.

Overall, the Tertiary B sector is proven to offer a variety of attractive continuing education opportunities in Switzerland and enables manifold pathways to continue with learning within and for the professions. Although permeability in the VET system in general is well developed, transition from PET into universities is rather difficult. The principals' conference of the universities of applied sciences (Rektorenkonferenz der Fachhochschulen) has released best practice recommendations for the admittance of PET Diploma holders into their institutions (Baumeler et al. 2014, p. 69), but those are rather vague in certain parts. On the other hand, regular universities and universities of teacher education each have their own entrance regulations for PET Diploma holders. This arrangement decreases the system's efficiency in terms of permeability as PET Diploma holders are often left in uncertainty.

3 Advanced vocational education and dual studies/integrated degree programs in Germany

Similar to Switzerland, examinations and study options for graduates of vocational training also exist in Germany. They are organised differently however: while Switzerland has united federal professional examinations and colleges of higher education within PET, no such legal act unites the German further VET qualifications. At tertiary level, the Berufsakademien and trade and technical schools (Fachschulen) provide alternatives to typical university education. Advanced vocational education, (Aufstiegsfortbildung), which probably offers the qualifications most similar to Swiss PET, does not require a university entrance qualification. It is divided into the tertiary trade and technical schools, as well as schools for agricultural education, social care and home economics as well as other, mostly examination-regulated, VET programs that are usually defined as post-secondary[5].

Like Switzerland, Germany's training system has made use of the master craftsperson qualifications for a long time. Today, the examinations are closely linked to the advanced vocational education system[6] and its advanced vocational examinations. Integrated in that system are the master craftsperson examinations that are ranked at different levels of Germany's ISCED system depending on the amount of time needed to prepare for them; furthermore, they are usually officially recognised titles. More generally, this is true for the majority of examinations in advanced vocational education: it offers continuing education and training in the vocational post-secondary sector of the education system. Its recognised titles are regulated by law within the vocational training act (Berufsbildungsgesetz –chapter 2, § 53/54), (Bundesministerium für Justiz und Verbraucherschutz 2005). They can either be defined by an order (Fortbildungsordnung) of the Federal Ministry of Education and Research (BMBF) and the relevant ministry or by provision through the responsible chambers. While the first are federally recognised, the chamber provisions are at first limited to federal state level. Usually, provisions for an examination need to be successfully installed in at least five federal states for five years before a federal order is considered. Additionally, there needs to be sufficient attendance rates for the courses or examinations (Ballauf 2011). In total, there were around 233 federal orders and 735 chamber provisions in 2012 (BIBB 2013).

Advanced vocational education (not including certain special programs such as trade and technical schools) is divided into three stages. The first voluntary stage is designed to upgrade the attendees' knowledge to a specialist level, while

5 Portrait of the German Education system: https://www.bibb.de/dokumente/ pdf/GOVET_Praesentation_Maerz_2016_EN.pdf. Accessed: 04 April 2019.

6 'Aufstiegsfortbildung' = continuing education in Germany https://wirtschaftslexikon.gabler.de/definition/aufstiegsfortbildung-30532. Accessed: 04 July 2019.

the largest second and the third stage mostly impart fundamental economic knowledge and leadership skills to enable the examinees to take higher positions in enterprises. Preparatory courses are voluntary, but almost every examinee has attended some form of full- or mostly part-time preparation. Fazekas and Field (2013, p. 14) indicate that around 8% of the German population older than 15 years possess a post-secondary or tertiary VET qualification.

As equivalent to the colleges of higher education in Switzerland, Germany has trade and technical schools, which count as tertiary education outside of the university sector but are also considered a part of the advanced vocational education system. The aim of trade and technical schools is to provide continuing education mainly for students coming from vocational training. Graduates can take leading positions in their enterprises, building a third segment between the qualified workers and university graduates. Additionally, the education at trade and technical schools prepares students to take on more responsibility in their specific field of occupation. It is possible to study either full- or part-time, graduating after one to two years with the title: "Staatlich geprüfte(r) …". The final exam is federally regulated and consists of a written, a practical and sometimes an oral part. There are roughly 160 disciplines in the fields of agriculture, design, technology/engineering, economics and social services (Kultusministerkonferenz [KMK] 2015). Entry requirements for trade and technical schools are a completed vocational training in a profession closely related to the field of study and at least one year of professional experience or completion of vocational school and at least five years of relevant professional experience (KMK 2015).

Another possibility of further vocational education is provided by integrated degree programs at 'Berufsakademien' and universities of applied sciences. Students of those programs usually complete a Bachelor's degree while at the same time gaining work experience. In the case of integrated study program combining VET qualification and higher education (ausbildungsintegrierenden Studiengängen) the students additionally prepare for the profession's chamber examination and therefore graduate with a double qualification: a Bachelor's degree and a VET-training degree. In integrated programs that include a period of practical work experience (praxisintegrierenden Studiengängen), the amount of time spent in a company working environment greatly exceeds the normal traineeships required at universities of applied sciences. However, the graduates of 'praxisintegrierenden Studiengängen' do not reach double qualification; they graduate with a Bachelor's degree only. In some cases, universities of applied sciences can also run integrated degree programs leading to a Master's degree. While universities of applied sciences are part of the regular tertiary university sector, Berufsakademien are tertiary institutions outside of the university sector. Thus, they are not

automatically allowed to distribute regular Bachelor degrees but need to be accredited by the federal states (KMK 2015).

Whilst 'ausbildungs- and praxisintegrierende Studiengänge' are part of initial training and education, integrated degree programs can also be understood as a means of continuing education and training, in which case it is differentiated between 'berufsintegrierenden' and 'berufs-begleitenden Studiengängen'.

The goal of integrated degree programs is generally the connection of workplace training and theoretical studies. Graduates are more prepared for entry into the labour market as they have already been working in the profession and therefore have a shorter settling-in period than regular university graduates/students. Companies often experience that students from integrated degree programs also possess better social skills and are more motivated (Hähn 2015, p. 35).

Germany had a total of 64,358 students from 39,662 businesses who were studying in one of the 1,461 integrated degree programs in the year of 2013 (Krone 2015, p. 20). Of all programs, 59% were offered at universities of applied sciences, 15% at Berufsakademien, 20% at the Baden-Württemberg Cooperative State University (Duale Hochschule Baden-Württemberg) and a small percentage at different universities or other institutions. When comparing the federal states, a fourth of all integrated degree programs in Germany are conducted in Baden-Württemberg, especially at the Cooperative State University. The other two federal states with the most programs are both located in the South and West of Germany. They are North Rhine Westphalia with 18%, which accounts for 183 courses and Bavaria with 172 courses or 17% of German integrated degree programs. In contrast to those three states, others may only have very little courses, with five offering less than 20 programs. Another five offer between 20 and 50 courses, and Hesse, Saxony and Lower Saxony each offer between 50 and 100 programs. (Krone 2015, p. 22). It can be concluded that the South-Western and Western federal states generally offer most opportunities for integrated degrees.

German students not attending a typical Gymnasium with baccalaureate degree (Abitur) still have several opportunities to gain a university entrance qualification. Their options include 'Berufliches Gymnasium', 'Abendgymnasium', 'Berufsoberschule' and 'Fachoberschule' (KMK 2015). These programs serve two main purposes. Firstly, they are tools for the increase of academic education the federal government is aiming at (Krone 2015). Secondly and more importantly, they improve the permeability of the German education system. At a tertiary level, however, the transition rates from vocational to academic education remain low even though the university entry for professionals 'Hochschulzugang für beruflich Qualifizierte' (2009) enables graduates of Advanced Vocational Education to enter universities without regular university entrance qualification.

4 The variety of PET programs in Austria

The percentage of youths starting vocational education or training after finishing compulsory school is even higher in Austria than it already is in Germany and Switzerland; 80% of school leavers enter a dual apprenticeship or one of the school-based vocational education programs. About half decide to start an apprenticeship while the other half either attends a school for intermediate vocational training (berufsbildende mittlere Schule [BMS]) or a college for higher vocational education (berufsbildende höhere Schule [BHS]), later referred to as VET college (Tritscher-Archan 2014, p. 5 and p. 17). In Austria there is not a specific term to unite the variety of professional training and the perception regarding their value differs widely[7].

Additionally, the VET colleges and their role within the VET system prove to be a particular Austrian idiosyncracy. Entrance age for a typical VET college course is around 14, usually after eight years of school (Schneeberger et al. 2013, p. 22). Over the duration of five years, students work towards a double qualification in one of several specialist fields: technical, trade, economical, tourism, agricultural, healthcare[8], social pedagogy and early childhood pedagogy. In addition to a vocational degree aimed at an occupation in a higher or regulated field, students also graduate with a university entrance qualification (Reifeprüfung). Due to their courses' five-year duration, VET colleges are not only classified as upper, but also as post-secondary and therefore located not only as ISCED-2011 level 3 but also level five (BMBF 2015). Although it could be regarded as short-cycle tertiary in ISCED-measure due to its level five classification, VET colleges are generally referred to as post-secondary. As a prominent part of the Austrian VET system, the VET colleges do not only exist in their typical five year-form, but also as evening courses for employees, as continuing education to upgrade a degree from schools for intermediate vocational training and as a two year programme for graduates of baccalaureate schools (Kollegs). Due to the already acquired 'Matura' of 'Kolleg' students, these courses aim only at the vocational degree of VET colleges. Education in school is complemented by workplace training: in most specialist fields. Traineeships are compulsory and often integrated into curricula combined with workshops, praxis restaurants or training firms depending on the specialization. Compared to the schools for intermediate vocational training, the importance of practical skills is lower and general education is more prominent (Tritscher-Archan 2014, p. 19). The role of VET colleges is essential for the

7 Overview of the Austrian education system: https://www.bildungssystem.at/. Accessed: 04 July 2019.

8 As in Germany and Switzerland health professions have their own legal foundations and specific regulations.

Austrian system in terms of enabling permeability, especially because it allows the combination of both academic and vocational pathways. They also offer education in fields that are not traditionally covered with apprenticeships, often because special permits are necessary.

In some instances, a degree from VET colleges or some VET courses can be recognised by the universities of applied sciences. This would allow students to shorten their higher education studies. However, there is no legislation ensuring this practice. Although the establishment of study programs for specific target groups has been implemented in the law for the universities of applied science, in practice this has not been widely realised (Lachmayr et al. 2013; Schmid et al. 2014). The universities of applied sciences do not always allow such modifications of their programs. Also, for those who are granted a shortcut, the point of entrance (second or third semester) might vary between universities. The main problem is the lack of coordination between the different institutions. Some VET colleges collaborate with German institutions to enable shortened Bachelor's degrees to their graduates (Musset et al. 2013, p. 47).

Austria also provides continuing education and training opportunities for VET graduates as do Germany and Switzerland. However, they are structured and ranked differently. On the one hand, tertiary education is mostly restricted to universities in Austria. On the other hand, students can attend schools for master-craftsmen, foremen and construction trades or they can take master craftsperson examinations. Master craftsperson examinations or the equal qualifying examinations for non-craft professions are only regulated with regard to the actual examination. Preparation can be undertaken individually but most examinees have attended some form of preparatory course (Schneeberger et al. 2013, p. 27). The examinations themselves are conducted by the regional economic chambers and are divided into five modular parts. Applicants for the examinations are usually motivated by the prospect of becoming independent as craftspeople in the 71 regulated trades (data from 2009) and are only allowed to run their own business (Musset et al. 2013; Tritscher-Archan et al. 2016) once they have passed the relevant examination. However, the examinations also enable masters to train apprentices and take on more responsibility in an enterprise.

The same applies to graduates of schools for master craftsmen, foremen and construction trades. These offer more than 50 two-year evening courses nationwide which are completed with a federally controlled diploma. They are considered a special form of schools for intermediate vocational training and aim at a similar qualification to the master craftsperson examinations, but more with the goal of improving the graduates' status within a company than to enable them to run their own business. Annually, 3,500 titles are achieved in master craftsperson examinations and schools for master craftsmen, foremen and construction trades

combined (Schneeberger et al. 2013, p. 26) The barrier between post-secondary and tertiary education is permeable, so that depending on the context, these qualifications might be regarded as either post-secondary or lower tertiary.

Until a few years ago, the 'Akademien' for professions in pedagogy/pedagogics/education, social service and healthcare were part of the vocational tertiary sector, but with most of them transformed into university programs (universities of applied sciences, University College of Teacher Education) the amount of vocational tertiary education has declined steadily. Now, the highest qualifications in ISCED measures that can be achieved outside of universities are located at ISECD-2011 level 5, being schools for master craftsmen, foremen and construction trades, master craftsperson examinations, 'Kollegs' and several others (Schneeberger et al. 2013; BMBF 2015).

Besides the traditional pathway to universities through the obtainment of a baccalaureate (Matura) in either a general education baccalaureate school (Allgemeinbildende Höhere Schule [AHS]) or VET college, Austrian VET graduates from schools for intermediate vocational training and apprenticeships can also gain access to university education by completing either a VET degree (Berufsreifeprüfung) or attending a vocational program that includes a high school diploma (Ausbildung mit Matura). In this program, regulated by the individual states, the baccalaureate is integrated into an apprenticeship. For some years there have been more baccalaureates obtained at BHS than at AHS. The most prominent preparatory school for universities of applied sciences seems to be the VET college, although roughly one fifth of VET college graduates goes on to study at a university of applied sciences. This represents nearly two thirds of entrants (Musset et al. 2013, p. 47). As a special version of the 'Berufsreifeprüfung', the 'Studienberechtigungsprüfung' allows graduates to enter only specific study courses (Schwabe-Ruck and Schlögl 2014).

There is an additional measure to improve permeability and transition opportunities from vocational into academic education. As in both other countries, graduates from post-secondary or lower tertiary VET programs can be accepted into universities of applied sciences without university entrance qualification. However, they are not contributing much to the fast-growing numbers of students (Musset et al. 2013).

5 Comparative analysis of the three PET systems

The comparison of the three systems is criteria based. The following criteria have been derived from the literature describing the three PET systems. Each of the three German-speaking countries has adapted their system to the challenges of internationalisation and demands for higher qualifications on the labour market in

its own way. The Swiss federal government has created a new sector for the Swiss tertiary education system by uniting vocational examinations (Advanced Federal and Federal Diploma of Higher Education) and vocational schools (colleges of higher education) in PET. This system is strongly promoted as an equal alternative to Tertiary A education. In contrast to Switzerland, the German and Austrian governments are following the European Union's goal of higher percentages in academic degrees. At the same time, however, they also have examinations and schools for further vocational education and training that are intended to increase professional perspectives for VET graduates.

Professional examinations

All three countries offer professional examinations, which can be loosely subsumed under the term 'master' examinations. They offer the opportunity to prove the skills which the examinees have typically acquired during several years of work experience in their respective field. Therefore, they stand above initial vocational education or training, but are ranked differently in the three countries. While they are located on the same ISCED level as a Bachelor's degree in Switzerland, and in the case of the Advanced Federal Diplomas of Higher Education even on the same level as an academic Master's, the master craftsperson examinations in Austria are ranked on the level of short-cycle tertiary education in the ISCED ranking and are often referred to as post-secondary. In Germany, they are ranked on different levels depending on the duration of preparation (OECD 2011). Nevertheless, the expectations towards someone holding a vocational 'master's' title are more or less the same in all three countries. On the one hand, this shows the ISCED system's challenges in capturing and appropriately ranking further vocational qualifications in comparison to academic programs. On the other hand, it underlines the difference in perception of value of further and continuing vocational qualifications compared to academic tertiary education in the three German-speaking countries. The same can be observed in the organisational structures of professional examinations and school-based professional education. Although the countries have similar approaches when compared to other countries, a closer examination shows that the composition and function of these parts are different.

The examinations play an important role within the VET system of their countries and the graduates can rely on the integrity of their qualifications. However, getting there proves to be harder than one would expect. As preparation is mostly non-mandatory but attended by most, preparatory courses are offered by public and private institutions in all three countries, although the respective percentages vary. However, the courses are not part of the regulated examination, which means that their content and quality are not controlled by the authorities.

Additionally, especially in Germany and Switzerland statistics regarding the costs or achievement rates that would help interested individuals to make an informed decision about taking a particular course are not easily found (Fazekas and Field 2013). While not regulating the market for preparatory courses might increase the competitiveness and boost the quality, it can also have the opposite effect and lead to courses offering poor preparation without consequences. In support of the students, better transparency of preparatory courses or quality control measures would be advisable.

School based programs

As with examinations, Austria, Germany and Switzerland all offer school based further education in PET, respectively within the German and Austrian programs similar to PET. Swiss PET includes the colleges of higher education that are part of the Tertiary B sector. The German trade and technical schools can be counted as a part of the advanced vocational education system, but also belong to tertiary education outside of universities. Austria has two school types that offer vocational education on ISCED level 5: the schools for master-craftsmen, foremen and construction trades as a special form of schools for intermediate vocational training, and VET colleges (BMBF 2015). Their structure differs from the Swiss and German schools, firstly through their ranking as post-secondary and non-tertiary education and secondly through the fact that VET colleges in their typical form are considered initial VET while all other schools are part of the continuing and further VET.

Colleges of higher education offer courses that enable graduates to take on more responsibility in businesses, especially in terms of leadership. So do the German trade and technical schools, positioned separately from the rest of the advanced vocational education system through their rank as a tertiary institution. They provide similar qualifications to their Swiss counterparts, preparing their students to take higher positions in companies that would not be open to them without the further training of a trade and technical school. The country varying most is Austria firstly through the existence of an initial and continuing VET school in form of the VET colleges. Secondly, the purpose of schools for master-craftsmen, foremen and construction trades is more linked to the training of apprentices and independence than the courses in Swiss and German schools. The organisational structure for all school forms in the three countries is similar however, allowing students to continue working and study at the same time through different part-time study arrangements.

Permeability

Although permeability between academic and vocational education and within both pathways is promoted in all three countries, transition rates remain very low, while pathways from initial VET to PET are taken frequently. All three countries attribute utmost importance to the maintenance and improving of permeability in their system to maintain its attractiveness and guaranty access to formal lifelong learning with career opportunities. Transition from academic secondary and tertiary education into vocational programs is generally well developed and regularly used (Baumeler et al. 2014; Schneeberger et al. 2013).

Unique structures in Germany and Austria different from Swiss PET

The Swiss PET system is the most formal and detailed of the three further VET systems. Due to its clear structure, it was chosen as the base for this comparison. The German and Austrian education systems do have their own programs that do not specifically resemble any Swiss structure. This concerns the German integrated study programs as well as the Austrian VET colleges, which have been introduced under 'school based programs' above.

Integrated study programmes are set apart from the other further VET opportunities by their half-academic status. In order to be accepted for an integrated study programme, students are required to have acquired either a 'baccalaureate' (*Abitur*) or another university entrance qualification. These studies are almost entirely unique to Germany although certain universities in Switzerland (Zurich Institute of the Deutsche Hochschule für Prävention und Gesundheitsmanagement [DHfPG]) and Austria (Fachhochschule Joanneum) have now started to offer dual Bachelor's degrees. In the light of recent European Union trends towards more academic education, integrated studies offer a combination of both academic and vocational education, however a university entrance exam (Abitur) is required (Krone 2015).

Another small difference is found within health and social care education. While integrated into regular apprenticeships, colleges of higher education and universities of applied sciences in Switzerland, most health care professions are taught in separate schools in the other two countries. In Austria, these schools are called 'Schulen für Gesundheits- und Krankenpflege' with certain professions being moved towards universities of applied sciences (Schneeberger et al. 2013). The German equivalent are the schools of health care (Schulen des Gesundheitswesens) (Hensen-Reifgens and Hippach-Schneider 2014).

6 Conclusion

All three countries have structures in place that ensure a continuation of studies beyond initial VET, which warrants skills updating, lifelong learning and potentially career progress for graduates. The comparison shows that even those programs, that seem to be similar by title, are different in respect to their recognition (e.g., ISCED level), hosting institutions and preconditions for access. This chapter provides a small comparative reference with the intention to support a deeper understanding of the various structures in comparison to ones' neighbouring countries. Overall, the three countries, all with a strong VET system, demonstrate that improving the permeability of their education system is work in progress.

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Competency-based education and training in Namibia: Educational transfer as imitation

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Abstract

The application of competency-based education and training (CBET) in the vocational sector started with the National Vocational Qualifications (NVQ) in 1986 in the United Kingdom. Shortly after the implementation, the CBET approach was exported within the Commonwealth of Nations to New Zealand (starting in 1987; introduction of the New Zealand National Qualifications Framework in 1990/1991) and Australia (starting in 1990; introduction of the Australian Qualifications Framework in 1995). Australia itself transferred CBET to South Africa (starting in 1992; introduction of the South African Qualifications Framework in 1995/1996), and both countries, Australia and South Africa, finally exported CBET to Namibia (starting in 1996; introduction of the Namibian Qualification Framework in 2006).

In this article, we compare the principles of the original NVQ-CBET of the 1980th with the characteristics of the current CBET approach in Namibia. Our research question is: Are the implemented CBET principles in Namibia an imitation, an adaptation or a transformation in comparison with the original principles? We focus in our comparison on two basic principles of the original NVQ-CBET: behaviourism and functionalism.

The findings show that the current CBET system in Namibia is predominantly an imitation of the original NVQ-CBET of the 1980th. Neither the time span, geographic or cultural distance and nor the domino transfer via Australia and South Africa have initiated a transformation or an adaption of the original principles. The article ends with an assumption why the educational transfer in this case was so resilient.

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1 CBET: Principles and myths

The roots of competence-based education and training (CBET) can be traced to the USA in the 1920s. In the 1960s, the CBET approach experienced its central ascent in reaction to the Sputnik shock (1957), and the year of its political birth was probably 1968, when the US Office of Education awarded 10 sponsorship programmes to colleges and universities to develop CBET programmes. The aim of the programmes (input/process) was intended to establish precisely defined competencies and behaviours (outcomes) to improve the performance of students. In the 1970s, the approach diffused into the wider education system, although little or no evidence supported the idea that the CBET approach was superior to other forms of education (Tuxworth 1989). The lack of evidence still exists today (Lassnigg 2017).

Outcome orientation forms the core of the CBET approach. It is noteworthy, however, that this approach was initiated via a training programme in the United States. The relation between input, process and outcome got lost in the application of the concept in the United Kingdom. The U.K. adopted the CBET approach in the early 1980s, and the government institutionalised it in 1986 through the establishment of the National Council of Vocational Qualifications (NCVQ). The major task of the council was to create a five-level framework for National Vocational Qualifications (NVQ) "to simplify the 'qualifications jungle' ... within a single coherent system" (Department of Employment and Department of Education and Science 1986, p. 19). The NVQ framework was officially endorsed by the government in 1991 (Department of Education and Science 1991).

1.1 Behaviourism

The CBET approach originated in the intellectual climate of behaviourism before the cognitive turn (Neisser 1967), and these roots still cling to it today (Hyland 1994; Hyland 2017). The first principle of NVQ-CBET is that individual competence can be grasped as a qualification and measured objectively by means of *visible* performance for all forms of work and *intersubjectively comparable* by a standard: "An element of competence, with its performance criteria and range statement, constitutes a standard" (Mansfield 1991, p. 14). The approach of Bob Mansfield, a consultant and co-founder of the CBET approach in U.K., becomes clear in his statement: "I personally reject the concept of individual characteristics as a model for describing performance" (Mansfield 1993, p. 21). Thus, a behaviouristic approach based on behaviour and observation is a guiding principle without the consideration of the individual competence and cognitive categories (e.g., understanding, motivation, ability and attitude). As a 'black box', cognitive pro-

cesses are excluded from qualifications. The behaviourist NVQ-CBET approach places skilled workers on the level of 'trivial machines' (von Foerster 1985). In the article "Psychology as the behaviorist views" it by John B. Watson, the demand of behaviourism is formulated as follows:

> Psychology, as the behaviorist views it, is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. (Watson 1913, p. 158)

To distinguish the concept of individual competence (knowledge, skills and attitudes) from this concept focusing on "elements of activities" (Tuxworth 1989, p. 9), the terms 'competencies' or 'competency' are often used (Mansfield 1989). The NVQ-CBET approach has been reductionistic from its beginning. The effects in U.K. have also been reductionistic. The existing 'low skill equilibrium' (Finegold and Soskice 1988) continued after implementation, and the implemented approach strengthened the promotion of low-level qualifications on the first and second level of the newly developed five-level framework for the National Vocational Qualifications (Chapman 1994; Shackleton and Walsh 1995). Even these low-level qualifications were not valued by the employers:

> occupationally, specific level 2 vocational awards (NVQ) generally offer poor or even negative returns, and are of particularly low value to males who obtain them in college or a public training scheme, and whose wages are on average 12% or 23% lower than those of matched contemporaries who are 'less' qualified. (Wolf 2011, p. 31)

This poor or negative return cannot be solely explained by low-skill equilibrium.

1.2 Functionalism

The second principle is related to the first one: In NVQ-CBET, the starting point builds an occupational sector with a special key purpose such as the "construction sector (an occupational sector): Establish, maintain and modify the use of the natural and built environment, balancing the requirements of clients, users and the community" (Mansfield and Mitchell 1996, p. 106). This key purpose shall be subdivided into functional key areas, such as "A) Plan the build environment, B) Design the built environment, C) Construct, maintain the built environment, D) Co-ordinate and control the development, construction and maintenance of the built environment" (Mansfield and Mitchell 1996, p. 110). These functional areas shall be subdivided into key roles or work roles as an expected behaviour in a work

environment. These key roles shall be subdivided into functional units. Functional units can be taken in another step a) as a unit of competence, the two or more functional units can be b) combined into a new unit of competence or even c) subdivided into two or more units of competencies. A selection and collection of units of competencies then build a qualification/NVQ title (see Fig. 1). Synonyms for Units of Competencies are 'elements of competence' or 'occupational standards'. For the measurement of NVQs, the units of competence have to be broken down into 'performance criteria', which will be specified through 'range statements'. Range statements are descriptions of the situational attributes of a sub-sub-sub-activity. This method is called functional analysis (critical: Wolf 1995; advocating: Mansfield and Mitchell 1996).

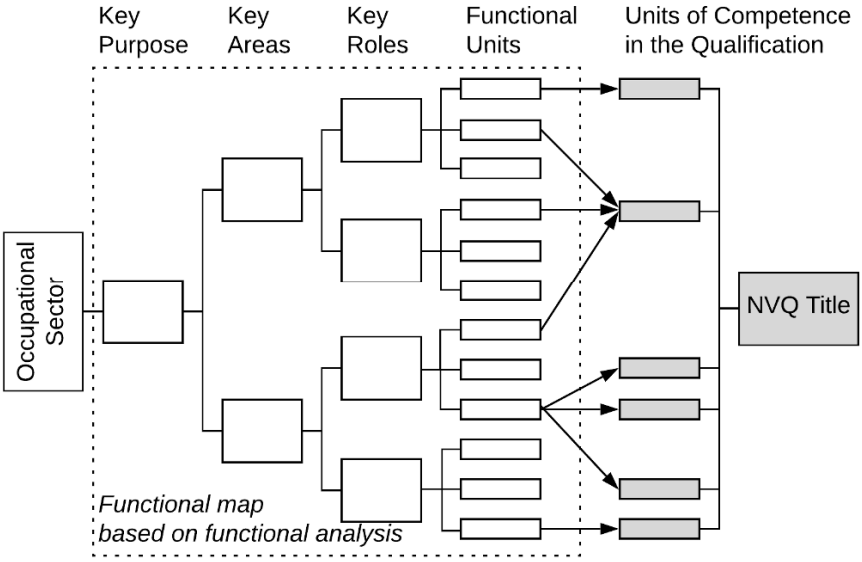

Fig. 1: Functional analysis and qualification

(Mansfield and Mitchell 1996, p. 133)

The differences between a functional map/functional analysis and a qualification are: (1) "A functional map and its constituent standards represents **all** the roles in an occupational sector; a qualification is a **selection** from the standards. Many different qualifications may be developed from a single functional map" (Mansfield and Mitchell 1996, p. 132). (2) "The structure also differ in that the functional map has a number of levels of analysis, whereas the qualification only has one -

the overall qualification title and the units of competence" (Mansfield and Mitchell 1996, p. 132).

The ISCO International Standard Classification of Occupations from 2008 distinguish more than 7,000 occupational titles which can be seen as an equivalent for the construct 'key role' or 'work role' in the functional model. These occupational titles consist of at least five tasks (usually much more), therefore at least 35,000 functional units. If we take into account that this basis is not stable, new roles arise, others are aging or disappear, and *performance criteria* and *range statements* for each unit of competence are additionally needed, the checking, updating, development and abolition can never reach a sufficient up-to-date status.

Each breakdown step within the functional analysis reduces the coherence and scope of the starting point, the work role and the value of the addressed qualification. The "experience of NVQs in England and other outcomes-based systems indicates that attempts to increase the precision of outcomes can only lead to them becoming trivialized" (Young 1996, p. 28). The NVQ-CBET approach is, as described, situated in functionalism, typically for the era of Taylorism, even if the authors proclaim the opposite:

> Functional analysis is not an attempt to return to functional, separated, departmental thinking, although the very appearance of the functional map, with formal statements in boxes, joined up with lines in an apparent flow chart can appear to represent the very essence of rigid operational thinking. (Mansfield and Mitchell 1996, p. 99)

Alternative approaches with the same purpose are 'job or task analysis' with onsite observations to subdivide tasks into their constituent parts and 'Developing a Curriculum' (DACUM) with guided group discussions instead of job observations (Allais 2016).

The importance of *work process knowledge* had to be ignored in the three approaches (functional analysis, job or task analysis and DACUM) three times: (1) on the one hand, knowledge is excluded from the CBET ideology because of the behaviourist perspective, and on the other hand, (2) the importance of social competences at the workplace (Aarkrog and Wahlgren 2017) and (3) organisational innovations towards process orientation and team work (Roos et al. 1991) are excluded because of the functional perspective. In contrary, work process knowledge is individually and socially constructed in a process of shared sense making and it is actively used by the employees in the performance of work, especially when they are solving problems. It is not isolated, not fragmented and not 'inert'. Work process knowledge encompasses, especially for the sense making, the systems-level understanding of the work process in the organisation as a whole, and therefore the understanding of the interaction between business process, production process and labour process. It is integrated, holistic and relevant.

Work process knowledge is not *knowing how*, it is not *knowing that* and it is not *knowing why*. It is the necessary synthesis of these forms of knowledge (Boreham et al. 2002). Work process knowledge is furthermore a development process within a novice to expert continuum (Shearer and Lasonen 2018).

The CBET approach is therefore not only reductionistic but also outdated, and persons assessed on the grounds of this philosophy are not able to solve complex problems and meet the needs of the world of work (Pfeiffer 2018). Training curricula and training which are developed on this ground have to fail because of their inappropriateness for capturing the demands of the world of work with the means of a 'formal feedback mechanism' (Markowitsch and Hefler 2018). A gap in lost value and skills is the logical consequence. The gap is not just within a qualification defined by the distance between a work role and its performance criteria. Another gap relates to the distance between the suspected and fragmented work role, used in NVQs, and the applied and integrated work role, used in the work environment.

2 Namibia

In this section we describe first the general recent situation in Namibia, second the establishing CBET in Namibia, followed by an analysis of the principle *behaviourism* in a third and *functionalism* in a fourth step.

2.1 Context

Namibia is a large country with a small population of 2,5 million, more than 400,000 of whom live in Windhoek. In 2017, Namibia's Human Development Index (HDI) was 0,647, situating it within the medium human development group and above the average for countries in Sub-Saharan Africa (0,537). However, the country's Gini coefficient, which measures income inequality, is 61,0. This is the second highest in the world, just below South Africa (63,0). If inequality is considered, Namibia's HDI falls to 0,422, a loss of 34,8%. In total, 22,6% of the population lives below the income poverty line ($ 1, 90 a day), and 26,4% of employed people aged 15 and older live on less than $ 3,10 a day. Also, 45,5% of youths (aged 15–24) are unemployed, and 33,4% are not in school or employed. The median age of the population is 21 years, and the HIV prevalence among adults (aged 15–49) is 13,8% (United Nations Development Programme 2019).

Namibia is rich in resources such as diamonds, uranium, zinc, tin, lead, tungsten, copper, silver and gold, and it is heavily dependent on mineral exports. There is very little industrial production, and fifty percent of the country's foreign ex-

change earnings are provided by mining, accounting for about 12,5% of the gross domestic product (GDP) and half of industry's contribution to the GDP (26,3%). The country's already-high dependence on tourism is growing; 67% of the GDP is provided by services. Just 6,7% is provided by agriculture. In drought years, such as the last few years, food shortages and famine are common, especially in rural areas. Also, employment is affected, as more than 30% of the labour force works in the agriculture sector. About 50% of the country's cereal requirements are imported (Central Intelligence Agency 2019).

Traditionally, Namibia has had great economic dependence on South Africa. For example, South Africa provides 61,4% of Namibia's imports, especially higher-value products and many agricultural goods. However, this leads to challenges for Namibia. First, the Namibian dollar is tied to the South African rand and thus lacks financial sovereignty. Second, the recession in Namibia, which has continued since 2016, is connected to developments in South Africa.

Namibia also faces several environmental problems, including depletion and degradation of water and aquatic resources; desertification; land degradation; loss of biodiversity and biotic resources; and wildlife poaching. Thus, environmental protections were incorporated into the country's constitution, which was written in 1990. Namibia was the first country in the world to do this. Today, 14% of the country is protected under these provisions (Central Intelligence Agency 2019).

2.2 Establishment of CBET in Namibia

After a 23-year war and gaining its independence from South-Africa in 1990, Namibia started to reform the existing education and training sector. The former vocational system was predominantly industry-based, with a strong focus on apprenticeships, only a few organisations provided training, and there was strong discrimination due to apartheid. Thus, after independence a policy directive was developed. This directive prioritised four development goals: access, equality, quality and democracy (Ministry of Education and Culture 1993).

The National Vocational Training Act 18, which was developed in 1994 but brought into force in 1996, created a Chief Inspector position within the Ministry of Labour and Human Resources Development to oversee apprenticeships and a tripartite vocational training board. The function of the Chief Inspector was described as follows:

> No person shall, after the commencement of this Act, employ in terms of a contract of apprenticeship any person as an apprentice in a designated trade for which a scheme has been approved without having first been granted the written approval of the Chief

> Inspector to do so and except in accordance with the provisions of this Act or any other law. (Republic of Namibia 1994, p. 28)

The act also stipulated that fines are to be imposed if an employer fails to follow the rules stated within the act.

The function of the Vocational Training Board was to advise the Minister of Labour and Human Resources Development, to establish minimum standards for vocational training (including the development of vocational standards[3]) and trade testing procedures and arrangements and to "co-ordinate, encourage, facilitate and promote vocational training activities by private and public institutions in respect of agriculture, industry and commerce at all levels of vocational qualifications" (Republic of Namibia 1994, pp. 12–13). All of the rights and obligations of the Vocational Training Board were incorporated into the Namibia Training Authority (NTA) in 2008.

The Namibia Qualification Act 29, which was developed in 1996 and brought into force in 1998, set the framework for an outcome-based approach through the establishment of a juridical person and a statutory body called the Namibia Qualification Authority (NQA). The act defines the objectives of the NQA as follows (Republic of Namibia 1996, pp. 3–4):

- To set-up and administer a national qualifications framework;
- to set the occupational standards for any occupation, job, post, or position in any career structure;
- to set the curriculum standards required for achieving the occupational standards for a given occupation, job, post, or position in a career structure;
- to accredit persons, institutions and organisations providing education and courses of instruction or training of meeting certain requirements;
- to evaluate and recognise competencies learnt outside formal education.

In 2006, the National Qualifications Framework (NQF) came into force. It consists of 10 levels with descriptors and credits (1 credit represents 10 hours of notional learning time). Qualifications (certificate, diploma, bachelor's, bachelor's with honours, professional bachelor's, master's or doctoral degree) and unit standards can be registered at the NQF. Both, qualifications and unit standards, are considered occupational standards (Republic of Namibia 2006, p. 56).

The Vocational Education and Training Act 1 of 2008 established the NTA, the purpose of which is as follows (Republic of Namibia 2008, p. 2):

3 The 1994 act uses the term *vocational standards*, not *occupational standards*. Thus, the law does not seem to be affected by the CBET approach. Also, the 1994 act stipulates that the National Trade Testing and Certification Center should be established. However, the Namibian Qualification Act of 1996 does not use the word *trade* at all.

- To regulate the provision of vocational education and training (VET);
- to provide for the funding of VET;
- to provide for the imposition of a VET levy;
- to provide for the appointment of inspectors and designation of quality system auditors; and
- to provide for incidental matters.

In 2012, the NTA was tasked with accrediting and registering training providers and their programmes. Registered training providers are only allowed to offer training programs that have been registered (Republic of Namibia 2012).

On 1st April 2014, the Ministry of Education imposed a levy on employers. Under this levy, each employer with an annual payroll of N$ 1,000,000 (approximate 62,500 €) or more has to pay 1% of the annual payroll (Republic of Namibia 2014a). Up to 15% of this amount is used for administration of the levy, up to 50% is used to pay training grants and up to 35% is used to pay key priority grants (Republic of Namibia 2014b).

The Ministry of Higher Education, Training and Innovation (MHETI) is responsible for the VET system of Namibia. Specifically, the MHETI supervises higher education; vocational education; and the above-mentioned SOEs, the NQA and the NTA.

In a 2016 review report, UNESCO noted that the tasks of the NQA and NTA are not clearly delineated, and some overlap:

> Existing governance and financing arrangements, involving MHETI, the Namibia Training Authority (NTA), the Namibia Qualifications Authority (NQA), the National Training Fund (NTF) and the National Student Financial Assistance Fund (NSFAF) are complex, with five key features: non-separation of key functions, duplication and overlap of mandates, difference between institutions' legal mandates and actual responsibilities, lack of capacities and actions regarding the evaluation of impact of VET, and lack of autonomy of VET institutions. In the meantime, the contribution of the private sector to the VET system is insufficient, in terms of governance, contribution to curriculum development and contribution to delivery. (UNESCO 2016, p. 13)

The UNESCO review paints a critical picture of the VET system in Namibia.

2.3 Behaviourism and low-level qualifications

As mentioned before, the NQF consists of 10 levels. We analysed the registered unit standards (March 2019: N=1,277) in terms of level and credits (1 credit = 10 learning hours). Of all registered units, 72,6% are at levels 1–3, with most registered at levels 2 and 3. Most containing 50 learning hours (5 credits) or less are

registered at level 2. To reach a level 1 qualification, most units (79,2%) include less than 50 learning hours, while the average learning time required to reach level 3 is less than two weeks and the average to reach level 6 is less than three weeks. The same phenomenon is observed in the U.K.: the VET system includes numerical mostly low-level qualifications (Tab. 1).

Tab. 1: Unit standards registered on the NQF

Level	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Registered units (N=1277)	120	**403**	**403**	250	81	17	3
Percent of registered units (cumulative)	9,4%	41,0%	**72,6%**	92,2%	98,5%	99,8%	100%
Units with < 5 credits (%)	**79,2%**	**67,5%**	**53,6%**	32%	9,9%	5,9%	0%
Learning time per unit (mean)	37,9 h	51,4 h	67,4 h	85,2 h	99,4 h	110 h	180 h

(NQA March 2019)

The unit standards are grouped to form qualifications (e.g., the National Vocational Certificate [NVC]) that are registered under the NQF. Nevertheless, each unit standard has to be assessed separately. NVCs structure the training provided by vocational training centres and vocational schools; the first level is achieved in the first year, the second level is achieved in the second year and so on. In the following table, we illustrate this level system using the example of an NVC in Civil and Building Services Engineering (Plumbing), which was registered on 31 May 2018. Levels 5 and higher do not exist in the vocational sector.

The 2006 regulations that established the NQF in Namibia broadly define the outcome of learning as "an ability of an individual in terms of specific knowledge, understanding, skills and attributes attained as a result of a period of formal or nonformal learning" (Republic of Namibia 2006, p. 2). However, the outcome of learning has not been assessed because "unit standards are not directly used in the delivery of learning or training" (Republic of Namibia 2006, p. 58).

The decision regarding whether somebody passes or fails an assessment of a unit standard is based on performance criteria. These criteria "describe the evidence that must be considered in making an assessment decision. .... Performance criteria must ... refer to essential activities and/or results related to the outcome being assessed" (Republic of Namibia 2006, pp. 62–63). Performance criteria specify units (also called elements) that are used in combination or alone to create a unit standard. Elements are required to be demonstrable, and so both elements and performance criteria are behaviour-oriented.

Tab. 2: NVC in civil and building services engineering (plumbing)

Level	Compulsory		Expected, not compulsory
	Credits (1 C = 10 h)	**Unit Standards**	**Job attachment**
1	90	21	Minimum 3 months
2	79	15	Minimum 6 months
3	62	11	Minimum 6 months
4	85	12	Minimum 9 months
Sum	*316*	*59*	*Minimum 24 months*

(NTA 2018)

Compared with the descriptors of the NQF, this behavioural approach is valuable for level 1 (employs recall and a narrow range of knowledge and cognitive skills and does not generate new ideas) and level 2 (employs basic operational knowledge using readily available information and uses known solutions to familiar problems with little generation of new ideas) because operational knowledge and activity are mostly interchangeable. However, problems begin to arise at level 3 (employs some relevant theoretical knowledge and interpretations of available information and uses discretion and judgement for a range of known responses to familiar problems) and level 4 (employs a broad knowledge base incorporating some theoretical concepts or in-depth applied knowledge and skills in a specific area, performs analytical interpretation of information, makes informed judgements and offers a range of sometimes innovative responses to concrete but often unfamiliar problems) and higher levels because demonstrable activity plays a decreasing role in competence and demand for knowledge and expertise grows.

This problem has been solved by development of additional unit standards focusing on knowledge (Tab. 3). We illustrate these unit standards using the above-mentioned NVC in civil and building services engineering (plumbing).

Tab. 3: NVC in civil and building services engineering (plumbing)

Level	Apply knowledge of:		
2	Pre-basic mathematics	Basic building drawing	Basic building science
3	Basic mathematics	Fundamental building drawing	Fundamental building science
4	Intermediate mathematics	Advanced building drawing	Advanced building science

(NTA 2018)

In this example, fragmentation is not only hierarchical, occurring between different levels; it is also vertical, occurring between skills (e.g., installing storm water and sub-soil drainage systems as part of plumbing operations) and knowledge (e.g., applying fundamental knowledge of building science in different contexts).

The basic approach to CBET in Namibia is — according to the original NVQ — behaviour-oriented and focused on low-level qualifications.

2.4 Functionalism and skill gaps

The Namibian approach features a classification comprised of three tiers: fields, subfields and domains:

> *Fields of learning*, being the broadest aggregation of learning outcomes with a coherent alignment. *Subfields of learning*, being logical sub categorisations of Fields, and *Domains of learning*, being the smallest coherent aggregation of learning outcomes, having a more narrow and specific alignment. (Republic of Namibia 2006, p. 9)

Qualifications and unit standards are registered in a domain. Wide and major qualifications (certificate, diploma, bachelor's, bachelor's with honours, professional bachelor's, master's or doctoral degree) are used in the academic field. Smaller National Vocational Certificates and minor unit standards are used in the vocational field. Thus, two different logics are applied to education: a more holistic qualification-based approach in the academic field and a more fragmented unit-based approach in the vocational field.

A unit standard usually consists of different elements, but single-element unit standards are also possible. Elements "break the outcome of learning and/or work activity that will be formally recognised into sub outcomes that assist in explaining the title. .... Element(s) must: represent outcomes of learning and/or work activities that are demonstrable and assessable" (Republic of Namibia 2006, p. 62). Elements are concretised via performance criteria, which "refer to essential activities and/or results related to the outcome being assessed" (Republic of Namibia 2006, p. 63). In addition, "*range statements* indicate the breadth or limits of performance contexts applicable to any element" (Republic of Namibia 2006, p. 63). Additional 'special notes' may be used to "provide definitions of any specialist terms or words being used in a special context" (Republic of Namibia 2006, p. 66).

Comparison with the functional analysis described above (see Fig. 1) shows that the Namibian approach is an application of the NVQ approach.

Work process knowledge is ignored in three ways in the three approaches (i.e. functional analysis, job or task analysis and DACUM): (1) knowledge is excluded from the CBET ideology because of its behaviourist perspective and (2) social competences as well as (3) organisational innovations towards a process orientation and teamwork are not included.

Consider the example shown in table 4:

- The preparation of the necessary materials (such as tables, chairs, candles) is not mentioned in the unit standard. At least two additional unit standard would therefore be needed: 'Pre-preparing a site for a bush braai in a wilderness area' and 'assist with pre-preparing a site for a bush braai in a wilderness area'. Unit standards necessarily produce a lack of work process knowledge: what happens before and after a unit standard remains unclear.
- In the special notes, a distinction is drawn between 'under the direction of others' and 'undertake a number of tasks independently'. However, the division of tasks involves a relation between at least two persons, which means that teamwork is relational, dynamic and contextualised. How much independence and how much followed instruction in variable situations is needed to be assessed as competent?

The unit standards are never complete (due to the orientation on tasks and the ignoring of work process knowledge) and never precise (due to the orientation on definitions and ignoring of work reality). These problems cannot be solved by more definitions and analyses. In fact, breaking down each step within the functional analysis reduces the coherence and scope of the starting point, the work to be done and the value of the addressed qualification. The functional logic leads to fragmented, artificial aspects of activities that are distant from the realities and requirements of work.

Tab. 4: Comparison between the NVQ in the U.K. the NQF in Namibia

NVQ (U.K.)	**NQF (Namibia)**	**Example (Republic of Namibia 2006, p. 69-71)**
Occupational sector with a key purpose	Fields of learning	Tourism
	Subfields of learning	Safari tourism
Key areas	Domains	Safari camp operations
Key roles	Qualification	--
Functional units	Unit Standards	Assist with preparing a site for a bush braai in a wilderness area
Unit of competence	Elements (E)	E1: Assist with preparing a site for a bush braai. E2: Assist with setting tables for a bush braai. E3: Assist with clearing a site after a bush braai.
Performance criteria	Performance criteria (PC)	17 Performance criteria are mentioned (e.g. E2-PC3: seating is arranged around the fire such that

NVQ (U.K.)	NQF (Namibia)	Example (Republic of Namibia 2006, p. 69-71)
		guests will likely be warm yet safe from sparks from the fire).
Range	Range	A function of 12–20 persons and/or a minimum of two tables.
	Special Notes	Three notes are mentioned, including the following: 'Assist' means taking on a significant role in the activities described in this unit standard. The candidate may be under the direction of others but will undertake a number of tasks independently of others. Assessment of this unit standard may require assistance to be given on a number of different occasions to ensure that assistance is given across the full range of activities to be demonstrated.

(Author's own compilation)

In 2014, the NTA commissioned CBET consultants — TEN (PTY), Ltd., and Windhoek, Namibia, and Learning Australia (PTY), Ltd., Melbourne, Australia — to review the implemented CBET system and propose strategies for further development. The consultants proposed a reformed CBET system, a key part of which "is the planned phase out of all non-unit standards-based qualifications and the establishment of a single unit standards-based qualifications framework for the VET system in Namibia" (Durango et al. 2015, p. 69).

3 Imitation transfer and the myth of simplicity

The term 'educational transfer' describes the transfer of educational ideas, structures and/or practices from one place to another. The unit of analysis can be located at a national level or even at a local level within a country, region, city or school (Perry and Tor 2009). Educational transfer is often associated with political reforms or regeneration. Alternative terms used in this context are 'policy transfer' (Dolowitz and Marsh 1996) and 'policy borrowing' (Phillips and Ochs 2003). Lewis describes the characteristic of educational transfer as follows: "The borrowing country abstracts the intent of the model of interest and designs a system that maintains its essence but takes on local character." (Lewis 2007, p. 474). Researchers regularly expect adaptions but not an imitation or duplication: "A closer

look shows that importing a system, or parts of it, involves more than mere duplication. It is a process of selecting and adapting certain components to suit the objectives and conditions of the potential importing country" (Euler 2013, p. 6). An exception from this rule of thumb is the case of transformation. Learners (or institutions or countries) construct a new framework for their collective activity and develop new objects within this framework (Gessler 2017; Gessler and Peters 2017). The transfer and implementation of the CBET system in Namibia is another case. In relation to the original model in United Kingdom it is a duplication, or imitation. Functionalism is a clear imitation of the original principle of the NVQ; no adaptions were implemented. Behaviourism is still largely the same, although it was in the meantime slightly updated.

In this case study we compared the beginnings with the recent situation. The transfer process and intervening factors were not considered. Nevertheless, the question should be raised, which factors make such an imitation transfer possible.

One factor might be the presumed *simplicity* of the model. Simplicity seems to be its ongoing purpose and marketing message: a "simple list of three questions and three specifications produces a VET standard which has a close link to the labour market" (Mansfield 2001, p. 5). The next step is "to go for simple controllable tests, formally administered and comfortingly familiar" (Graham and Tytler 1993, p. 127), with assessments structured on a "simple pass or fail basis" (Smithers 1993, p. 33). It is "recognized that these simple requirements result in a large body of knowledge at professional levels" (Jessup 1991, p. 27). Implementing and controlling a CBET system seems to be easy, and the implemented system offers, en passant, a simple solution to a variety of problems, as it supports skill development and economic competitiveness, and promotes furthermore equity, social justice and social inclusion (advocating: Jessup 1989, 1991; critical: Allais and Young 2011; Avis 2018). This simplicity of the model "in fact oversimplifies: it cannot capture the complexity of education, and it ignores economic problems, the structure of the labour market and the absence of other social policies which are likely to lead to a demand for skills" (Allais 2016, p. 454).

By the 1990s, the failure of the NVQ-CBET approach was already documented and widely known in the U.K. Despite this, it was promoted for educational transfer. According to Hyland (1998, p. 378), "Exporting failure in this way might be regarded in some circles as being, at best, as ethically dubious as selling television soap operas to impoverished third world countries". Namibia was one of several developing countries that implemented the CBET approach and still today, many countries (e.g., Botswana, Ethiopia, Kenya) try to implement or improve the CBET approach, often with the support of the same consultants who worked already in Namibia.

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Skill formation in cross-border contexts: The case of the trinational Upper Rhine region

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Abstract

Cross-border regions display significant economic, political, and cultural cooperation and represent a central feature of Europe — not least as innovation labs for the European integration project. A key example is the trinational French-German-Swiss Upper Rhine region. Each of the respective bordering countries displays a specific mode of regulation in VET. How do actors govern vocational education and training (VET) in this dynamic industry cluster in which distinct national political-administrative units do not overlap with the functional needs of employers and (future) employees? Relying on expert interviews and document analysis, this chapter offers a novel comparison of the respective subnational units within each cross-border region. The institutional study finds a key pattern through which skill formation is institutionalised within the cross-border context: the leveraging of complementarities between distinct educational institutions. In combining the specific strengths of different national skills regimes, VET stakeholders in cross-border regions are in a position to enlarge the scope and capacities of their skill regime far beyond national borders.

1 Introduction

Skill formation is considered to be one of the major institutional spheres in national socio-economic production models (Thelen 2004; Busemeyer and Trampusch 2012) and central to successful industry clusters more specifically (Schröder and Voelzkow 2016). In addition, the case of skill formation is particularly interesting to analyse in the context of cross-border regions, given that the political economy of skill formation literature has thus far mainly focused on the analysis of education and training within national frameworks (Streeck 2012; Emmenegger et al. 2019b). As much of this literature emphasises distinct national models of skill formation — especially in the area of vocational education and training (VET) (Bosch

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and Charest 2008) — the question arises how actors handle the respective institutional differences in cross-border industry clusters that transcend national borders? This research gap is even more surprising considering that some of these cross-border clusters are among the economically most successful regions in Europe (Graf and Gardin 2018; Leftris et al. 2005), suggesting that firms can derive some form of institutional advantage from their location in a cross-border context (Johnson 2009; Lundquist and Trippl 2013).

The related research puzzle is how governance in collective skill formation is managed in contexts where the political-administrative units do not overlap with the functional needs of employers and (future) employees within an industry cluster. Thus, how do private and public actors in such cross-border industry clusters draw on and develop the pool of skilled workers required for the competitiveness of their industry cluster — despite the presence of borders that mark distinct models of regulation and skill formation? Furthermore, how do the subnational parts of the cross-border industry cluster relate to each other and to the respective national model of regulation in which they are formally embedded?

To address these questions, we combine the comparative capitalism literature, with its focus on national varieties of capitalism (VoC) (e.g., Hall and Soskice 2001), and the literature on local production systems and industry clusters (or regional varieties of capitalism) (e.g., Crouch and Voelzkow 2009; Ebner 2016). None of these two approaches has yet been applied explicitly to the case of cross-border industry clusters. Thus, the present analysis contributes to these two literatures by extending them to cross-border local production systems and industry clusters. As a case study we focus on one of Europe's most dynamic cross-border industry clusters and wealthiest regions, namely the French-German-Swiss Upper Rhine region, well-known especially for its chemical, pharmaceutical, and life sciences industries (Walther and Reitel 2013; Zeller 2011). The Upper Rhine region is sometimes considered as a role model for other cross-border regions for its long tradition of regional integration (Richardson 2017, p. 23). Due to its high level of cross-border activity, in this region the effects of cross-border governance in skill formation should be particularly sizable. The region is, broadly speaking, composed of North-western Switzerland, Baden in Germany, and Alsace in France. Importantly, each of the three bordering countries displays a specific mode of regulation both with regard to its national model of capitalism and its skill formation system.

In terms of methods, the chapter relies on a comparative institutional analysis based on expert interviews with relevant stakeholders, document analysis, and the limited available secondary literature. The study finds a specific pattern through which cross-border skill formation is institutionalised, namely the leveraging of complementarities between distinct educational institutions in each part of the

cluster. Employers and other (intermediary) organisations in the trinational Upper Rhine region are building on this cross-border leveraging — which can lead to institutional innovations. Thus, actors in cross-border clusters are in a position to enlarge the scope and capacities of their skill regime beyond national borders.

The next sections present the theoretical framework as well as methods and data. Subsequently, the empirical analysis and the findings are presented. The chapter concludes with a discussion and an outlook.

2 Theoretical framework: Comparative capitalism, cross-border regions, and skill formation

As is well-established in the comparative capitalism literature, France, Germany, and Switzerland represent distinct models of capitalism, with Germany and Switzerland typically being counted towards the group of coordinated market economies and France seen as a more state-led type of capitalism (Amable 2003; Hall and Soskice 2001; Schmidt 2002). While Germany is considered to be an ideal type of a coordinated market economy, Switzerland is sometimes depicted as a hybrid between the coordinated and liberal type of capitalism, mainly due to its more flexible labour market arrangements (Mach and Trampusch 2011). Furthermore, the governance of skill formation — especially with regard to VET — also differs in these three neighbouring countries. In Switzerland and Germany, there is a strong tradition of corporatist-governed dual apprenticeship training (Pilz 2007). While in Switzerland we find a highly complex configuration of hybrid organisations of the world of work (Organisationen der Arbeitswelt) that play a key role in the corporatist governance of apprenticeship training, the responsible German chambers are less fragmented and built on compulsory membership (often along sectoral lines) (Emmenegger et al. 2019a). The French VET system, on the other hand, is based primarily on full-time school-based VET and is far more centralised (Bosch and Charest 2008; Busemeyer and Trampusch 2012; Culpepper 2003; Greinert 2005; Powell et al. 2012b).[2]

Research into cross-border regions is naturally drawn to conceptualisations that go beyond the study of education and training within such national analytical frameworks. According to Walther (2013), "cross-border governance thus results from the subtle and delicate balance between the heterogeneity of the border situation and the common concerns arising from cross-border development" (p. 218). Broadly speaking, regional cross-border governance takes place when state actors and non-state actors from different regions cooperate voluntarily across different

2 For a comprehensive review and critique of typologies in comparative vocational education, see Pilz (2016).

levels (local, regional, national), and in doing so combine different forms of cooperation of regional processes (Zäch and Pütz 2014). Thus, "cross-border regions are even more multi-actor and multi-level spaces than institutionalized regions in decentralized states" (Zumbusch and Scherer 2015, p. 502). Cross-border regions combine or cut through two or more political-administrative units, often leading to a mismatch between the 'legal political area' and the 'functional economic area'. A key example of this phenomenon is the emergence of cross-border employment catchment areas and related cooperation projects in education and training (Lezzi 2000; Maillat and Léchot 1995).

2.1 Analytical perspectives on cross-border industry clusters

An industry cluster can be defined as "geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for instance, universities, standards agencies, trade associations) in a particular field that compete but also cooperate" (Porter 2000, p. 15). Such clusters can be expected to provide institutional conditions conducive to intensive micro-level negotiations (Martin 2013) facilitating cooperation between the various involved actors. One of the core insights from recent political economy research on industry clusters is that they rely on the construction and maintenance of *collective competition goods*. Schröder and Voelzkow (2016) point to the importance of collective competition goods, such as a well-qualified workforce, knowhow, or an efficient distribution system, for the competitiveness of a cluster. They state that

> [Collective competition goods] have to be provided collectively; companies either have to cooperate directly to provide them or the state or associations have to do so. In any case, a collective action problem has to be overcome as each company of a cluster has an interest in these goods, while none can provide them alone without other companies being able to exploit this effort. (Schröder and Voelzkow 2016, p. 12)

However, as Schröder and Voelzkow (2016) and Crouch and Voelzkow (2009) have argued, the political economy literature offers two opposing views on the link between regional industry clusters (with their respective collective competition goods) and the national models of regulation. The classical *VoC literature* (e.g., Hall and Gingerich 2009) suggests that the key to success for a sector or region is that the governance mode applying to its collective competition goods is coherent to that of the national model of capitalism in which it is embedded. Hall and Soskice (2001) state that "… nations with a particular type of coordination in one sphere of the economy should tend to develop complementary practices in

other spheres as well" (p. 18). In their understanding, complementarity is seen to derive from similar (coherent) institutions on different regulatory levels (here: national model of capitalism and industry cluster). From this point of view, productive institutional complementarity between the industry cluster and the national model of capitalism essentially builds on the coherence between the respective governance modes.

In contrast to the classical VoC literature, the *literature on local production systems* (or regional varieties of capitalism) (Crouch et al. 2001, 2005, 2009) holds that it is precisely the incoherence between the governance mode of the collective competition good of an industry cluster and the governance mode of the national model of capitalism that creates productive institutional complementarity for an industry cluster. That is, the industry cluster typically develops institutions that are not fitting with the respective mode of regulation in the national model, and it is therefore that it is able to offer the specific regulation that the regional industry requires (Schröder and Voelzkow 2016). As Amable (2005) puts it, "complementarity may also exist where very different 'logics' operate in different institutional areas" (p. 372). Thus, from this point of view, institutional complementarity is seen as mainly deriving from incoherence. That is, industrial clusters are assumed to develop institutions dissimilar (incoherent) to their national governance mode, in this way yielding productive complementarity.

2.2 Vocational education and training in a cross-border industry cluster: Theoretical expectation

Crucially, both the VoC perspective and the local production systems perspective assume that industry clusters are embedded within one national frame — which, however, is not the case for cross-border industry clusters. Then, what expectations can we derive from these two theories for the case of cross-border industry clusters that span two or more national systems? At the most basic level, we expect to find relevant collective competition goods in the domain of skill formation within the trinational Upper Rhine industry cluster — as these can be assumed to be a necessary condition for any type of successful industry cluster. Beyond this, these two approaches allow us to derive two competing, stylised scenarios of how firms and other actors in the cluster can benefit from their location in a cross-border region.

Based on the VoC perspective, we would expect coherence between each national sub-unit of the cross-border industry cluster and the respective national model of capitalism. This, in turn, would imply incoherence between the three parts of the cross-border industry clusters. Given this type of incoherence, benefits for firms being located in such a cluster are likely to derive from them tapping into

the institutional resources — or comparative institutional advantages — of the respective other part. That is, firms located in the Swiss part would mainly contribute to the collective competition good of their Swiss part alone. Yet, at the same time, they would find ways to leverage the distinct way in which skill formation is institutionalised in the German and French parts of the cluster. In sum, in this scenario, we would expect to observe within-country complementarities (between the relevant subnational part of the cluster and the respective national level) based on coherence (Hypothesis 1.1) and cross-border level complementarities within the cluster based on incoherence (Hypothesis 1.2).

Based on the local production systems perspective, however, we would expect the development of original collective competition goods that span the three parts of the cross-border industry cluster and that provide some sort of cross-border coherence. Private and/or public actors within the cross-border region can be expected to provide these goods jointly and, hence, we call these joint *cross-border collective competition goods*. Cross-border collective competition goods, on the one hand, build on a certain level of coherence that makes intensive industry-level cooperation possible in the first place, and, on the other hand, they themselves contribute to increased coherence between the three subnational parts of the cluster. That is, overtime, they are likely to facilitate a partial hybridisation between the three parts of the cluster,[3] which, in turn, implies that the three parts of the cross-border cluster partly diverge from the respective national model to which they formally belong. In sum, in this scenario we would expect to find jointly provided cross-border collective competition goods within the cluster (Hypothesis 2.2) that partially diverge from the respective national model of capitalism (Hypothesis 2.1).

3 Methods and data

To test these hypotheses, our core cases are local education and training programs that provide firms in the Upper Rhine region in the field of pharmacy, chemistry, and life sciences as well as adjunct suppliers producing necessary tools and instruments with the skilled workforce they require to be competitive in global markets. Despite its global outreach and partially global recruitment practises, this industry still relies substantially on the regional skills pool (Streckeisen 2010, Interview 7). Given that the Swiss part of the Upper Rhine region represents the economic centre of this industry cluster, we mainly focus on programmes of initial professional

3 According to Boyer (2005), "the process of hybridization precisely describes the process through which tentatively imported institutions are transformed via their interaction with domestic institutional forms" (p. 366).

education and training — and related actor constellations — that are the most relevant ones in this Swiss part, and explore how these are linked to the cross-border context. More specifically, we focus on apprenticeship training at the upper secondary level, which represents the main educational pathway into the labour market in Switzerland (Emmenegger et al. 2019b; Ryan 2012). The main educational provider in the Swiss part of the industry cluster is the regional host-company training network called 'Aprentas' in which around 70 firms in Northwestern Switzerland join forces in building their workforce in the chemistry, pharmacy, and life sciences sector, and which represents a core example of a Swiss-style collective competition good in the Basel region. The three main occupations that Aprentas trains for are chemical and pharmaceutical technologist, lab technician in chemistry and biology, but also several technical and commercial occupations.

The comparative historical-institutional analysis is based on a review of relevant secondary literature, document analysis as well as expert interviews with key actors. Ten interviews were carried out with expert practitioners from the public and private sector in the cross-border region, including representatives of educational institutions, businesses, unions, cross-border intermediary organisations, and local politicians.[4] Interviewees were mainly senior practioners with first-hand experiences of cross-border activities in the Upper Rhine region. The majority of the interviewees were Swiss actors, in line with the abovementioned focus on the Swiss part of the industry cluster, but all of them had substantial knowledge of the cross-border region as a whole. Representatives of educational institutions made up the largest type of interviewees, given their day-to-day knowledge of the concrete operation of cross-border activities in education and training. The semi-structured interviews were based on an interview guideline structured by key concepts derived from the chapter's theoretical framework. This involved, for instance, arguments regarding barriers and opportunities related to cross-border activities in education and training. This systematic structure then allowed the comparison of the information provided by the interviewees. The information was analysed with reference to the steps proposed by Meuser and Nagel (2009) that include, for instance, paraphrasing, coding (ordering of thematic passages), thematic comparison and conceptualization. Interviews took place either in the form of personal meetings or via phone and lasted on average around 50 minutes. For non-recorded interviews, notes from the interview were written out in full immediately after the interview.

4 Interview 1 (10 November 2016); Interview 2 (21 November 2016); Interview 3 (25 November 2016); Interview 4 (29 November 2016); Interview 5 (28 March 2017); Interview 6 (28 March 2017); Interview 7 (04 April 2017); Interview 8 (26 June 2017); Interview 9 (05 August 2017); Interview 10 (11 July 2018).

4 Vocational education and training in the chemistry, pharmaceutical and life sciences cross-border cluster

The Upper Rhine region includes the Swiss cantons Basel-City, Basel-Country, Aargau, and Solothurn, Alsace in France, and Baden and Southern Palatinate in Germany. This region, located very centrally in Western Europe at the crossroads of major trade routes (Brunet 1989; Rokkan 1981), is home to around six million people and approximately 90,000 cross-border commuters (Oberrheinkonferenz 2014). It is characterized by a long-standing tradition in cross-border cooperation in various policy domains (Walther and Reitel 2013). Alsace has switched between German and French control several times. While the first language in Alsace is French, the traditional dialect is Germanic — which to some extent lowers the language barrier in cross-border activities (several interviews). While economic activity in the cross-border region is diversified, especially in its Southern part, the region is dominated by the chemical, pharmaceutical, and life sciences industry and its suppliers (Zeller 2011), which is therefore in the spotlight of this analysis. The genesis and rise of the chemical industry is intrinsically linked to its location in the border region. For example, chemists and entrepreneurs especially from Alsace (France) initially came to Basel to benefit from the non-existence of patent laws for chemical products in Switzerland until 1907 (Stucki 1986).

The following figures give a rough indication of the relevance of cross-border human capital flows in the Swiss part of the cluster (not even considering the foreigners that actually take residence in Switzerland): in 2014, there were 31,400 people commuting from Alsace into Northwestern Switzerland and 33,700 from Baden — while the number of commuters in the opposite directions was very low (Oberrheinkonferenz 2014, Interview 5). Furthermore, in 2008, 14% of the commuters from France and 17% of those from Germany were working in the chemical and pharmaceutical industries (EURES-T 2008). Already in 2004, more than 40% of the employees of Novartis (a global player in the pharmaceutical industry) in Northwestern Switzerland were cross-border commuters (Streckeisen 2008).

Local actors have been successful in creating a range of cross-border intermediary organisations that foster cooperation but also the exchange of best practices across borders to connect actors and institutions of the three parts of the region (Interview 8). The most influential of these organisations are the Franco-German-Swiss Upper Rhine conference, the INTERREG Oberrhein (a programme within the EU's INTERREG programme for cross-border cooperation), EURES-Transfrontalier (EURES-T), and Regio Basiliensis. As a result of this cross-border institution-building, in the Upper Rhine region, "[n]ational borders play a diminishing role in the formation of policy networks for both information exchange and decision making" (Walther and Reitel 2013, p. 217).

In the following, the key skill formation program identified in Section 3, namely the Aprentas training network, and its connection to the cross-border context are analysed. The analytical interpretation follows in Section 5.

4.1 The Aprentas training network

Apprenticeship training in Switzerland is typically organised in three integrated places of learning. That is, next to the vocational school and the workplace, there is also the so-called third place of learning, which is organised by the responsible professional organisation and offers inter-firm training for apprentices (Wettstein and Gonon 2009). However, among other things, due to "rising flexibility, the rationalisation of production processes and the standardisation of products" (Imdorf and Leemann 2012, p. 58), it has become increasingly difficult to create (additional) apprenticeship places. In reaction to this challenge, starting in the early 2000s we observe the founding of training networks in Switzerland. Broadly speaking, these networks are made up of various firms within a region that operate in related sectors and in which a 'lead organisation' supports the firms in implementing apprenticeship training, for example through providing the third place of learning, vocational schooling, marketing, and recruitment instruments (Imdorf and Leemann 2012).

In the Basel region, the so-called Aprentas training network was founded in 2000 'bottom-up' by Novartis, Syngenta, and Ciba (now BASF Schweiz) (Zeller 2001, p. 270). In the wake of a general trend to outsource various infrastructure services, Aprentas was created with the mission to service all three companies. However, Aprentas was, from the beginning, also open to other, smaller companies. In fact, the three founding firms explicitly stated that Aprentas should enable other firms to participate in apprenticeship training that previously abstained from it due to their small size (Ciba and Novartis 2000). Interestingly, while Thelen and Busemeyer (2012) observe increasing segmentalism between large and small firms in the German VET case, the Swiss case of Aprentas provides an example of large industrial firms intensifying cooperation with smaller firms in their sector and region to provide a collective competition good.

Aprentas offers training for around 600 students in 14 occupations in the natural sciences, technical occupations, and commerce. It is a non-profit association (*Verein*) with several training locations in the greater Basel area (Aprentas 2013), subsidised by the cantons Basel-Country and Basel-City. It also provides further training and higher VET programs. At the level of apprenticeship training, Aprentas organises the third place of learning and, for some occupations, also the vocational schooling part. In addition, Aprentas supports its member firms in the marketing of their training positions and also in the selection process. Next to the three

key sponsoring firms, around 70 other firms in the chemical-pharmaceutical, technical, and service sectors are members of Aprentas.

Thus, the Aprentas training network represents an example of a collective competition good in the field of skill formation within the Swiss part of the trinational industry cluster, and is in line with the governance mode in the Swiss collective skill formation system overall. Yet, how does this training network relate to the cross-border context in which it is also embedded?

4.2 Cross-border perspectives on the Aprentas training nextwork

At the Upper Rhine, the principal tool of internationalisation in the field of VET is the EUREGIO-Certificate, specifically created for this region. This certificate supports work experiences abroad, targeting apprentices but also students in full-time vocational schools. For four weeks or longer, apprentices go abroad for a work experience taking place in a firm within the trinational Upper Rhine region — usually during their holidays, as it tends to be difficult to integrate the work abroad phase in the regular curriculum (Interview 1). The EUREGIO-Certificate is overseen by the Franco-German-Swiss conference of the Upper Rhine. Further actors involved include regional public governance organisations but also chambers of industry and commence in Germany and France. The certificate does not build on joint teaching staff or a joint curriculum, but 'merely' facilitates student exchange. The actual number of apprentices participating in the EUREGIO-Certificate programme on behalf of Aprentas is rather limited (Interviews 3, 10). The core problem here is that the three-year apprenticeship programmes are usually very densely packed, leaving little room for such international exchanges. Furthermore, the different national legislations and corresponding curricular contents make it difficult to actually create integrated cross-border VET programs (Interview 6). In addition, as firms pay apprentices a salary, they are not always keen on sending them abroad and, thus, to lose productive capacities (Interview 1). Overall, the influence of the EUREGIO-Certificate as a tool to facilitate cross-border skill formation is modest and it does not have a substantial impact on the Aprentas training network as a collective competition good.

However, two other aspects of cross-border activity are more relevant. These aspects relate to the question of who is recruited (I.) for apprenticeships and (II.) for entry-level jobs. In this context, it is important to note that the educational expansion, occurring in all western industrialised nations in the post-World War II period (see Schofer and Meyer 2005), played out differently in Switzerland than in Germany and France. In Germany and even more so in France, this expansion mainly took place in general academic schooling at the secondary level as well as at the higher education level (Bernhard 2017; Graf 2017). In France and Germany,

social democratic parties supported the expansion of academic education — with social democrats as key proponents of making selective academic secondary schools more accessible to the lower middle classes (Nikolai and Rothe 2013). In contrast, in Switzerland — with its arguably more conservative and business-oriented political landscape in which employers and their associations have greater direct influence on educational programmes and contents — the pressure for expansion was primarily channelled through expanding apprenticeship training at the secondary level and higher VET programs (Gemperle 2007). The resulting lack of academic skills in Switzerland affects the recruitment decisions of Swiss firms at the Upper Rhine.

I. Recruitment for apprenticeships: The member firms of Aprentas have become increasingly aware of the possibility to recruit talented graduates from the academic track of upper secondary level education (who hold a higher education entrance qualification) from Germany (*Abitur*) and France (*baccalaureate*) for their apprenticeship positions (Interview 6). Not only do these candidates have a higher level of general education that helps them cope with risen work requirements related to, for instance, modern digital process control technology and more complex project structures overall, but also increased English-language requirements, which are of high relevance in the rapidly globalising chemical, pharmaceutical and life sciences industry (Streckeisen 2008). In the case of Novartis, which contributes almost half of the apprentices to the Aprentas training network, already around one third of all apprentices hold a higher education entrance qualification (Interview 2). At the same time, in 2011, foreigners from neighbouring countries took up 20–30% of the apprentice positions that Novartis offers in Switzerland (Furger 2011). This situation is unusual in the Swiss context, where it is, unlike in Germany, uncommon that people holding higher education entrance qualifications enter apprenticeship programmes at the secondary level (Gonon and Maurer 2012; Graf 2016). Thus, Swiss firms in the industry cluster are strategically drawing on the skills portfolio developed in the neighbouring regions.

II. Recruitment for entry-level jobs: When it comes to the entry-level jobs adequate for apprentices that have finished their training in the Swiss part of the cluster, it is important to note that employers in the Swiss part of the cluster — as a complementary strategy — often also hire graduates from practice-oriented short-track post-secondary training programmes in France and Germany for these positions (Streckeisen 2010). For example, in Alsace there exists a range of post-baccalaureate short-track vocational programmes in the fields of chemistry, pharmacy, and life sciences, in which students receive more theoretical training than Swiss apprentices do. Such programmes are mainly offered by national higher vocational

schools (e.g., École Nationale Supérieure d'enseignement en Chimie, Mulhouse) or university-based two-year technological courses (e.g., Instituts universitaire de technologie in Mulhouse or Strasbourg). In this way, firms based in the Swiss part of the cluster are able to complement the practical skills portfolio that Swiss apprentices acquire by hiring graduates from abroad and, thus, by leveraging the comparative institutional advantages of the other regions of the cluster. Another interesting facet of changing recruitment patterns is related to the origin of the management personnel. In the past 10–15 years, more and more international managers have been hired in the chemical industry. However, these are not as familiar with the Swiss concept of dual apprenticeship and more open to recruiting academically trained personnel from outside the Swiss frame (Interview 1).

The next section summarises key findings of the case study in relation to the central hypotheses formulated in Section 2.

4.3 Findings: The leveraging of regional complementarities

The institutional analysis finds that the Aprentas training network represents a case of within-country complementarity based on similar (coherent) institutions, which corresponds to Hypothesis 1.1. The training network is embedded in the specific Swiss mode of decentralised cooperation of skill formation. That is, it is in line with the institutional setting and governance mode at the Swiss national level. No such training networks can be observed in the French or German parts of the Upper Rhine cluster. At the same time, the VET case also illustrates that the involved Swiss employers are able to draw on the regionally available institutional resources in the other parts of the cluster. For example, they draw on the large regional pool of young Germans with higher education entrance qualification to recruit them for their apprenticeship programmes. Beyond this, for entry-level jobs, firms based in the Swiss part of the cluster also hire graduates from practice-oriented short track higher education programmes, for instance, in Alsace, which have received more theoretical and language training than Swiss apprentices. In France, such programmes are offered by national higher vocational schools or university-based two-year technological courses. In this sense, Swiss firms in the cluster are able to complement the high level of practical skills that apprentices acquire within the Swiss model by leveraging the distinct institutional features of skill formation in the French and German parts of the cluster (which supports Hypothesis 1.2).

5 Conclusion

Cross-border regions are a key feature of Europe, yet underexplored especially in terms of the education and training dimension. What can we learn from the case of the governance of vocational education and training in the trinational Upper Rhine region? The chapter has found a key pattern through which cross-border skill formation is institutionalised: the cross-border complementarity based on comparative institutional advantages, i.e. the leveraging of dissimilar (incoherent) collective competition goods in each part of the cluster. This fits the theoretical predictions derived from the national VoC literature. Employers and other organisations in the Swiss and other parts of the cross-border industry cluster build extensively on cross-border institutional leveraging. This, in turn, can lead to institutional innovation as actors in cross-border clusters enlarge the scope and capacities of their educational system far beyond the national borders.

More generally, in the case of VET research on cross-border regions, increased attention should be given to education and training developments taking place in the neighbouring countries as integral parts of the production models and stratification systems of these regions, and how they shape and are being shaped by different socio-economic and political processes that increasingly transcend the national paradigm. This also implies taking into account the very different education systems of the neighbouring countries (for example, differences in: educational governance, curricula, overall structures and duration of schooling, transitions from education to work), and how their institutional features — often shaped by distinct models of capitalism — translate into the respective country's system of training and labour. In fact, in a relatively small country like Switzerland, in which a significant proportion of economic activity takes place in or close to cross-border regions, this perspective presents a challenge to the strong national focus of much of the comparative capitalism and comparative VET literature, but also the perception of Switzerland as a laggard with regard to European integration.

Cross-border regions are constantly challenged by the need to internalise influences both from the 'inside' and 'outside'. This challenge is relevant, for instance, to all those actors that need to coordinate activities in skill formation but are faced with a situation in which extensive socio-economic activities crosscutting political-administrative units prevail. With regard to the European level, the findings suggest that the success of the European educational system as a whole (Powell et al. 2012a) — and particular of a European VET model — is not so much dependent on the harmonisation of national or regional specificities, but more on a sophisticated combination of regionally available institutional resources. Further research could explore in more detail whether the socio-economic fabric and strength of other cross-border regions, in which different economic

sectors and VET models dominate, also derive from institutional resources into which local firms and organisations can tap due to their very location in hybrid cross-border regions that successfully combine 'native' and 'foreign' institutional conditions.

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Comparing the integration of technical vocational education and training (TVET) in systems of innovation: Towards a new cultural political economy of skills?

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Abstract

In the 21st century, strategies and policies for innovation consider education and training as some of the most important requirements for innovation development. This paper presents the comprehensive theoretical and methodological approach (cultural political economy of skills) used by the author in the research "The integration of technical vocational education and training (TVET) in systems of innovation: A comparative study on governance of skills formation and diffusion", financed by the German Academic Exchange Service (DAAD). The research uses the contributions of the political economy of skills, the governance studies, and the cultural political economy, to investigate how the integration of TVET in systems of innovation impacts the governance of skills formation and diffusion in Germany and Brazil. The different types of strategies and solutions proposed by new economic policies in developed and developing countries, such as Germany and Brazil, show the importance of investigating how different types of vocational education systems, networks, and schools are being integrated into processes of innovation development and which kinds of social and economic impacts can be related to the changing patterns of TVET governance. The paper argues that the combination of different research traditions makes it possible to proceed with a comprehensive analysis of agency, structure, and culture in the governance of skills formation and diffusion. The paper presents some of the initial findings as a brief illustration of the phenomenon (the integration of TVET in systems of innovation in Germany and Brazil) and discusses some important issues related to the use of a cultural political economy of skills approach in comparative research.

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1 Introduction

In the 21st century, technical and vocational education and training (TVET) systems are being reformed or reorganised to create more synergy between education and the demands of new economic policies. In a context of economic globalisation, economic development is said to be highly dependent on innovation-led productivity as the main source of future growth. There seems to be widespread agreement that innovation — the creation and diffusion of new products, processes and methods — is the main driver of economic growth and social well-being. This "innovation imperative" (Organisation for Economic Co-operation and Development [OECD] 2015, pp. 11–13) creates the space in which public and private actors bring their attention to the development of different strategies and policies towards increasing their capacity to innovate. Very often, these strategies and policies consider education and training as some of the most important requirements for the development of innovation. Education and training systems are said to be important for the development of innovation given the complex relationship between innovation and skills. On the one hand, innovations are reliant on the amount and quality of skills available for usage in the labour market, entrepreneurship, and public sectors, but on the other hand, new products, processes or methods introduce new skills demands that must be addressed by education and training systems. This feedback cycle between innovations and skills poses considerable challenges for policy-making, e.g., the coordination between several actors in different fields, such as education and training, science and technology, and the economy. As a consequence, TVET systems are being oriented in different sites and levels, to increase labour and economic productivity by improvements in the coordination mechanisms between TVET supply, general education, labour market, and different economic actors.

Most of the new local, national and international innovation policies address the coordination of private and public actors as one of their main challenges, with great impacts on TVET governance. There is a consensus that the innovative capacity of a region or country depends to a large extent on how actors relate to each other as elements of a system. This is the rationale that lies behind the idea of 'systems of innovation', used by organisations such as the OECD as a sort of a policy cornerstone in the last decades. A system of innovation can be defined as "a system of interconnected institutions to create, store and transfer the knowledge, skills, and artefacts which define new technologies" (Metcalfe 1995, p. 462). The development of systems of innovations in which knowledge and skills circulate between different actors assumed great relevance in the economic policy agenda in the last decades, acting as a centripetal force influencing social perception and policies on education. For example, recent attempts to further develop

national and local systems of innovation in Germany are heavily focusing on the development of the so-called Industry 4.0, which introduces the discussion around the idea of 'digitalisation' in the TVET system. In a very distinct context, the group of emergent countries represented as the BRICS (Brazil, Russia, India, China and South Africa) have been also reforming their innovation policies to increase local, national and international cooperation between different stakeholders, with TVET networks acting as central actors not only focused information and circulation of skills (Cassiolato and Votorino 2009), but also as research institutes responsible for the development and implementation of innovation. The different types of strategies and solutions proposed by new economic policies in developed and developing countries, such as Germany and Brazil, show the importance of investigating how different types of vocational education systems, networks, and schools are being integrated into processes of innovation development and which kinds of social and economic impacts can be related to the changing patterns of TVET governance.

The main objective of this paper is to present a comprehensive theoretical and methodological framework (cultural political economy of skills) developed in the research "The integration of TVET in systems of innovation: A comparative study on governance of skills formation and diffusion" (research financed by the German Academic Exchange Service – DAAD). The paper argues that the combination of different research traditions such as the political economy of skills, the cultural political economy (CPE) and the governance studies makes it possible to proceed with a comprehensive analysis of agency, structure, and culture in the governance of skills formation and diffusion. The paper presents some of the initial findings as a brief illustration of the phenomenon (the integration of TVET in systems of innovation in Germany and Brazil) and discusses some important issues related to the use of a cultural political economy of skills approach in comparative research.

2 Cultural political economy of skills

The discussion around the integration of TVET in systems of innovation is a relatively recent phenomenon. After a broad literature review, the research identified the integration of TVET in systems of innovation as a rather neglected subject in the field of TVET research, despite the increasing awareness of the importance of TVET as a mechanism of skills and technology diffusion (von Hippel 1988, 2005; Landes 1972; Toner 2010, 2011). Research on TVET has produced several relevant publications in the last decades such as new international handbooks (e.g., Maclean and Wilson 2009; Rauner and Maclean 2008) or international studies and reports (e.g., European Centre for the Development of Vocational Training

[Cedefop] 2015; Cedefop and OECD 2015), however, the growing interest did not come without significant impacts on TVET research. Research on vocational education and training is nowadays mainly organised around a rather policy- or praxis-oriented perspective with a focus on internal aspects such as organisation, curriculum, teacher training, and competence development (Mulder and Roelofs 2012). One of the major criticisms of TVET research, e.g., research conducted by and for international organisations, refers to "relative isolation from theoretical, methodological and philosophical debates" (Lauterbach 2008, p. 82) that results from a deficiency in academic peer review. The second point of attention is the lack of a more sensitive approach to contextual and cultural differences (Pilz 2012). The third point is a considerable imbalance in international and comparative TVET research in terms of case-studies selection: the focus relies mainly on the study of European or developed countries, while other parts of the world, e.g., South-American nations, seem to be under-analysed.

Against this background, the research attempts to fulfil a lack of theoretically-informed studies on how the development of local, national and international systems of innovation can impact TVET systems/networks. Thus, the research uses a comprehensive theoretical framework with aims to develop a critical analysis of the discourses on innovation and TVET and their impact on the governance of skills formation and diffusion in different contexts. The theoretical framework uses complementary theories from different fields of research: the institutionalist approach from the political economy of skills, the macro-theoretical framework of the cultural political economy and the analytical tools from the governance studies.

The new political economy of skills, based on an institutionalist approach, focuses on the different models of skill formation, diffusion, and usage, to understand the development of capitalism and social welfare in modern economies. Along with this line, education, and especially TVET, represent an important element in the configuration of complex skill systems in which demand and supply of skills and skills formation are articulated (Brown et al. 2001; Green 2013). The idea of skills systems is an analytical tool for the analysis of the structures, processes, and effects of skills formation, diffusion, and usage. According to the authors, the different patterns of skills systems can facilitate, restrain or block access to skills, education and the labour market, such unemployment or skills surplus, skills underutilisation, workers training barriers or skills shortage, and employers training barriers.

Also, governance studies use the concept of governance to describe the changing role of the state in social policies. According to the authors, governance represents a move from the 'top-down' idea of government to a more horizontal perspective of coordination of interdependent actors. To Altrichter (2016), the idea of governance regimes represents a specific set of multiple actors (inter)acting

across and within different levels, regulatory systems (market, hierarchy, majority rules or negotiation rules) and governance mechanisms (observation, influence, and negotiation). Parreira do Amaral (2016) identified new types of actors in educational policy that act in global, international and local levels, such as international governmental organisations, international non-governmental organisations (International Schools Association), multinational corporations (e.g., Microsoft, Google, Facebook), national and international foundations (e.g., Bertelsmann-Stiftung in Germany; Roberto Marinho Foundation in Brazil), and other constellations of actors or networks (e.g., expert groups, think thanks and groups of lobby). The author concludes that beyond the traditional mechanisms of governance, the 'openness' of education governance to new actors reinforces new possibilities of influence based on access to and diffusion of knowledge, financial resources and the capacity to mobilise other actors around specific agendas.

Finally, the cultural political economy is "an emerging post-disciplinary approach that highlights the contribution of the cultural turn to the analysis of the articulation between the economic and the political and their embedding in broader sets of social relations" (Jessop 2010, p. 337). CPE combines critical semiotic analysis and critical political economy to examine the knowledge-based economy phenomenon (Jessop 2008, 2010). According to the author, the idea of a knowledge-based economy is an economic representation that simplifies the understanding of how economies work and the contribution of education to economic performance. Hence, this simplified representation orients the development of economic and educational policies by different local, national and international actors. By doing so, this approach emphasises that explanations of social reality need to focus on the relationship between the discursive and structural elements of social life (Sum and Jessop 2013). Therefore, CPE distinguishes itself from other orthodox political economy approaches while it avoids the representation of actors and actions (agency) as passive players within social structures, or — on the other hand — the reduction of social reality to the meanings and understandings of the world by the actors (Jessop and Oosterlynck 2008). Hence, as Jessop puts it: "CPE offers a 'third way' between a structuralist and a constructivist stands. It aims to explore the dialectic of the emergent extra-semiotic features of social relations and the constitutive role of semiosis" (Jessop 2010, p. 340).

The application of a cultural political economy of skills approach is reflected in the selection of the research objectives and questions. The object of study is divided into two different, however complementary, levels of analysis: The first one — the discursive level — is related to the semiotic investigation on discourses and policies for the economy, innovation, and TVET. In this first level, the aim is to analyse the interdiscursivity between international, national and local discourses on economy and innovation, and its importance to the development of new policies

and representations on TVET, using the method of discourse analysis, as suggested by Fairclough (2003). The second level — the structural level — investigate the interrelationships between the changing patterns of skills systems and the new policies in TVET and innovation. It aims to reconstruct the changing models of governance of skill systems and discuss its implications in terms of patterns of skills formation and diffusion. This objective is being developed using the qualitative content analysis proposed by Schreier (2012). The use of a method of qualitative content analysis contrasts to the traditional focus on quantitative analysis in recent literature on skills systems and can provide 'thick' description of the context and the in-locus use of skills.

The data related to both levels of analysis were collected in documents (legislation, policy reports, and other documents) and semi-structured interviews with public managers, representatives of vocational education institutions and sectoral chambers. The procedures of data collection covered three geographic levels: first, the international level, where the focus remained at the discourses on economy and innovation. Second, the national levels, where the focus relayed on the national policies and institutional framework in Germany and Brazil. Third, the local levels, where the perceptions and interactions of different actors and constellation for actors within a skill system were observed in different local systems of innovation.

3 Initial findings: Global discourses on innovation

This section presents the initial analysis of different kinds of discourses from several international organisations such as OECD, the International Labour Organization (ILO), and the European Union. It mainly argues that there is a high level of similarity between different discourses on innovation and vocational education in an international/global level.

In general, the discourses on innovation present a very specific idea of innovation as the creation and diffusion of new products, processes, and methods. There also seems to be a general agreement on the reasons why innovations are important. In these narratives, the economic development is said to be highly dependent on innovation-led productivity as the main source of future growth. That's to say that the future of the economies depends on a large extent to how successful these economies are in creating and diffusing new technologies and products. This is what the OECD calls the 'innovation imperative':

Innovation provides the foundation for new businesses, new jobs, and productivity growth and is a key driver of economic growth and development. Innovation can also help address pressing social and global challenges, including demographic shifts, disease threats, resource scarcity, and climate change. Innovative economies are more productive, more resilient, more adaptable to change

and better able to support higher living standards. Strengthening innovation is, therefore, a fundamental challenge for countries in their quest for greater prosperity and better lives (OECD 2015, p. 3). The international discourses on innovation are recently adding a new layer on the traditional representation of innovation as *business innovation*. The idea of *social innovation* is an attempt to expand the boundaries of innovation in societies, not only as an economic strategy but also as a new approach to social problems. Therefore, innovation is now not only important to the development of the economies but also fundamental to the solution of many social problems. It is important to highlight, however, that despite the 'expansion' of the use the term innovation in these discourses, one can see that the idea of 'social innovation' still occupies a marginal place in policy discourses. This 'expansion' on the idea of innovation from a purely economic perspective to a social melioristic approach also fundaments the idea that innovations must not only be the subject of innovation policies but also, every sector in society must consider how they contribute to innovation (policies for innovation).

International discourses on innovation usually describe three different moments of innovation: first, innovation is generated through basic and applied research. This is the 'scientific' moment where specialists develop fundamental knowledge and technologies. The second moment refers to the implementation of these technologies in specific activities, such as industrial production or introduction of new products in the market. Finally, innovations must be absorbed by society, which means the use of new technologies in daily life. In every moment of innovation development, different actors can play important roles. For example, companies are capable of developing applied research and product development, but the absorption of innovations depends mainly on how different users (that are also workers, but not only) perceive the vantages of these innovations. Finally, one can perceive that the international discourse on innovation describes very specific functions or tasks that must be addressed in every system of innovation: these tasks include, for example, the governance or control of a system, the development of basic and applied research, the financialisation of innovation development, commercialisation and consumption. Once again, different types of actors play different roles, but, interestingly, the international discourse on innovation do not describe exactly which actors should play each role.

There seems to be little space for variation in international discourses on innovation. The only exception that can be drawn refers to how different international organisations differ in what concerns the effects of innovation in the future of work. The typical distinction between a realistic and optimistic view of innovation is very clear at this point. On one hand, international organisations such as the European Union and BRICS see innovation as a solution for problems related to the capacity of a region to create high-quality jobs and improve social life.

At a time of public budget constraints, major demographic changes and increasing global competition, Europe's competitiveness, our capacity to create millions of new jobs to replace those lost in the crisis and, overall, our future standard of living depends on our ability to drive innovation in products, services, business, and social processes and models (European Commission 2011, p. 4).

> On the other hand, institutions such as OECD, ILO and the European Centre for the Development of Vocational Training (CEDEFOP) suggest that innovation can also act as an important factor in disruption of labour markets, and therefore, the development of innovation must also consider socioeconomic issues, such as skills mismatches, unemployment, and job polarisation. While innovation is a source of growth and many new jobs, it also contributes to job destruction, which means that complementary policies are needed to enable job reallocation and skills development for workers who have lost their jobs. (OECD 2015, pp. 16–17)

After analysing documents from different international organisations, it is possible to find a certain pattern: Organisations that are more committed to the implementation of specific policies for innovation tend to neglect the possible negative effects that innovation produces on the labour market. However, even when the discourses on innovation admit a more realistic perspective, the possible negative impacts of new technologies, products, and processes are usually represented irreversible. Therefore, it is the role of policy-makers and public policy to use different types of instruments and resources to reduce the negative effects of innovations. In summary, *innovation policies* are currently represented as a must, while all the different sector of society, government, and the economy need to develop their *policies for innovation* to enhance innovation capability and to cope with the different negative and positive impacts of innovation in economy and society.

4 Notes from the cases of Germany and Brazil

While looking specifically for the case of Germany and Brazil, the research focused on how different policies for innovation in the Energy sector are impacting the governance of TVET and skills systems. The energy sector may be one of the most impacted industry by innovative disruptions worldwide. According to the BP's statistical review of world energy (BP 2018) global primary energy consumption grew strongly in 2017, led by natural gas and renewables, with coal's share of the energy mix continuing to decline. However, the impact of innovation in the energy sector is not restricted to the development and implementation of new technologies in the field of renewable energies, but it can also be seen in the more 'traditional' field of oil and gas sector, especially taking into consideration

the low oil prices in the international market that induce oil and gas companies to adopt new technologies in order to gain productivity.

The field research in Germany included the cluster EnergieRegion.NRW, which is located at the State of North Rhine-Westphalia. The activities of the cluster of the energy industry focus on the acceleration of innovation processes and the introduction of innovative products in the energy market. The cluster aims to act as an initiator and mediator in the process of promoting innovations, and growth and to secure the settlement of new companies in the region. The responsibility and management of the cluster are directly related to the EnergieAgency.NRW, a public agency in the sector of energy in North Rhine-Westphalia. The job of the state government in this area is to create reasonable framework conditions to facilitate close collaboration between all the actors involved along with the energy economy, enhancing information and communication platforms in the energy field. The cluster includes a mix of global players, medium and small-sized enterprises and research institutions with expertise in the energy industry. However, despite the importance of vocational education in German society, vocational education institutions are not understood as independent actors within the cluster. Quite often vocational education is not even mentioned as an important element of the process of innovation development. In this sense, vocational education does not seem to be directly involved in innovation policies; vocational education itself is developing 'policies for innovation'. In Germany, this is being done mainly by the introduction of the idea of 'Digitalisierung' (digitalisation) in vocational education. It is also important to highlight that the digitalisation of vocational education is a very complex phenomenon that not only involves the introduction of new skills demands in curricula but can also be seen as a strategy to improve vocational education status in society. Concerning the impacts of innovation policies in the governance of skills formation and diffusion, it seems that digitalisation does not impact vocational education in a uniform way. Different occupations are more or less worried about this topic. As a consequence, there seems to an effect of economic and social polarisation in vocational education driven by the introduction of innovations and innovation policies.

In the case of Brazil, innovation systems are mainly organised as 'Arranjo Produtivo Local' (APL - Portuguese for local productive arrangements). According to Cassiolato and Lastres (2003), local productive arrangements are territorial agglomerations of economic, political and social agents focused on a specific set of economic activities. The APL Oil and Gas Macaé is the main local productive arrangement in the sector of oil and gas in the State of Rio de Janeiro, more precisely in the Campos Basin. In this basin, Petrobras — the semi-public Brazilian multinational corporation in the Oil and Gas industry — has set up one of the largest marine oil complexes in the world. The governance of the APL Oil and

Gas Macaé is done through the Petro Network — a non-profit organisation with the objective of promoting, articulating and fomenting the generation of business among the players in the oil, gas, and energy production chain of the Campos Basin. Today the Petro Network includes more than 70 private companies, plus 24 public or non-profit institutions, as well as the main TVET networks in Brazil (Senai, Senac and the Federal Network).

In Brazil, the diverse attempts to introduce systems of innovation in the national and local level by public and private actors show several issues related to political governance, financing and the role of the education system. More recently, the different TVET networks started to be incorporated as central actors in innovation policies, not only with a focus on providing people with relevant skills, but rather introducing the development of applied research, entrepreneurship, and the incubation of new technology firms. In this sense, there is a clear tension between universities and vocational schools. Vocational education networks are using a rather optimist discourse on innovation as a strategy for legitimisation (especially in the context of a high level of competition between vocational education networks). The introduction of TVET in innovation policies also helps to change the complex scenario of vocational education cultures in the country. Brazil has historically many different types of vocational education, that differs vastly in terms of objectives (for example, vocational education was typically designed to fight poverty instead of qualifying skilled workers). Finally, the implementation of place-based innovation policies in TVET networks seems to reinforce the differences in access to skills in big cities and countryside.

5 Comparing the integration of TVET in systems of innovation

Two main considerations can be drawn now concerning the comparison of the cases in Germany and Brazil. Both considerations are related to a fundamental discussion in the field of comparative and international education. According to Epstein (1988), the field of comparative education was historically built upon two different ideas on the importance of comparison: On the one hand, positivist scholars see the comparison as a "cross-national method of discovering invariant relationships between education and aspects of society" (Epstein 1988, p. 4). Along these lines, comparison is a fundamental method to understand education since no understanding is possible without knowing how similar education and its relationships with society is on different sites. The positivist approach sees comparison as a method that allows researchers to understand the "trends and patterns that account for whole classes of actions or events" (Epstein 1988, p. 7). Therefore, comparative studies should aim to understand the general laws that govern education worldwide. On the other hand, the cultural relativism approach suggests that

comparison as a method is important to "discover the different ways human beings have devised to fulfil their needs, and thus to gain an appreciation of human variability" (Epstein 1988, p. 8). According to this approach, comparison as a method is important since it generates knowledge about others to gain a better understanding of its system of education. Therefore, the comparison produces idiographic explanations, i.e. the identification of what is unique in specific experiences.

The use of an approach based on a cultural political economy of skills shows that both 'meanings of comparison' are necessary to capture the multilevel interaction between discourses and policies in the governance of skills formation and diffusion. On the one hand, comparative methods must be used to understand the emergence of global education policies, with focus on the general trends and patterns that are now being shaped by global policy convergence (Mundy et al. 2016). Bob Lingard and Rawolle (2011) argue that "globalisation has witnessed a rescaling of educational politics and policymaking and relocated some political authority to an emergent global education policy field" (p. 489). The rescaling of educational policy refers to the emergence of transnational policy actors and institutions and their effect on national and local policy production in education. Therefore, comparison as a method needs to consider the "flows and shaping of global policy discourses, practices and concepts from international organisations" and the pluri-scalar character of educational governance (Lingard and Rawolle 2011, pp. 498–499).

On the other hand, the initial findings show that local and national actors in the field of innovation and vocational education tend to produce different reactions to global policy discourses. This seems to be directly influenced by the different traditions of vocational education as well as by different strategies for social and political legitimisation developed by TVET systems/networks. In the case of Germany, there seems to be a highly stable representation of TVET that defines it as a fundamental way to prepare the workforce for jobs and innovation. Therefore, the impacts on the governance of skills formation and diffusion seem to be more focused on the discussions related to the relevance of the skills for innovation. The German TVET system also uses the innovation agenda as an important element of a legitimisation strategy to increase the attractiveness to vocational education careers. Thus, the integration of TVET in systems of innovation in Germany does not seem to impact fundamentally the organisation of the TVET system, but it helps to 're-shape' the offer of vocational education. Quite differently, the diversity of representations and traditions of vocational education in Brazil creates space for a more impactful transformation: Vocational education is not only understood as a way to prepare the workforce but also, as a fundamental actor in promoting applied research and transferring technology to TVET schools and companies. Also, while the different TVET networks present themselves rather as competitors than partners, the degree of involvement with the innovation agenda

became an important asset in the differentiation between TVET networks (and even within TVET networks).

6 Conclusion

This paper presented the comprehensive theoretical and methodological approach (cultural political economy of skills) used by the author in the research "The integration of TVET in systems of innovation: A comparative study on governance of skills formation and diffusion". The research uses the contributions of the political economy of skills, the governance studies, and the cultural political economy, to investigate how the integration of technical and vocational education and training in systems of innovation impacts the governance of skills formation and diffusion in Germany and Brazil. The paper argues that the combination of different research traditions makes it possible to proceed with a comprehensive analysis of agency, structure, and culture in the governance of skills formation and diffusion. The paper highlighted that 'the innovation imperative' is being used as an important discourse by several local and national actors in different strategies and policies. Furthermore, the integration of TVET in innovation policies can also represent until a certain level a source of transformation of local and national vocational education cultures. This occurs not only because innovation policies seek to integrate TVET, but also because the different TVET systems, networks, and schools are incorporating the discourse on innovation to increase their attractivity in a context of growing rates of higher education attainment. After presenting some of the initial findings, the paper also discussed important issues related to the use of a cultural political economy of skills approach in comparative research. The emergence of an international/global discourse on innovation and vocational education, as well as the different strategies and policies adopted in national and local levels show that both 'meanings of comparison' (ideographic representations vs general trends and patterns) are necessary in order to capture the multilevel interaction between discourses and policies in the governance of skills formation and diffusion.

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Evaluating dual apprenticeship effects on youth employment: A focus on the mechanisms

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Abstract

The dual model of apprenticeships has attracted the attention of national governments globally, particularly in low- and middle-income countries. While there is wide international consensus about the positive effects of the dual model on youth employment in its home countries, there is little evidence on the necessary contextual conditions for the programme to deliver its expected results in recipient countries. Drawing on the realist evaluation approach, we aim to test the underlying assumptions of the model and to empirically scrutinise under what contextual conditions the programme mechanisms operate or not for its beneficiary population in the case of Mexico. We test these assumptions by analysing, through quantitative and qualitative methods, the characteristics, motivations and logics of action of apprentices and the contextual conditions that shape their decision-making process. The results show that many of the participants are not intrinsically motivated by the situated learning opportunities offered by the dual model, that the quality of the training varies largely across companies, that schools struggle to integrate theoretical and practical learning within the programme, and that continuation of studies is a highly desired outcome for some of the apprentices. Our research contributes to the comparative education debate on how institutional, social and economic contextual conditions affect the effectiveness of the German model of dual apprenticeships when transferred to different national settings, and it informs better programme management and policymaking in the recipient countries.

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1 Introduction[5]

The dual model of apprenticeships has attracted the attention of national governments globally, particularly in low- and middle-income countries, because of its alleged positive effects on student learning of occupational skills, the early labour market integration of young people, and the contribution of technical vocational education and training (TVET) graduates to the productivity of companies in countries like Germany, Switzerland or Austria (Hoeckel and Schwartz 2010). The dual model differs from the market model of apprenticeships that is typical in the U.K. in the combination of strong school-based education with vocational training in the workplace; the intense coordination between social partners and the state in the governance of the system; and highly demanding occupational standards based on broad profiles of occupational competence (Pilz 2009; Ryan and Unwin 2001).

While there is a wide international consensus about the strengths of the dual model of apprenticeships in its home countries (Steedman 2012), there is also extensive evidence on the difficulty of transferring this model at large scale and with the same standards of quality to other political, economic and cultural contexts (Langthaler 2015; Maurer and Gonon 2014; Valiente and Scandurra 2017). Our paper contributes to this body of literature by analysing the re-contextualisation of the dual model of apprenticeships in Mexico. Drawing on the realist evaluation approach, we aim to test the underlying assumptions of the model and to empirically scrutinise under what contextual conditions the programme mechanisms operate or not for its beneficiary population. Based on the specialised literature, we identified three explanatory mechanisms of the effects of the dual model on youth employment: situated learning, skill content and institutional context. The combination of quantitative and qualitative methods in the analysis of the characteristics, motivations and logics of action of apprentices allows us to show under what contextual conditions dual apprenticeships in Mexico will be able to deliver its expected benefits for young people.

2 Realist evaluation approach

There is a general consensus in the comparative literature on the positive effects of dual apprenticeships for school-to-work transitions. However, there is limited evidence on the mechanisms that may explain this pattern and, more importantly, on the contextual factors that mediate the effects of dual apprenticeships on the

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employment prospects of young people. Quasi-experimental approaches have stablished themselves as the dominant paradigm in impact evaluation studies, but quasi-experimental impact evaluations of the effects of apprenticeships on individuals are rare (Tripney and Hombrados 2013) and face many methodological challenges (Wolter and Ryan 2011). Despite these methodological challenges, some studies have tried to estimate the economic effects of apprenticeships on participants. When compared to full-time vocational schooling, the evidence seems to indicate less long term unemployment rates for those coming through apprenticeships in countries like France and the Netherlands (Groot & Plug 1998; Mendes et al. 2002). However, the effects in terms of employment and earnings vary largely depending on the scale and type of apprenticeship and the characteristics of the beneficiaries (i.e. gender), making the results for specific countries and programmes difficult to generalise (Ryan 1998; Samek et al. 2013; Wolter and Ryan 2011).

This variability of beneficiaries and institutional settings poses a serious problem to quasi-experimental designs, as the main aim of this evaluation approach is to determine if apprenticeships *per se* generate significantly better individual outcomes than vocational schooling (what works?). Also, given the significant contextual differences between donor and recipient countries, this evaluative approach can offer very little to international debates on the policy transfer of dual apprenticeships. Our realist approach to the evaluation of dual apprenticeships differs in some fundamental aspects to quasi-experimental designs, the most important being the way contextual differences are taken into account in the explanation of programme outcomes.

Realist evaluation studies understand policy programmes, in our case dual apprenticeships, as hypotheses about social betterment that need to be unpacked and tested through the analysis of the operating social mechanisms in specific contexts (Pawson 2006). While other theory-driven evaluations also recognise the importance of social mechanisms to explain programme outcomes (Blamey and Mackenzie 2007), the realist approach provides a specific way of thinking about 'contexts' as triggers of these social mechanisms and outcomes (Westhorp 2014). Focusing on the interaction between context-mechanisms-outcomes allows evaluations to go beyond the simplistic question of 'what works?' and to interrogate 'how dual apprenticeships work, for whom and why they generate different outcomes in different contexts?'.

As in other theory-driven evaluation approaches, the first requirement of the realist approach is to establish the theory of change (or programme ontology) of the intervention in the form of general hypotheses that need to be tested. Realist evaluations reconstruct the theoretical assumptions underpinning programme interventions to problematise to what extent the causal mechanisms that are sup-

posed to lead to the expected outcomes are actually triggered by the social actors involved. The assumption is that the outcomes of programmes like dual apprenticeships are affected by the way individuals enact and react to the regulatory frameworks introduced by the intervention (Ball 2011). This process is affected not only by the characteristics, motivations and rationalities of actors that are enacting the policy, but also by the context in which they develop their activity.

To reconstruct the theoretical assumptions behind dual apprenticeship programmes, we rely on the analytical efforts of Paul Ryan (2012) to synthesise the advantage of apprenticeships over full time vocational schooling in terms of employment outcomes for young people. He identifies three distinctive causal mechanisms that can explain the superior outcomes of apprenticeships: situated learning, skill content and institutional contact. The three mechanisms and the contextual conditions for their activation are explained below.

Firstly, pedagogical literature has pointed out that for some learners, apprenticeships are both more motivating and easier to undertake than the less situated learning that characterises classroom-based provision (Unwin and Wellington 2013). For those students, the theoretical elements of knowledge are better acquired when learned through their practical application. However, this mechanism is not homogeneous among the whole student population. Some learners, particularly those with a theoretical inclination, will be more motivated and learn more effectively when dealing with abstract learning (Rauner 2012).

Secondly, the skill content of apprenticeships will be more updated and relevant for the demands of employers because students will be exposed to the production methods and work requirements of actual workplaces (Streeck 1989). However, the activation of this mechanism will depend on the quality of training opportunities at the workplace and the smooth integration of theory and practice by the school. Companies offering apprenticeships just as a source of low-cost labour can result in exploitative experiences for apprentices and limited skill learning (Wolter and Ryan 2011). Also, the integration of theory and practice into a coherent learning programme is challenging for schools, which may disdain the workplace component of apprenticeships and privilege the academic approach in their practice (Achtenhagen and Grubb 2001).

Thirdly, apprenticeships offer an institutional link with the professional world that allows young people to acquire superior information and contacts in the labour market (Ryan 2001). However, these contacts will only be effective in the adequate sectoral and macroeconomic context. Depending on the economic cycle and the dynamics of skill supply and demand in each sector, apprentices may not be attractive to employers. Also, in the screening of candidates by employers (Spence 1981), practices of discrimination during the selection process may emerge, thus generating unfair employment inequalities between the candidates (Fuller and

Unwin 2013; Imdorf 2017). Furthermore, depending on the quality of the working conditions in a given labour market, the offer of jobs may not be attractive to the apprentices and they may decide to continue their studies or remain unemployed (Raffe and Willms 1989).

Our paper seeks to determine to what extent these three explanatory mechanisms are activated and how they influence the effects of dual apprenticeships on youth unemployment in the case of Mexico. The Mexican Model of Dual Apprenticeships (MMFD), is a particularly interesting case of study because it contributes to the comparative education debate on how institutional, social and economic contextual conditions affect the effectiveness of the Germanic model of dual apprenticeships when transferred to different national settings. Understanding the influence of different contextual factors on the activation of these mechanisms will also contribute to better programme management and policymaking in the recipient countries.

3 Methods and data

The paper analyses how the dual model of apprenticeships is re-contextualised in the case of Mexico. It focuses on the characteristics, motivations and logics of action of apprentices that took part in the MMFD and the different contextual conditions where they made their decisions. Following the principles of policy enactment research, our interest lies on how actors respond to the policy, which mechanisms are activated and how these mechanisms influence the effects of the policy. Hence, it is important to keep in mind that regulatory frameworks do not necessarily determine actors' responses but establish and restrict the options available, giving them boundaries within which to develop their response to the policy (Ball 1994).

The MMFD was launched as a pilot by the Federal Ministry of Education in 2013 and sanctioned by law into an upper secondary education vocational pathway in 2015. More than 4,000 students enrol in the programme every year with the vast majority of them doing their studies at the National College of Technical Professional Education (CONALEP). The main modality of the MMFD comprises one year of classroom-based education at a vocational school and two years of vocational training at the workplace combined with some school subjects covered through blended learning. During their time at the workplace, apprentices receive a monthly scholarship of 2,000 MXN pesos (100 USD), which is equivalent to 75% of the national minimum wage. Companies are allowed to top up this amount with additional payments, but these are entirely voluntary. Women registered in industrial programmes are eligible for an additional scholarship of 600 MXN pesos (30 USD).

The selected location for the study was the State of Mexico, which was the first state in adopting the dual model and the one with the higher participation of apprentices. CONALEP authorities in the state provided the contact details of over 60 apprentices who had graduated from the programme in the year 2015/16. The list was randomly sorted and the first 25 apprentices who accepted to participate after being contacted by post and telephone were selected for the study. The fieldwork was carried out between May and June of 2017 (one year after graduation) and consisted in two phone interviews with each participant: one structured survey and one semi-structured interview. The survey was structured in five thematic blocks, which collected information on the following domains: a) socioeconomic profile of the apprentice and company characteristics, b) reasons to participate and selection process, c) satisfaction with processes (school, company and at the programme), d) self-perception of learning outcomes (occupational skills, transversal skills and attitudes, theoretical knowledge), e) labour market outcomes. During the semi-structured interviews, apprentices where asked to expand on the motivations to participate in the programme, the decision-making process, their experience with different aspects of the programme at the school and the workplace (i.e. content of learning, pedagogical support), and the process of transition after completing their studies.

Seven of the 25 participants that took part in the first round of data collection declined to participate in the second round and were replaced by other seven informants, which were recruited through the personal contacts of those participating in the study (snowballing). In total, we collected data for 32 apprentices from five of the seven study specialities offered by the MMFD. Almost half of the participants had completed their studies in the field of accounting and management, another group had done their studies in industrial production and maintenance, and a small number did informatics and electronics. Gender segregation between field of studies was large, with higher presence of female apprentices in accounting and management, and larger presence of male apprentices in industrial related studies (see table 1).

All the participants came from either medium-low or low socioeconomic backgrounds (levels C and D in the national NSC classification)[6] and, in the majority of the cases, the highest educational level of the parents was elementary education. In terms of the companies where they did their apprenticeship, most of them were Mexican companies, followed by American, Japanese and only a few of them were German or Austrian companies. The predominant sector of economic activity of these companies was the automotive industry, followed by agricultural machinery, plastics, transportation, food, IT, hospitality and chemistry.

6 See http://nse.amai.org/niveles-socio-economicos/

Tab. 1: Apprentices by field of study and sex

VOCATIONAL STUDIES	FEMALE	MALE	TOTAL
Accounting & management	11	4	15
Industrial production	2	6	8
Industrial maintenance	0	6	6
Informatics	1	1	2
Electronics	0	1	1
Total	14	18	32

The large majority of apprentices were employed one year after the completion of their studies and less than one third combined work and study. The majority of apprentices were employed in the same company of their studies and one third of them worked in a different company. The vast majority of apprentices received a job offer from the dual company but one third of them rejected the offer. In terms of distribution of the employment outcomes by sex, the only unemployed apprentices were females and more males than females were employed in a non-dual company (see table 2). In terms of field of study, most of the apprentices that rejected the job offer from the dual company were in accounting and management, which was the field with more continuation of studies.

Due to the reduced sample size, survey data was analysed only through descriptive statistics, allowing the team to characterise the participants in terms of socioeconomic background, types of companies and studies, and labour market outcomes. The bulk of qualitative data was far richer and allowed the team to thematically code the information in relation to the three programme mechanisms outlined in the analytical framework. The next three sections present the qualitative findings of the study for each of the explanatory mechanisms.

Tab. 2: Apprentices by employment outcomes and sex

EMPLOYMENT OUTCOMES	FEMALE	MALE	TOTAL
Employed dual	6	5	11
Employed other	2	7	9
Employed dual & studying	3	4	7
Employed other & studying	0	2	2
Unemployed	3	0	3
Total	14	18	32

4 Situated learning

Pedagogical literature has pointed out that, for some learners, apprenticeships are both more motivating and easier to undertake than the less situated learning that

characterises classroom-based provision (Unwin and Wellington 2013). The activation of this social mechanisms requires students participating in apprenticeships to be intrinsically motivated in the practical learning opportunities offered by the programme. We wanted to test to what extent this assumption holds on in the case of students taking part in the MMFD. Students were asked what the main reason for this decision was and who had been the key influencers during the decision-making process. The results show how the intrinsic motivation in the practical element of learning was decisive only in a minority of the cases, with the employment prospects being the main reason among the majority of the students. School teachers as providers of information and parents as providers of support were cited as the key influencers in the decision-making process.

When asked about their reasons to participate in the programme, only a minority of the students reported that their main motivation was the situated pedagogy of the programme. Among those motivated by the pedagogy, some of them were explicit in their preference for practical versus strictly theoretical forms of learning, for example by arguing that learning by doing is more effective than learning through theory. Another reason that they gave was that practical learning was more motivating for them than theoretical forms of learning. In their responses, students associated theoretical learning to the vocational school and practical learning to the workplace. However, students differed in how they understood the level of continuity between school and workplace learning. For some of the students, particularly among boys in manufacturing, there was a clear demarcation between the methods of learning in the two spaces that made the workplace more effective for their learning:

> "Well, you were going to learn more than at school because at school they are pure theoretical and here pure practical". (Male, industrial production)

In other cases, particularly among girls in services, there was certain level of continuity between the learning at school and the workplace, with the workplace just offering an opportunity to add another form of learning to their educational trajectory. Some students were very clear in the idea that they did not want to leave school, and they saw this opportunity as a reward for their good school performance. The continuity between classroom and work-based learning and the possibility to achieve higher levels of learning by combining both elements is well captured through the following quotation:

> "I really wanted to excel ... Best of all, I learned a lot of things that were given to us theoretically at school and I could see them more in practice". (Female, accounting)

The majority of students decided to participate in the programme because they saw it as an opportunity to improve their employment prospects. The reason most mentioned during the interviews was the acquisition of labour experience, which they envisaged as the main barrier in the access to employment. The possibility of being employed in the same company of their training, was also mentioned as a motivator to take part in the programme:

> "They had mentioned to us in the school that they were going to give us the opportunity to know the different types of areas of the companies and with which we could leave with the knowledge and also we could be hired from the same company". (Male, accounting)

Among those that had never worked before, an apprenticeship was an opportunity to do something new that they knew it was missing in their training. In the case of those that already had work experience, they were perfectly aware of the difficulty of accessing good jobs without a qualification but, at the same time, they were confident that they could perform in a work environment. Interestingly, some students perceived the decision of joining the programme as very risky in educational terms. Leaving the typical schooling route generated uncertainty among students, particularly in relation to the impossibility of reversing their decision if the workplace experience was not satisfactory:

> "You run from a company and if you run from the dual system you cannot go back to school or you stay in the company and you finish, or you do not finish. That's why I was sometimes ... imagine that and they blame me for something, a partner wants to hit me and I'm going to defend myself and … but anyway, I took the risk". (Male, industrial maintenance)

Students did not make the decision to participate in the programme alone. Among the key influencers in their decision-making process they identified, firstly, school teachers and their parents, and secondly, friends and peers. The influence of teachers and parents was key to reassure them in their choice and to mitigate the risk perception described above. These two types of influencers played different roles in the process. Teachers first played an important role in the provision of information about the programme and in the assessment of the suitability of each candidate for the requirements of the programme. After that, students conferred with their parents and close inner circle to seek their support in the decision they were about to make. The quotation below shows the sequence and the different role of these two types of influencers:

> "The career guidance teacher was the one who provided us with the information. After the teacher spoke with us, they [parents] were the ones who were there, it can be said that, supporting me". (Female 15, accounting)

Finally, the information and advice from former apprentices in the programme was highly valued by students. Some of these graduates participated in information sessions organised by the school. In other cases, students had relatives or friends that had been enrolled in previous editions of the programme, who convinced them about its benefits.

5 Skill content

The second mechanism proposed by the literature suggests that *the skill content of apprenticeships will be more updated and relevant for the demands of employers because students will be exposed to the production methods and work requirements of actual workplaces* (Streeck 1989). The activation of this social mechanism lays on two assumptions: on the one hand, companies will prioritise training aims over production aims in the daily activities of their apprentices and, on the other hand, vocational schools will integrate the workplace component of apprenticeships into a coherent learning programme. In order to test these two assumptions, we asked students about their self-perception of learning in different domains (theoretical knowledge, occupational skills, transversal skills) and their evaluation of the experience at school and the workplace. The results show that students perceived higher learning gains in occupational and transversal skills than in theoretical knowledge. This pattern seems to be associated with the difficulties of vocational schools to adapt their offer to the requirements of the dual model and to the different learning styles of students. While the workplace experience was highly satisfactory for most of them, some students reported exploitative practices by their employers and lack of adequate response and support from programme officers.

Most of the students reported a perception of high occupational skill learning at the workplace. In the interviews they referred in positive terms both to the breath and the depth of this learning. In the workplace they learned about work processes that were relevant to their occupational domain and that they were not even aware of. They also mentioned that certain occupational skills had been learned at school at a much superficial level, while in the workplace they were able to acquire a much in-depth mastery. The workplace offered them the opportunity to work with machinery and equipment that was not available at school, newly updated software, new materials and more effective procedures:

> "We learned to run programs such as Joomla, Wordpress, servers, arm and disarm computers ... so if they ask us to make a web page, they knew how to make a page in a way that I would not do it. In this matter the company have faster methods to do things because of the effectiveness that they need". (Female, informatics)

Not all the companies offered the same learning conditions. In companies with higher student satisfaction apprentices had the support of qualified mentors that guided them throughout the work and learning process, quite often supervised in small groups. Students valued the patience showed by mentors when they struggled with some of the tasks and the prevalence of training over production needs. Another aspect highly valued by apprentices for the acquisition of a well-rounded training was the rotation among different areas within the same company. This rotation allowed students not to get stalked in their learning and acquire a better understanding of company processes as well as higher levels of responsibility. As shown in the quotation below, students were aware of the importance of rotation plans and acquiring a broad occupational skill set for their employment prospects:

> "It was integral, we can apply it in other types of companies also. They were not very clear that maybe we were not going to stay with them, but it was going to be useful for other places". (Male, accounting)

There were other companies where students complained about the quality of the training, working conditions and personal experience. In some cases, the explanatory factor of this negative experience operated at company level, while in other cases was caused by the individual behaviour of one of the mentors. At company level, low employers' engagement with the training resulted in breach of contracts, extension of working hours and lack of compliance with the rotation plans. Some companies did not have a training culture and their staff did not know what to expect and how to deal with the apprentices, while others were working with very outdated equipment. In a few cases apprentices complained to programme officers and they were transferred to a more suitable company, but that was not the norm. At individual level, apprentices experienced how working with different mentors had very different effects on their learning experience. In the worst cases, the work relationship was experienced as exploitative by the apprentice:

> "The most negative thing would be that one of my bosses wanted to exploit me, he wanted me to do all his work, he threw all the burdens on me. He wanted me to be like a full-time worker. He wanted to take my time for lunch. He threatened me with kicking me out of the dual system. He did not have the right to do it". (Female, accounting)

Students also had a perception of high learning of transversal skills and work attitudes. Most of them reported a much higher level of maturity as a result of the participation in the programme. This personal change reflected in the way they were able to take responsibilities towards other co-workers and the company, but also in their personal life, particularly among those raising their own family. Students felt more self-confident and self-effective in their work endeavours, and some of them even expressed their willingness to create their own company. Communication skills and social skills were areas of skill gain repeatedly mentioned by students. These communication and social skills were important when dealing with customers, but also when having to work in teams:

> "I learned a lot to work in a team, because before I went to the dual system, I was a prominent student, but let's say, in the school environment it only mattered, it did not matter ... . Maybe they put me to work in a group, but like I knew that some people were not going to do their part, I focused a lot on myself. When I got to the system, I learned to work a lot as a team, because I needed a lot from other people to learn what I know now". (Male, industrial maintenance)

Students reported much lower perception of theoretical learning than in the other two domains. There was wide agreement among participants that those attending school fulltime where better prepared in terms of theoretical knowledge than those participating in the programme. Some students felt that their learning of school subjects was insufficient and that they would need additional time at school to catch up with the theoretical learning acquired by the other students. They perceived that their deficits in core school subjects would negatively affect their chances of accessing higher education in the future. They also mentioned that their poor command of theoretical aspects would have negative effects in their reflexive capacity as future professionals:

> "Theory should also be provided to a certain extent within the dual system. There are things that you can do because you know how they are done, but you're never understanding … . Just, you stay with that idea and so, I do it. That's the way I do it, so I do it. So, it's important that you also see a bit of theory, because people do it automatically if they do not learn. They would learn it better." (Female, accounting)

Students attributed these deficits in theoretical knowledge to the online delivery of the school subjects, but also to the lack of engagement from some schools. Students complained about the quality of the online learning resources provided by the programme and about the lack of study time available after work. Some of them explained that they would have preferred more face-to-face interaction with school teachers and relying less on self-directed forms of learning. The lack of coordination between schools and companies made difficult for them to accom-

modate their schedules to the ones set by the school. Some of the students also explained that they felt abandoned by the school, that school teachers were not responsive to requests for support from students, and that they did not receive timely feedback from the teachers.

6 Institutional contact

The third mechanism identified by the literature suggests that *apprenticeships offer an institutional link with the professional world that allows young people to acquire superior information and contacts in the labour market* (Ryan 2001). Under this mechanism, students would signal their abilities to employers during their apprenticeship and they will be offered a job because external recruitment would be more costly for the dual company. There are at least two assumptions underlying this hypothesis that should be problematised. Firstly, that the dual company is always recruiting and has a job to offer to the apprentice. Secondly, that the job at the dual company is going to be attractive to the apprentice. In order to test these assumptions, we asked apprentices about their employment status, the job offers they had received and the reasons for accepting/rejecting those offers. As indicated in the methodology section, most of the apprentices in the sample where employed one year after completing their studies, and the majority of them were employed in the dual company. Most of them received job offers from the dual company but one third of them rejected the offer. The area of studies with higher levels of rejection was accounting, which also has the higher participation of female students.

There were different reasons for students to accept the job offer from the dual company. The first one was that accepting the offer was easier for the student than looking for something else. This type of response was characteristic of students with low professional expectations. Some students could not imagine a better outcome from the programme that being offered a job in the company of their apprenticeship. Other students were more pragmatic and accepted the offer while still searching for better jobs, while deciding what to study, or just as a default option because they were not admitted in the higher education institution of their preference.

The second reason for apprentices to accept the job was that the dual company was offering attractive working conditions and a position that was directly relevant to their studies. The relevance of the position was particularly important for studies like accounting and management that are less sector specific than the industrial ones, and where the matching between the job and the interests of the candidate is more challenging. Apprentices that accepted the job because of the good salary and/or the benefits package were convinced that their training would allow them to find jobs in other companies with ease. In some cases, these offers arrived in the form of a promotion to positions with higher level of responsibility.

Finally, the third reason for apprentices to accept the job was that the dual company offered them the possibility of combining work with the continuation of their studies in higher education. Usually, companies that valued the interest of the apprentice in continuing their studies were also the ones offering better qualified jobs and attractive working conditions. In some cases, the company supported financially the continuation of the studies of the apprentice by paying part of their university fees. Dual companies used this financial support as a strategy to retain the most apt candidates and those that had acquired a professional certification. This logic was very explicit in the recruitment strategies of some companies:

> "From the beginning I had the idea of continuing my studies and they told me: if you stay, at the university that you decide to go, we will support you". (Female, accounting)

Not all the apprentices received a job offer from the dual company or where able to accept it. Some dual companies informed the students from the beginning that they were not planning to open new positions in the near future. Other companies where receiving so many apprentices that could only employ some of them. There were also cases where the time gap between the acquisition of the vocational qualification and the job opening did not allow the apprentice to be employed in the same company. In other cases, personal circumstances or matters of convenience forced the apprentices to opt for other companies (e.g., work distance).

Particularly striking was the case of apprentices in accounting and management, where most of the rejections occurred. The difficulty of matching the interest of students with adequate apprenticeships had negative consequences in their work experience and employment prospects. These were the studies with higher presence of female students, which suffered the consequences in terms of unemployment after the programme. The low relevance of the job and the poor working conditions made some of the apprentices to reject the job offer. Some of them, after a period of unemployment, managed to find a job in a different company through their vocational school. One apprentice in accounting and management explains in the quotation below how he managed to overcome the bad work experience in the dual company and find a suitable job. In his case, having acquired a certification in business coaching was crucial to receive job offers from other companies:

> "It did not meet my expectations; it was pure telemarketing. Thank God other companies made me offers. In the job I am now, I feel good, I feel comfortable and it is not necessary to make a change". (Male, accounting)

There were three cases of female students that, scared by the poor working conditions they have experienced during the apprenticeship, decided to stop searching

for a job and to continue their studies. After one year of completing their apprenticeships, these three apprentices had not been able to secure their admission in higher education and were still unemployed.

7 Discussion

The evidence shows that the majority of students in the programme did not choose to participate because of their preference for situated forms of learning but because of their instrumental interest in a quick insertion into employment. Given the diversity of learning styles among students, and with the aim of assuring a good matching between students interests and the expectations from the programme, the selection of candidates should prioritise those with an intrinsic motivation in practical learning over other considerations. Also, the high perception of risk associated to the dual model among students suggests the possibility of suboptimal levels of demand to participate. Given the crucial role attributed by students to key influencers, it seems reasonable to reinforce the deployment of information and orientation sessions led by former apprentices and to encourage the attendance not only of potential student candidates but also of their parents.

The evidence also shows that the self-perception of occupational and transversal skills is highly uneven depending on the context of workplace learning. Companies differ in their level of involvement with the training, the quality of the equipment and technology, and in the rigour in the implementation of the rotation plans. As not every company can be a dual company, the external monitoring and evaluation of the workplaces should be much stricter and exclude those companies that do not offer adequate learning environments. Furthermore, even within the same company, mentors vary very much in the support offered, pointing out to the need of investing in the training and qualification of company mentors.

Schools in the MMFD are struggling to adapt to the requirements of the programme and the need to accommodate individualised learning plans for the apprentices. This may be a major impediment for the programme given the strong teacher-centred pedagogical culture in countries like Mexico. In addition, the reliance of the programme on blended forms of provision of the school subjects is not well received by those students that would benefit from a more regular face-to-face interaction with their school teachers. Students have pointed out that an inadequate integration of theoretical knowledge in the curriculum will affect their capacity to continue their studies in the future and their development as reflective professionals.

The evidence on the reasons of students to accept or reject job offers shows the inadequacy of judging the success of the programme through the labour market insertion of its graduates. Students accept the job offers from the dual company

for different reasons, and not always for the right ones. Many students, particularly those with low educational and professional expectations, often see the job offer from the dual company as the default option because they do not have or do not aspire to better alternatives. There are other, however, that really exercise their bargaining power and only accept if attractive working conditions are offered. Beyond the educational qualification, the systematic integration of professional certifications in the portfolio of the programme has proven necessary to increase the labour market bargaining power of the apprentices.

Contrary to the explicit expectations of the programme, that mainly focus on the labour market insertion of the apprentices, the continuation of studies is a desired outcome for many of them. Some companies are aware of this and contribute financially to the continuation of studies of their apprentices as a strategy to retain them. The incorporation of these outcomes among the objectives of the programme would better reflect the aspirations and interests of its beneficiaries. Furthermore, at a more structural level, the difficulties of apprentices to secure admission into a higher education institution should force political authorities in Mexico to pay closer attention to social inequalities in the access to higher education for those students transitioning from vocational routes.

8 Conclusions

The paper has analysed how the dual model of apprenticeships is re-contextualised in the case of Mexico. It has focused on the characteristics, motivations and logics of action of apprentices that took part in the MMFD and on the different contextual conditions that shaped their decision-making process. By doing so, it has been able to test to what extent and under what conditions, the expected mechanisms of the dual apprenticeship programme in Mexico actually take place for its beneficiaries. While the comparative literature has already signalled the importance of the workplace and the culture of work for the transfer of the dual model (Langthaler 2015; Maurer and Gonon 2014), much less has been problematised the role of the school context and the potential contradictions between the expectations of the policy and the preferences of some beneficiaries for continuing their studies after the apprenticeship. Our findings show that in countries with a strong teacher-centred pedagogical culture like Mexico, vocational schools will struggle to offer individualised learning plans for the apprentices, which will have negative effects on their learning. They also show that policies that do not incorporate the voice of their beneficiaries in the definition of their objectives will necessary fail to support the aspirations and life plans of young people.

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Competency-based curriculum development in vocational education and training: An example of knowledge transfer from the Western world to India

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Abstract

Competency-based curriculum development in vocational education and training (VET) has gained more attention in both developing and industrialised countries. The existing comparative research in VET, however, largely focuses on the macro-level VET systems. This article aims to analyse how the curriculum design and teaching-learning arrangements are important at the micro-level in the curriculum development process from the comparative VET perspective. This study is based on action research in South India and examines the transference of the competency-based approach in VET from Western countries to India, with particular focus on addressing the peoples' needs for vocational training in rural regions. This paper outlines the notion of the competency-based curriculum development approach in European countries. It describes the piloted competency-based curriculum design and its dimensions for the sewing vocation in the field by adapting a demand-driven approach to meet the needs of learners. The article ends with findings, lessons learned from the intervention activity and its implications.

1 Introduction

Globalisation has attracted much interest in the field of comparative and international education worldwide to learn with each other. Educational policy transfer and borrowing are clearly evident in the comparative education agenda since the early 19th century (Perry and Tor 2009). The concept of 'educational transfer' in comparative education can be referred to as the movement of ideas, structures and practices in educational policy across countries (Beech 2006). Studies about educational transfer (see Phillips 1993, 2000a, 2000b; Ochs and Phillips 2002) have noted the problems of cultural fit and borrowed models. The context and cultural facets are recognised as significant factors in cross-national transfer and have

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greater implications (see Hofmann 1999; Lewis 2007). Lewis (2007) quotes drew on the work of Robertson and Waltman (1993) who cautioned that "borrowing the elements of policy disconnected from their roots often results in unanticipated consequences" (p. 25). However, we can learn from the transfer model of others' experiences and best practices with a more critical analysis of contextual analysis and learning process. Many of the studies on comparative and educational transfer focus at the macro-level, on national systems and policies; this study aimed to address the relatively limited but significant knowledge transfer at the micro-level, namely, the transferring of competency-based curriculum as a model from Europe to India. While curriculum planning and development require careful attention, developing a suitable curriculum for early school leavers and marginalised groups depends on the social phenomena and can address the needs of a target section or community (Bennell 2007). An appropriate curriculum model and approach guide the curriculum developer in moving into action and developing a demand-led curriculum (Ramasamy 2016) based on particular social phenomena and the needs of a target section or community.

2 Competency-based curriculum: Theoretical framework

The concept of competency in the education and training literature dates back to the 1970s (see Achtenhagen and Grubb 2001; Biemans et al. 2004; Weigel et al. 2007). Hébrard (2013) points out that the term 'competence' has become widespread in the field of education and training during the last twenty years. In recent years the concept has become widely used in VET. The definitions of the term 'competence' or 'competency' are very broad and vary among researchers (Marsh 2009; Mulder 2006; Van Merriënboer et al. 2002a; Van Sanden et al. 2003; Winterton 2012). The notion of competence focuses on know-how rather than knowledge, and therefore this approach is seen as a major driver, incentive and motivator of learning where the role of individuals is rated more highly than that of teachers, government or other stakeholders (Reuling 2002). Young and Allias (2011) distinguish between traditional and competency-based approaches that exist and operate at the learner and VET provider's end. They argue that in the traditional model the educational provider has a degree of autonomy regarding a qualification, whilst the outcomes/competence model involves a set of interventions. The underlying reason is that most of the pedagogical characteristics of competency-based approaches form a contrast with traditional/teacher-centric approaches (Hellwig 2006a), whereas a competency-based approach is focused on what learners are expected to know and be able to perform at the end of a training programme (Werquin 2012). As Young and Allias (2011) mentioned, a competency-based approach does not focus on how or where learners become qualified, but the only

condition is whether they acquired the needed competencies of a specific occupation. In other words, competency-based curricula are focused more on outcomes (products) rather than inputs (processes).

Nijhof (2003) points out that the designing of competence-based curricula, learning processes and assessment procedures can only be done fruitfully when competence is operationalised as explicitly as possible. This can be realised when a high number of diverse stakeholders such as learners, teachers and social partners are consulted to obtain the desired occupation-specific competencies according to context and tasks (Mulder and Pachuau 2011). Thus, the competency-based approach involves a level of decentralisation in the curriculum design process that may bring about an adaption and contextual change that can respond to the needs of both employers and learners to provide a more relevant curriculum for a specific learner group. Also, a competency-based curriculum can influence the teaching and learning process to promote educational inclusion, widen access, and address learner needs and abilities (European Centre for the Development of Vocational Training [CEDEFOP] 2012). In a rapid economic development scenario, the competency-based approach has been accepted as it has flexibility in terms of content, teaching-learning arrangements, and duration.

In the Indian context, the National Skills Qualifications Framework (NSQF) has been developed by the Ministry of Labour and Employment and Ministry of Human Resource Development with the help of the India-EU Skill Development Project. The European NSQFs are mainly connected through their emphasis on learning outcomes. The outcome-led framework is labour market-driven and treats learning outcomes as an instrument for strictly linking education and training with occupational standards (Mehrotra 2016). The Indian approach towards lifelong learning and continuing and higher training is an important integral part of the National Vocational Qualifications Framework (NVQF). The NVQF focuses on the recognition of competencies in the organised and unorganised sectors acquired through both formal and informal training processes, especially learning in the workplace (Singh 2012). The NSQF defines competency as

> what a person is required to do (performance), under what condition it is done, and how well it is to be done. A Competency-based curriculum describes what learners must 'know and be able to do' by the end of a programme of study. (PSS Central Institute of Vocational Education 2016, p. 3)

The competency-based approach provides learners with the required skills, knowledge and understanding to demonstrate competence against standards and performance criteria in an applied context. A competency-based curriculum is broken down into coherent parts known as units. Each unit is further broken down

into knowledge and skills based on what evidence is to be provided by the learner and assessed by the teacher or trainer.

3 Objective of the study

VET requires careful policy planning, a qualification framework, adequate training infrastructure facilities, and qualified trainers to achieve its desired goal. Rapid changes in the labour market and occupational structure have created many challenges in adjusting training approaches, curricula and teaching-learning arrangements to achieve the planned objectives of a targeted group (Adams et al. 2013). This scenario has been viewed as a global phenomenon by both developing and industrialised countries. The existing comparative research in VET is largely focused at the macro-level perspective of training systems (Grollmann 2009; Crossley 2010), yet the micro-level perspective is equally as important, especially in curriculum design and teaching-learning methods which require particular attention (Pilz 2016b; Ramasamy 2016).

Competence-based education has become popular both in vocational educational practice and in the policy field in different countries. Its attractiveness to schools and VET institutes lies in the emphasis that the concept places on the positive side of education and learning — creating competent people and having a more practically-relevant connotation than making-up for knowledge deficits. The competency-based approach matches well with the culture of advancement and empowerment espoused by many in educational and training regimes. However, studies on the competency-based curriculum approach from the learners' perspectives and for rural populations are limited to a small number of research projects. Therefore, this paper attempts to examine to what extent the western model of the competency-based approach can be transferred to vocational skill development training for the rural population in South India. It draws on the 'European' approach of the competency-based curriculum as a model, discusses the main characteristics of the approach used to design a demand-driven vocational course which has been empirically analysed, and presents the results of the analysis.

4 Country context – India

India is a developing country which has great potential to become the third-largest economy in the world by 2035. At the same time, the country has been undergoing a major shift in its occupational structure due to rapid industrialisation and declining employment opportunities in the farming sectors that have resulted in migration of the rural population to non-farm sector employment. Similarly, the informal

sector contributes 60% of the national income and more than 90% of the workforce is in this sector (Mitra 2002; Srija and Shirke 2014). Thus, a new skill demand has been created for the emerging workforce and the informal sector will have both opportunities and challenges. VET is considered as one of the significant means to develop a quality workforce, accelerate productivity, increase employability, and provide livelihood opportunities and higher earnings for youth, rural people and disadvantaged people (see Mehrotra and Saxena 2014; Pilz 2016a; Wessels and Pilz 2018). Skill formation in India mostly occurs through the informal structure (Koops and Pilz 2019; Ramasamy 2016; Singh 2005). As pointed out in the introduction, VET is considered a potential tool for diversifying employment opportunities in the informal sector, and hence a competency-based vocational training approach can allow a different form of curriculum delivery and acquisition of competencies and qualifications. The following section describes European approaches to competency-based curriculum development and the key elements that have been identified in the designing of a sewing vocational curriculum.

5 Competency-based curriculum: A European approach

The European Union (EU) countries have distinct VET and labour market practices based on the respective countries' industrial growth and socio-economic development. These countries adopt a different meaning to the concepts and approaches to the VET system (Biemans et al. 2004; Brockmann et al. 2008; CEDEFOP 2009; Winterton et al. 2006). Though the EU countries have developed 'competency-based' approaches, the definitions and meanings vary according to their institutional structure, VET framework and work processes. Another main factor is that these countries have integrated their competency approach to curriculum design to improve national competitiveness through skill development which has linked policy with economic perspectives (CEDEFOP 2012). However, this paper attempts to describe the various competency-based approaches in VET in different EU countries where a more holistic approach of competence is being used (Biemens et al. 2004).

VET in England is primarily an employer-led, skill-based model that focuses on productivity improvement; competencies are integrated with national occupational standards with five levels of competence classified and related to the NVQF (Weigel et al. 2007). The competences are derived based on job functions which are taken from an entire occupational field (Brockmann et al. 2008). The skill-based VET model in the U.K. places very limited importance on theoretical knowledge in the NVQ system and is oriented towards the specific requirements of employers. Therefore, the competency-based approach in the U.K. focuses on the output of the individual to perform given tasks in the workplace.

In France, the concept of competence is used in Emploi Type Etudié dans sa Dynamique (ETED) (a typical employment study and its dynamics) which is a sociological work analysis method — the mapping of competencies needed for different jobs and the availability of an infrastructure important for occupational development (Weigel et al. 2007). The competency component in VET is regulated by a 'competence management system', a legal body, and the country has a strong emphasis on competency assessment where the social partners play an important role. The difference in the concept and meaning of competence, and the relevance with which a competency-based approach has been functionalised determines its degree of success.

VET in Germany is epitomised by the dual system (Greinert 2007) which is highly regulated with two main principles of dualism and vocationalism (see Deißinger 1998; Pilz 2009). The 'competency' debate in Germany VET context started in the 1990s and often describes workplace and learning requirements (Hellwig 2006b). The competence-based VET approach in Germany is embedded in the form of learning fields ('Lernfelder') classified from occupational areas that link both the curricula and learning process (Mulder et al. 2007; Pilz and Fürstenau 2019). The concept of learning fields, in contrast to traditional subject-based curricula, is more practically oriented and emphasise what is required at the specific workplace. Learning fields are regarded as improving the quality of VET and providing adequate flexibility to design teaching-learning arrangements.

In the Netherlands, the competence-based approach in VET was initiated in 1999 as a legal framework by the general adult education and vocational education act (Wet Educatie en Beroepsonderwijs [WEB]). It did not meet labour market requirements due to a lack of adequate attention to key competences, which resulted in the development of a new quality framework in 2006. Competency-based VET is a means to make people more competent and reduce the gap between labour market and VET (Biemens et al. 2004). Competence-based VET in the Netherlands has focused on flexible teaching-learning arrangements and customised pathways in self-paced learning based on socio-constructivist learning theory and meet the requirements of local labour markets (Biemens et al. 2004). Learning-outcome approaches to curriculum design and implementation in the Netherlands contributes to curricula in initial VET being more inclusive and motivating for learners (CEDEFOP 2010).

Many studies (King 2012; McGrath 2012; Palmer 2015; Pilz et al. 2018; Wallenborn 2014) worldwide have emphasised the need for a paradigm shift in VET with adequate adaptation to socio-economic conditions and institutional frameworks to meet emerging labour market needs. Most of the studies (see Chenoy 2013; McGrath 2012) on VET have focused largely on the economic view of employability and productivity perspectives, and hardly gives importance to individuals/

learners and societal perspectives. From the studies referred to above, the following key elements of the competency-based approach were considered appropriate to transfer from western countries as part of VET know-how to the rural population in South India. Although the definition and meaning of competency vary among the mentioned countries, this paper identified three common nuances that exist within the competency-based approach. First, the *decentralization* of the curriculum design process, which enables adequate adaptation and contextualisation of curriculum and responds to the requirements of both employers and learners more effectively (CEDEFOP 2012). Second, the nature of the *delivery system* (Deißinger and Hellwig 2011), including more learner-centered, flexible teaching-learning practices and assessment methods to achieve the training objectives. Third, the competency-based approach's strong emphasis on *practical orientation* rather than theory-driven training (Pilz and Gengaiah 2019). These elements are explored in this paper by considering a small intervention activity and discussed in the next section through the lens of vocational aspirations of individuals to meet learner preferences while considering their capability from a micro-level pedagogical concept.

6 Developing competency-based curricula: A small intervention activity

One of the key principles of the outcome or competency-based approach is the emphasis on individuals and their interests, abilities and needs (CEDEFOP 2012). As pointed out in the previous section, the competency-based approach enhances social inclusion, enables disadvantaged groups to access VET and increases employment/self-employment opportunities. However, with educational policy borrowing, in comparative and international research in education 'context' is important and faces many challenges due to rapid changes in external factors. Thus, this paper examines whether it is possible to transfer a competency-based approach from the western world for vocational skill training in rural South India through a small intervention activity. A short-term sewing vocational course was developed and piloted in four villages of South India, and the results of this intervention activity are analysed and discussed below.

6.1 Methods and data

The nature of the study was explorative, where focus group discussions and face-to-face interviews were conducted to obtain the required data. The study employed semi-structured, qualitative interviews to map vocational training needs of targeted learners in rural areas, designing a prioritised and context-specific vocational train-

ing considering other practical issues in real-life perspectives. A needs-assessment survey was carried out at the meso level in four villages, as needs assessment is considered an effective tool to gauge the prioritised needs of targeted learners and their perspectives (Ramasamy 2016). The methods consisted of 11 focus group discussions and 15 one-to-one interviews in the villages and the respondents were selected based on their accessibility and project partners at the local level.

6.2 Experts interviews

From the needs-assessment survey, it was found that vocational skill training needs varied in the selected regions and were strongly influenced by social, geographical and local labour market trends. However, sewing vocational training was in high demand in the surveyed villages, especially among women. Considering the purpose and length of this chapter, I have focused only on developing a competency-based curriculum for sewing women's clothes: Blouse and Salwar Khameez. Curriculum developers need to think about the 'mental shift' from traditional VET approaches to context-related, work-place oriented competencies (Wallenborn 2010). This shift implies that competency standards have to be defined on the grounds of work-based requirements where relevant occupational field experts describe crucial work activities, tasks and functions (Deißinger and Hellwig 2011). Therefore, expert interviews were conducted to determine domain-specific competencies for the initial sewing training. A semi-structured interview schedule was used to collect data from four different categories of experts as follows: Vocational training institutes (2), vocational training providers based on non-governmental organisations (NGOs) (2), garment industry (1) and self-employed (1). These experts were selected using a snowball sampling method in line with their field expertise in their respective sewing subjects and their familiarity with the local labour market. However, expert interviews were used only to guide the derivation of the 'core competences' required for the sewing occupation and not to influence learners' needs. The purpose of selecting a combination of sewing experts with varied expertise was to identify the required competencies for a tailor including technical skills, underpinning knowledge as well as social and personal attributes (see Regel and Pilz 2019).

7 Competency-based sewing curriculum development

In the human capital development process, any investment in education and training that increases the productivity of individuals and enterprises also improves the economic and social wellbeing of the society (Wallenborn 2010). In the European

approach to competency-based curriculum, development of a course starts with 'job analysis', where the competencies required for any vocation are determined through a process called 'functional analysis'. The competences can be imparted to learners through workplace-oriented and performance-based modules which allow different forms of delivery and acquisition of competences and qualifications (Deißinger and Hellwig 2011). As has been pointed in the preceding section, the *decentralisation* process in the competency-based approach enhances participatory decision-making in designing curriculum within a real-life context, and improves the education and training programme by employing highly learner-centred education and training (CEDEFOP 2012). VET should be able to respond to the endogenous needs of potential learners in rural regions through active participation, involving them in planning and designing the vocational training programme including its curriculum development which is tailored to fit their real-life context and relevance. The vocational training should respond to the prioritised needs of the intended target group and their interest in flexible, accessible and affordable learning (Ramasamy 2016).

The competency-based approach serves as guiding principle for VET curriculum developers to design flexible learning strategies. Accordingly, a short-term sewing course was developed based on keeping learners' needs, ability and local context at the centre of the curriculum development process (Deißinger and Hellwig 2011; Kelly 2009; Ramasamy 2016). The derived competencies from experts' interviews for an initial sewing vocational training were clustered by adapting a holistic model of professional competence (Cheetham and Chivers 1996) which classified the competences in the key components of cognitive, behavioural, ethical and functional competencies.

The needs assessment survey revealed that most of the interviewed women wished to learn only sewing Blouse and Salwar Khameez and that the training should not be of long duration. Women in Indian villages are often anticipating immediate results in terms of earnings or the finding of a job opportunity after completion of any vocational training. Further, the vocational training needs of women mostly differ, due to socio-cultural factors like low educational level, mobility, social pressure and domestic work responsibilities that limit women's participation in vocational training. These factors emphasised that analysing local conditions is essential in developing a more context-specific and time-bound curriculum to benefit the end-users. It can be achieved through the decentralised — participatory designing of education and training. For example, one of the women in the village believes that a well-structured training programme with adequate infrastructure would help her to attain some employment/self-employment.

> If you teach us tailoring by setting-up a centre with necessary (sewing) machines, equipment, and qualified trainer and organise the training duration ranging from three to six months with a certificate, we could find a suitable job. (Women, B1)

The formal vocational skill training system scarcely caters for the needs of learners who have limited school education and disadvantaged circumstances. Women in villages are not in a position to travel longer distances due to household responsibilities, which means the duration of training should be based on real-life and socio-cultural factors that need to be considered in the curriculum development process.

The second element, *delivery system,* which has the potential to determine the degree of which the programme is learner-centred, can be judged through the teaching-learning materials used by the providers (Deißinger and Hellwig 2011). Hence, content in the sewing curriculum was organised based on the learners' prior educational level, moving from novice to expert, which also helped to sequence the structure in the right order. The developed sewing curriculum had seven units within which the key competencies were clustered under the four major headings discussed in the beginning of this section. Units of competency

- Basics of Sewing machine, its parts and functions
- Operation of Sewing machine
- Carry out measurement and calculations
- Sewing of simple dress
- Sewing of Saree Blouse and Salwar and Khameez
- Care and use of sewing machines and basic troubleshooting
- Entrepreneurial skills

Clustering the competencies can be explained using an example from the designed sewing curriculum. Cognitive competence refers to the possession of required work-related knowledge that includes underpinning theory, concepts and tacit knowledge to perform specific tasks. In this process, experts defined the competence standard, required skills, knowledge and attitudes.

> First, we have to teach them about different types of sewing machines, and parts in the machines. Because, he or she should be aware of what parts are in the machine, how to fix threading, needles, and bobbin case in the machine and the pedal control. (Manager, Garment industry)

> A tailor must learn the pedal control, basics about machinery parts. Because a tailor must know what the parts are there in the machine, after this how-to fix threading, needles, and bobbin case in the machine. (Manager, Garment industry)

A tailor should have a sound knowledge of various types of machines, their parts and functions. As Winterton et al. (2006) stated, the declarative knowledge (know-what) leads to procedural knowledge (know-how) under cognitive competency — knowing various types of sewing machines, parts and tools required to perform a range of work-based tasks effectively. The effect of curricula on teaching-learning rests on how learning outcomes are grouped, connected to other material in the curriculum including content, pedagogical inputs and assessment methods. At the same time, the content should be accessible by the targeted learners; it should not make them feel overburdened or the learning is beyond their capacity. Thus, curriculum instruction and assessment were aligned with the level of learners' prior educational accomplishment and social-cultural context, and connected with activities and tasks (Van Merrienboer et al. 2002a). For this intervention activity, the sewing curriculum was developed considering those factors carefully. Also, the content and teaching-learning materials, with many pictorial/diagrams (see figure below), were prepared in a way that could be most easily understood by the learners.

In the curriculum development process, the experts' inputs were also integrated with the competency components. The experts pointed out that maintaining the sewing machine is very important to avoid technical issues, so it is important that learners should be familiar with sewing machine parts and tools. Hence, in the sixth unit, learners were introduced to the care and maintenance aspects of sewing machines and the know-how of basic troubleshooting techniques essential for any tailors. This unit was interconnected with the first unit which covered parts of sewing machines and its functions.

> Tailor should know some basics of troubleshooting; of course they will learn these techniques while they face technical issues during practical in the training period. (Self-employed Tailor)

> They need to understand the function of each part of the sewing machine and cleaning and maintenance methods. (Master Trainer, NGO X)

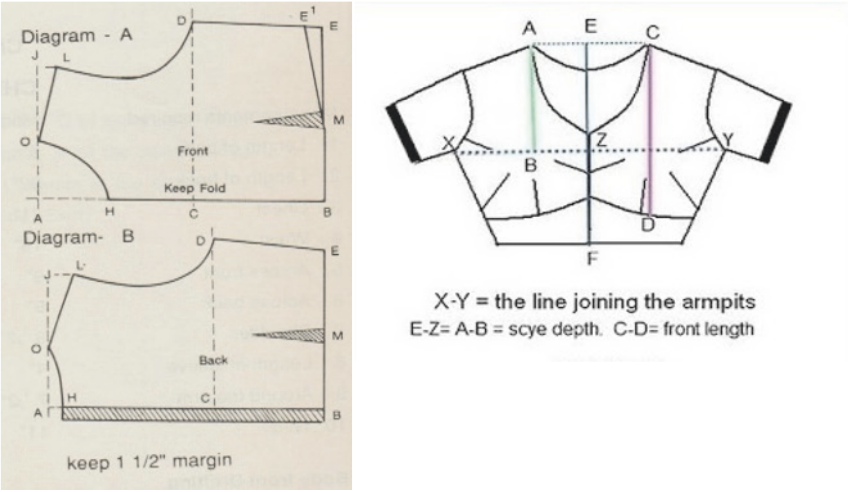

Fig. 1: A sample of pictorial learning material

(Ramasamy 2016)

The above illustrations affirm that sewing machine troubleshooting techniques as one of the important elements in this sewing curriculum, especially for people in rural regions where lack of transportation, availability of (sewing machine) technicians to repair the machine and cost matter greatly. Hence, a tailor who learns basic troubleshooting techniques can manage themselves if some technical issues occur.

The pedagogic guidance specifies that the outcome-based approach should involve practical learning which is connected to learner-centred curriculum development (CEDEFOP 2012). In relation to this, the third element of the competency-based approach in this paper is *practical orientation*. In other words, practical learning is another key feature of the competency-based approach. The sewing curriculum in this pilot included both practical and theoretical dimensions, allowing flexible learning. Further, in this competency-based approach, the curriculum instruction-assessment (Pratt 1991) method of the sewing vocational course was aligned to the learners' demand and their ability. Moreover, for the assessment of competencies, the capacity of the learner or target group needs to be considered; therefore, the assessment method requires some flexibility in certain circumstances. Most of the learners who attended the sewing vocational training were at a poor educational level. Thus, practical assessment through observation and on-the-job tasks rather than written tests was followed. Bowman and Callan (2012)

stated that disadvantaged learners are more comfortable with knowledge, skill and attitude that include practical assessment compared with written assessment or in-classroom work.

8 Conclusion

This article has examined to what extent it is possible to transfer the western approach to competency-based curriculum in VET to India. In the transfer model, we can learn from others' experiences that best practices require more critical analysis of contextual analysis in the learning process. Similarly, this study has demonstrated that 'needs assessment' at the micro-level is significant in designing and developing such a competency-based curriculum in a real-life context. For example, the participation of women, disadvantaged and rural people in VET is influenced by many socio-cultural conditions including entry-level educational qualification, duration, timing and access to a VET centre. Consequently, to make vocational skill training more effective, it should adopt more dynamic, innovative approaches, involve relevant stakeholders, and integrate the expressed needs of potential learners and local labour market demands in its design. The needs of VET learners/target groups may vary within regions, based on a respective country's policy, socio-economic and demographic profile. Therefore, geographic, demographic, social and cultural factors should all be taken into account when transferring educational policy, theory and practices (Ochs and Phillips 2003). Many VET aid programme transfer models through international development agencies have been unsuccessful due to their lack of analysis of historical, socio-cultural, geopolitical and economic factors (Stockmann and Silvestrini 2012). It does not indicate that we cannot learn from others' experiences, but it does give a caution to consider the importance of contextual sensitivity in the learning process (Crossley 2010). Lewis (2007) in his study traced a similar view that transferring educational models and practices have not been successful in developing countries due to inherited colonial heritage, cultural differences, and high-cost poor connection with economic development activities.

This study is not an exhaustive review of educational transfer or comparative approach, rather only a pilot study in a limited number of villages in South India. Hence, the data cannot be generalised, replicated or transferred to other regions within India and other parts of the world. Consequently, a comparative study would be very helpful in gaining more insights on the competency-based approach at the micro-level. As has been seen in the European approach to competency-based curriculum, flexibility in terms of access to VET centre by learners, time, and teaching-learning arrangements has provided an opportunity for rural women to take part in sewing vocational skill training. The competency-based approach

guides curriculum planners to decide what learners should learn and be able to perform in their workplace. However, any imported educational model potentially may fail if it does not consider cultural context, required adaptation and prioritised agendas based on the host country's terms at all levels of planning and implementation of the VET programme.

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Transfer research as an element of comparative vocational education and training: An example of factors influencing the transfer of dual training approaches of German companies in China, India and Mexico

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Abstract

This article deals with comparative vocational education and training (VET) research on the international transfer of the dual training system. The article focuses on the question, which factors influence the possible transfer of dual training approaches in German multinational subsidiaries from a company-specific perspective.

Based on the current state of research, a brief overview of the research history and the theoretical background is given.

The article specifies the outlined research question for China, India and Mexico with a focus on the mechanical engineering and plant construction sectors, the automotive and automotive supply sectors as well as the electronics and chemicals sectors.

Using a qualitative research approach, expert interviews with 149 training experts of subsidiaries of German production companies were conducted, factory tours and visits to training facilities took place and document analyses rounded off the recording instruments. The identified influencing factors for companies are presented and discussed on the basis of country-specific findings. As an aggregated overview, the main influencing variables within the company and externally are outlined. The overall reflection for the transfer of dual training approaches in the conclusion completes the article.

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1 Introduction

This article deals with comparative vocational education and training (VET) research on the international transfer of the dual training system. Based on the current state of research, a specific research question is derived and placed in a theoretical context of transfer research. Subsequently, the research method and the selection of the research object are outlined. The article ends with the presentation and discussion of the findings and the overall reflection in the conclusion.

Previous transfer research on dual forms of training has focused in particular on programmes supported by state funding from Germany (Gessler et al. 2019). Here, however, the aim is to recur singularly to an individual company level. Gessler (2016) identifies successful transfer activities in this context as part of a study on the training behaviour of Mercedes-Benz in Alabama (see also Peters 2019). However, the local context leads to considerable deviations in implementation, which is why this is more a transformation than a transfer. Aring (2014), too, found a clear German influence in the training activities of North American subsidiaries of Volkswagen, BMW and Siemens in a case study conducted by the International Labour Organization (ILO), although here too, a significant adaptation to the local context took place. Körbel et al. (2017) also analysed the training of German skilled workers abroad, including six countries. They identified different strategies with different degrees of duality and thus provide an overview of possible transfer options. In addition, the authors note that different transfer solutions can also emerge within one country. The studies by Pilz (2016a) and Pilz and Li (2014), focused on the qualification activities of German subsidiaries in China, India, Japan and the USA, against the background of companies' internationalisation strategies. They reported a clear orientation towards the local context, although Japan is more likely to have a global orientation.

This brief literature review shows that VET transfer is generally seen as challenging. Contextual differences act as important hurdles (Lewis 2007; Pilz 2017; Valiente and Scandurra 2017). However, there has been little empirical research on the impact of this context, and what determines the way in which companies organise their initial and continuing vocational training activities.

The present study[3] follows and focuses on the operational perspective to analyse the complexity of various dual-orientated solutions. The focus is on the following question:

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From a company-specific perspective, what factors influence the possible transfer of dual training approaches in German multinational subsidiaries?

The guiding assumption here is that a transfer of dual training activities is most likely at German companies, and that they have their dual training 'as a footprint' to some extent (Pilz and Li 2014). German companies are generally very familiar with the organisation and advantages of dual vocational training, and so it can be assumed that they would also like this to be established at their foreign locations (Bliem et al. 2014, p. 30). Consequently, it can be assumed that they are 'path dependent' (Pierson 2000; Thelen 2004), which is conceptualised through the connection to the German parent company and favours orientation towards the German training pattern. In addition to the influence of the parent company, the influence of the local environment (Gessler 2016; Pilz 2016a) is of importance, which can lead to an orientation towards the training activities of local companies.

2 Transfer: A theorectical framing

Transfer research is a focal point in comparative education (see Wiemann et al. 2019; Wiemann 2020). Against this background, Steiner-Khamsi (2012, pp. 8–9) outlines three generations of transfer research. The first developed fundamental theoretical concepts on various aspects of educational transfer. These include the selective transfer of education (Holmes 1965), externalisation theory (Schriewer 1988) and the transnational appeal of policies (Phillips 2006). These primarily deal with the study of voluntary policy transfer between countries of the Global North. The second generation expands the geographical radius of the study and includes countries of the Global South as well as industrialised nations. The forms of forced transfer through colonial rule (e.g., Carnoy 1974), and negotiated transfer between developing countries and transnational organisations (World Bank 1996), form the focus of the study. The third generation is shifting the focus of research from bilateral transfer to the internationalisation of national educational processes, such as through orientation to international standards (Waldow 2012). Here, too, a distinction is made between conscious and unconscious, as well as voluntary and involuntary transfer activities (Perry and Tor 2008). These parallels can also be seen in the continuum model of educational transfer by Ochs and Phillips (2004). This model is based directly on the findings of Dolowitz and Marsh (2000) from comparative political science, which relates them to the educational context. Their model positions the imposed, involuntary transfer of education at one end of the continuum, the politically negotiated transfer of education in the middle and the voluntarily introduced transfer of education to the other end of the spectrum.

This consideration of *different degrees of voluntariness* is a relevant aspect for the present study that is largely ignored in comparative VET research. This can also be applied to transfer within company structures: Against this background, the influence of the parent company proves to be a possible factor on the transfer probability, so that a distinction can be drawn between a more voluntary, and a more forced adoption of training practices in the subsidiary.

In comparative education, Phillips and Ochs (2003, 2004) in particular deal with the topic of the distinction between voluntary and more forced adoption of training processes. Their much-cited process model illustrates the transfer process as a four-stage cycle. The first stage focuses on a transnational attraction of certain policies as triggers. These can be domestic impulses, such as systemic instabilities, politically motivated efforts to implement reform and negative external evaluations of the national situation (Phillips and Ochs 2004, p. 778). The second stage of the process model is devoted to the possible form of transmission, which in addition to actual implementation, can (only) include theoretical and scientific examination of certain system elements. The policy is then introduced into the country of transfer and modelled according to the contextual factors. If the actors involved agree with the transfer, the embedding and integration of the system component into the existing structures of the host country takes place (Ochs 2006, p. 612; Phillips and Ochs 2003, pp. 456–457).

The findings presented here underline the importance of the research question by highlighting the relevance of the contextual factors. However, an analysis of the effectiveness of these influences on VET transfer cannot be derived here, rather, the emphasis is on the individual transfer steps. In this context, Hulme (2006) draws attention to the difficulties of rigid process observation. In the context of a study on transfer activities in the education sector between the USA and Great Britain, he states with reference to Ball (1990, 1998), that "policy making in education is evolutionary and fluid rather than rational-technocratic and linear with orderly stages and decision points" (Hulme 2006, p. 177). This view is followed here. Therefore, the status quo of the implementation of education and training activities becomes central. Consequently, it can be concluded that the active participation of companies only takes place if there is a triggering impulse in the form of a corresponding qualification requirement or skill mismatch on the labour market.

As in comparative VET research, comparative political science also deals with possible transfer difficulties. Dolowitz and Marsh (2000, pp. 17–20) state three reasons for failed transfers. Firstly, a transfer can fail if the host country has not dealt sufficiently with the functions and framework conditions of the transfer object or has not provided sufficient information (uninformed transfer). Secondly, a transfer may fail if components essential for the functioning of the transfer object were not transferred (incomplete transfer). If the differences in the economic,

social, political and ideological framework conditions between the actors involved are too great, this can be seen as a further reason (inappropriate transfer; see Hulme 2005).

These findings are initially closely linked to the interest in knowledge and the findings of comparative VET research. Nevertheless, the present study design should not be based on a strict distinction between successful and failed transfer. The comparative political and educational sciences also open up corresponding views for such an approach. The literature on transfer research also discusses different forms of transfer. Rose (2005) describes the following variants of a transfer: copy, emulation, hybridisation, synthesis and inspiration. These represent a continuum from complete transfer to the exclusive adoption of specific ideas and suggestions. While the former, according to the author's assessment is rather rare in reality, the latter is often the result of delegations visiting abroad (Rose 2005). In practice, there are often deviations between the implementation originally planned at systemic level and the actual implementation (Zhang and Marsh 2016, p. 50).

In comparative educational science the assumption is also less of factors that hinder transfer, but primarily of local adaptations as a consequence of a transfer (Ozga and Jones 2006), which can last for years to decades (Kim 2017). Cowen (2006, p. 567) also attaches particular importance to contextual framing and sees it as the final step in the transfer process.

The EPRG typology developed by Heenan and Perlmutter (1979) is of interest with a view to global corporate management processes that are particularly interested in corporate strategies to increase competitiveness. This typology distinguishes four basic attitudes underlying internationalisation: a strong influence of the parent company (ethnocentric), a local orientation (polycentric), a priority influence on the basis of regional cooperation (regional centrist) and a uniform global orientation (geocentric).

The discourse on possible trends towards standardisation or localisation with all intermediate and other solutions, forms a core aspect of this study, which comparative VET research has so far only considered in a few studies with an explicit focus on multinational enterprises (MNEs).

3 Methods and procedure

Our research uses these theoretical-conceptual approaches in the context of a qualitative study in selected regions: in the Shanghai metropolitan area in China, in the industrial triangle of Mumbai, Pune and Bangalore in India, and in the industrial belt of the Central Highlands of Mexico (Guadalajara, Querétaro, Estado de México, Mexico City and Puebla). These hotspots, with their many urban preferential areas for direct investment, have a long history of commercial production.

The selection of these three countries from the most important direct investment countries in Germany is based on the 'most different approach' (Georg 2005). The selected industrial regions differ in numerous aspects, such as their colonial character, state planning and liberalisation paths, teaching/learning practices and other socio-cultural patterns. In addition, their vocational training systems are based on different 'skill formation systems' (Busemeyer and Trampusch 2012; Pilz 2016b) and 'training cultures' (Pilz 2009).

For the purpose of the investigation, data were collected from 86 selected production companies of different sizes. In addition to large transnational enterprises (global players), smaller transnational enterprises were also included. The study further focused on the mechanical engineering and plant construction sectors, the automotive and automotive supply sectors as well as the electronics and chemicals sectors. These are all of particular relevance with regard to German direct investment in the three countries (German Trade and Invest [GTAI] 2017a, 2017b, 2017c).

Expert interviews with employees of subsidiaries of German production companies served as the primary survey method. A total of 149 interviews were conducted with human resources (HR) managers, training managers and plant managers. This procedure was supplemented by factory tours and visits to training facilities. Document analyses (e.g., of learning materials and training plans) rounded off the recording instruments. In addition, interviews were conducted with public and private vocational training institutions in all three countries. The interview guide was developed through a theory-based category system. All interviews were completely transcribed and evaluated triangulatively in critical reception of content analytical methods and compared with each other (Kuckartz 2016). The data were then aggregated into clusters, from which the influencing variables listed below were derived.

4 Presentations and discussion of influencing factors

Based on the theoretical and conceptual principles outlined above, the following section briefly presents and discusses different influencing factors for companies on the basis of country-specific findings.

4.1 Connectivity to the vocational school system

It can be seen that the national (vocational) school systems of the respective countries represent a relevant parameter for the possible implementation of dual-orientated approaches. This becomes particularly clear for the study region in China:

The ability to connect to the vocational school system at upper secondary and tertiary level provides a basis for possible cooperation, or the option of recruiting vocational school leavers, as at least partially trained junior staff (Li et al. 2019). Consequently, this situation initially represents a framework condition that promotes transfer.

The picture for the companies surveyed in India is different: Although the vocational school system can basically be continued by school leavers, demand for these options is significantly lower. The experts complain about the poor quality of the vocational education system: the poor equipment of vocational schools (Industrial Training Institutes [ITIs]), their outdated curricula, and the low level of professionalisation of teaching staff. Although these framework conditions create barriers to possible cooperation with vocational schools, companies develop own strategies to respond to the given situation. Although the polytechnic institutes and universities offer better starting conditions, they are also associated with high demands and expectations on the part of graduates, who are reluctant to work directly in production, or who try to move up into management as quickly as possible. It is therefore a challenge for companies to be able to employ participants in the production process in the long term (Pilz 2016c).

In Mexico there are good opportunities for companies to cooperate with training providers. However, the interviews show that formal vocational training is often considered qualitatively inadequate and must be compensated for by the companies. Little transparency with regard to learning outcomes and a wide variety of public and private providers make it difficult to compare different degrees. This is also due to the low degree of standardisation: Although the curricula are prescribed at national level, the individual contents are subject to the understanding of the respective teacher (Wiemann and Pilz 2017). Implementation is often a challenge, partly due to the poor equipment and the moderate financial situation of the schools.

4.2 Local labour market

The conditions of the local labour market also influence the training opportunities offered by companies. In all the study regions, there is a high inter-company fluctuation, which initially makes the companies' own qualification activities seem unattractive. For example, in a metropolis such as Shanghai, the labour market is characterised by a high degree of flexibility, which is why all companies report relatively high level of staff migration and low employee loyalty. Consequently, companies fear that promising individuals may be lured by offers of higher salary by companies which do not invest in training themselves. This poaching problem (Helbig 2015; Muehlemann and Wolter 2011) consequently reduces the qualifi-

cation incentives for companies. India also shows a high probability of staff migration, which reduces the willingness to invest in costly training activities lasting several years (Pilz 2016c).

Comprehensive qualification activities, as demonstrated by a certificate, are therefore viewed critically in all three countries because of the risk of inter-company migration. Instead, many experienced employees are poached or employees who have proven to be loyal and reliable in the past are further developed internally. The influence of the labour market can thus act in two directions: as a promoting factor, or as an obstacle to dual approaches. Further influences must therefore be included to explain this.

4.3 Institutional framing by the government

Governmental involvement has also proved to be a decisive influence in all three study regions, although it has different qualities in the three regions.

In China, the government acts as the main actor responsible, while companies are only marginally involved in decision-making processes regarding training (Li et al. 2019). The adoption of dual practices offers the state the opportunity to modernise vocational education and training so that comprehensive resources are made available. Cooperation with enterprises is encouraged and thus part of their know-how is absorbed by the education system. The improvement of the training quality of vocational schools is also financially supported to a significant extent, which can have a positive effect on possible transfer activities. Cases of cooperation with national and international companies often serve as showcase projects While, at the same time, legal requirements, for example for safety training or for state certificates in vocational schools, force the implementation of partly identical qualification components. Despite the advantages of this large state involvement, there are still obstacles for companies. The various qualification strategies, for example, have relatively few opportunities for companies to contribute. This creates a potential obstacle to dual training activities, which are based not only on reliable vocational schooling but also on the companies' authority to shape the training system.

India shows a similar pattern but it is embedded differently. Here, too, the state has recognised the shortage of skilled workers, but according to the interviewees, this is primarily due to the rapid integration of young people into employment. Although the state sets out a number of regulations, the actual structure is largely left to the companies themselves. These, in turn, generally do not rely on the state as a reliable partner for qualification activities. Especially the frequently changing responsibilities and opaque regulations lead to uncertainty. Companies therefore lack a decisive basis for establishing dual training approaches.

Whereas in China it is primarily the state that is responsible for vocational training measures and in India, depending on the strategy, either the companies or the individual participants are responsible for qualification activities, in Mexico a mixture of influences becomes apparent. Government guidelines have so far only played a minor role (Arteaga García et al. 2010, pp. 207–208). Due to the development of the Mexican dual training model, however, this situation is currently undergoing a potential process of change. Even though it is still in the implementation phase, it is already widespread in many states (Cáceres-Reebs and Schneider 2013; Wiemann and Fuchs 2018). Here the state is actively trying to improve the link between full-time schooling and company needs. The social partners are also active, in particular the Mexican employers' association COPARMEX. In contrast to China, this gives companies greater authority to shape the future. However, this is not always used in favour of a high quality of training, but also to realise internal company interests such as low-cost induction training. Here too, state-imposed standards can be seen as a means of ensuring the quality of training.

In all three countries, state influence is proving to be an important parameter in countering the tense situation on the labour market. If one looks at the strong integration in China and, to a lesser extent in Mexico, contrasting with the rather low state integration in India, it becomes clear that an active state actor plays a major role in the spread of dual approaches beyond the boundaries of lighthouse projects. However, as in the case of China, the companies' influence can also be restricted too much.

4.4 Social setting

As different as the social settings in the three research regions may be, their effect is however similar. A generally low reputation of vocational training and industrial work among the population tends to lead to a limited recruitment potential for companies. Thus, it is often difficult to find suitable candidates or to bind prospective specialists permanently to production activities. In China, the possible admission for academic paths depends on the result of the state entrance test. Vocational training offers are then generally accepted as alternatives if a candidate does not obtain a sufficient number of points for admission to a graduate programme. For this reason, there are sufficient applicants available, who often, however, have not actively opted for this career path. This leads one to assume a rather low level of identification with the respective occupational profile and the company, which is why the willingness to change jobs also increases.

The same may be said of India, where the low social recognition of vocational education and training characterises the specific qualification strategies. The interviewees make it clear that they can only recruit people from low social strata.

This leads to problems because potential employees often only have a low level of school education. Some companies however, adapt their production methods so that the low level of qualification of their employees matches the requirements profiles of the individual jobs (see also below). Academically qualified persons usually do not want to work manually within the production structure. This can be explained by the still predominant structures of the caste system: Dirty production work is reserved for the low castes. These positions are often combined with fewer educational opportunities, so that only a limited number of people are available for recruiting companies (Wessels and Pilz 2018).

In Mexico, socio-cultural influences also prove to be a relevant factor: Since vocational backgrounds in the low-wage sector are of little importance to employers, many young Mexicans opt for direct entry into the formal or informal labour market. In addition, academic alternatives are highly attractive, although not to the same extent as in China and India.

A further challenge in all three countries arises from the hierarchical organisation of work, which represents a contrast to the flat hierarchies that ideally exist in the German dual training model. Such organisational-cultural structures inhibit the spread of problem-solving and self-reliant approaches which are characteristic of German dual training. Instead, this context favours structures with little room for manoeuvre and control mechanisms, and consequently limits the need for complex training.

4.5 Institutional framing through local and regional cooperation

Local cooperation represents an important additional framework condition. This can be seen for example in China: Here, companies make use of elements of the German dual training system and enter into collaboration with vocational schools and/or the German Chambers of Commerce. This approach can be explained against the background of a strong German community in the greater Shanghai area. Many German companies are closely networked there and can already look back on many years of experience at their locations. As a result, there is cooperation and a wide range of training and further education opportunities offered by the German Chambers of Commerce Abroad (AHK), which is geared to the needs of German companies. In addition, numerous companies offer their training and continuing education services to other companies for a fee. A similar situation arises in Mexico, but with a lower degree of maturity due to the relatively recent developments of the Mexican Dual Training Model. Some respondents in China also report a kind of gentlemen's agreement prohibiting them from poaching employees.

Overall, the examples from China and Mexico show that good networking among German companies can facilitate the establishment of their own training and continuing education activities. A comparison of these findings with the Indian context reveals differences: Many companies in India argue that they are basically interested in local cooperation, primarily with other German MNEs, for training purposes. In addition to industry specificities and the difficulty of agreeing on common objectives, the wide geographical distance of the individual locations, combined with poor infrastructural connections, inhibit such mergers.

While the influences discussed so far tend to lie outside the sphere of influence of the companies, those that lie within the sphere of influence of the companies themselves also emerge. These are explained in the following sections.

4.6 Production specifics

An important influence on the qualification strategies of the companies is exerted by the production specifics, in that they significantly influence the personnel requirements of the companies. The degree of standardization and the degree of automation in production are particularly relevant. According to Kumar and Suresh (2008), the degree of standardisation also has a direct influence on the demand for skilled workers: While a strongly 'taylorised' mass production divides the work processes into work steps that are as small as possible, and thus easy to carry out, and considerable production quantities (e.g., in the automobile and automotive parts production) entail a high level of routine. Knowledge-intensive small series and project-based individual productions (e.g., in special machine or plant construction) on the other hand, require a deeper understanding of production (Kumar and Suresh 2008). Strongly 'taylorised' production concepts therefore require a rather low qualification level, whereas holistic production concepts (e.g., Pfeiffer 2008), or high-performance work systems (Appelbaum et al. 2000), require a higher level of qualification.

In the area of simple routine activities, the willingness to invest in education and training is low. The more varied the production, the more important it becomes to have well-trained personnel. While this is proving to be a major challenge for some of the companies involved here, others have adapted their production methods to such an extent that the low level of qualification of their employees coincides with the requirements of some of their positions.

The companies included here have however employed specialists for demanding work, for example in the area of maintenance and repair. In order to cope with this work, some employees are poached from other companies, or people with an academic background are used. A high degree of automation, however, leads to a considerable need for technical personnel for maintenance, repair and

overhaul work. This applies, for example, to automobile manufacturers, but also to other large companies in various sectors. These findings concur with the results of Sheldon and Li (2013). The authors state that, in the Chinese context the qualification requirements resulting from the production method, are of greater entrepreneurial relevance than the migration risk. MNEs with predominantly repetitive and less complex production methods, on the other hand, avoid larger investments. In this context, however, it should be emphasised that even companies with a high degree of automation restrict complex training activities predominantly to specialist positions and also employ a large number of low-skilled employees for simple jobs.

The link between the mode of production and the qualification needs can however also be considered on the basis of a reverse causality pattern: In this respect, the mode of production determines not only the need for qualification, but conversely the level of qualification also determines the possible complexity of production (see also Jürgens and Krzywdzinski 2016, p. 75).

4.7 Economic rationalities

As discussed in the previous chapter, production specifics exert a considerable influence on companies' qualification strategies, but not all variants can be explained in this way. The cost/benefit structure of the individual companies, which is closely allied to the production-related requirements, also contributes to the decision for certain qualification activities. This reveals differences with regard to how companies can plan their hiring decisions in the short or long term.

Some companies tend to plan for the short term. According to the respondents, this planning pattern often results from the short-term award of contracts and the strongly fluctuating order volumes of projects for which they act as suppliers. As a result, it must be possible to deploy newly hired workers without a long lead time. This perspective is contrary to a long-term qualification strategy such as three-year dual training. In China, for example, migrant workers are therefore frequently recruited for low-skilled jobs, which from the outset is aimed at a short-term working relationship. In India this is reflected in the hiring of interns for one-year practical experience. In Mexico, meeting the need for short term low-skilled labour reflects in the low hiring requirements for corresponding positions.

If production is for the local market, cost sensitivity tends to increase. For this reason, experts in India in particular, but also in the other two countries, repeatedly stress that there is a noticeably lower price level for the sale of production goods than in Germany. This entails major cost restrictions in production, which leads to a high cost sensitivity to training activities. The parent companies often further emphasise this cost sensitivity.

As already explained, the decision for more long-term or short-term planning in the qualification area, is closely related to the production requirements. These findings fit in with the approach already taken by Festing et al. (2007), which attributes a specific role to subsidiaries. Depending on the extent to which these power structures within the MNE, are understood as independent components of a company or rather as 'extended workbenches', this has an influence on the starting points with regard to the respective decision-making models for training investments. The influence potential of the individual location depends on factors such as the size of the market in which a subsidiary operates, the profits it generates, the pooling of expertise in a particular area, competitiveness in a competitive market and successful local management. Successful dual approaches are therefore often based on strategic decisions to be negotiated between the parent company and the branch.

4.8 Socialisation background of the decision-maker

The decision on training and further education activities is often taken by locally socialised employees of the human resources department or production managers. These people are often unfamiliar with the functioning or existence of the German dual model. This means that the recruitment of specialists is based more on local practices, such as recruiting academics and/or recruiting experienced personnel from other companies. Adaptation of the training approach of the German parent company is therefore rather rare. Companies whose training activities are closely orientated to the German model, and which even have their own training centres on the ground for this purpose, show a different picture. As the training centres for skilled personnel are separated from the other production company, a separation of training activities for positions in the low-skilled sector can be observed. The training centres have been set up in close cooperation with the parent company and — depending on the duration of their existence — there is still a close cooperation. Numerous German expatriates have been, or are on site, to support for example, the development of curricula and the professionalisation of training personnel. In some cases, globally responsible employees are also available in the parent company to coordinate this support. Some companies have even made strategic decisions to explicitly promote dual training approaches in their branches. In some cases, the local subsidiaries also have a German decision-maker or a local responsible person who has already gained experience in several German MNEs and/or has spent some time in Germany.

It becomes clear here that the socialisation background of the decision-maker has a great influence on the qualification strategies. This finding follows on from the findings of international personnel management literature. Dowling et al. (2008)

state: "In the process of transferring systems and know-how the role of people is critical" (p. 217). Rupidara and McGraw (2011, pp. 179–183) also note that although the influence of external circumstances, and the link to the parent company are extremely relevant, such an institution-orientated approach to explaining personnel matters in MNEs is too short-sighted. Thus, the role of individuals and their rational and irrational considerations, must not be neglected (see also Gessler 2019). These individuals are in the midst of various influences and choose the options that they consider to be best suited. In the course of this, different influences can be mixed, and new variants can emerge, as the findings of this study also make clear.

4.9 Specific company characteristics

As already briefly mentioned in several places, the characteristics of companies also influence the way they qualify their employees. The duration of existence at the location proves to be relevant. Against the background of the extraordinary economic development in all three countries, production capacities were expanded and new locations established. In some cases, the companies initially resort to a number of different measures in order to be able to build up a sufficient workforce as quickly as possible (Jürgens and Krzywdzinski 2016, p. 434). However, at other plants, especially at large companies, appropriate training opportunities were often planned from the beginning. In some rather smaller companies, on the other hand, there is a tendency to focus initially on technical commissioning and to achieve a certain routine and growth prospects before focusing on qualification aspects. This can be observed particularly in the Indian context, where many respondents from medium-sized companies point out that they should first start on a small scale and concentrate on the most necessary decision areas. In addition, the interview partners in all three countries refer to the radiance of well-known brands: Although this has advantages in terms of personnel recruitment, other companies also tend to be more interested in enticing employees away on the basis of the positive reputation of the company (Sheldon and Li 2013, p. 189). Small and medium-sized enterprises have both limited staffing needs, and fewer resources.

4.10 Summary of the influencing variables

As the overview shows, both influencing factors resulting from the country-specific context and those resulting from the organisation of the companies themselves, have an effect on the qualification strategies of the companies. In addition, there are certain interdependencies between the factors, which become clear against the back-

ground of complexity and dependency relationships (Fig. 1). It can also be specifically assumed that the influence of the individual variables varies.

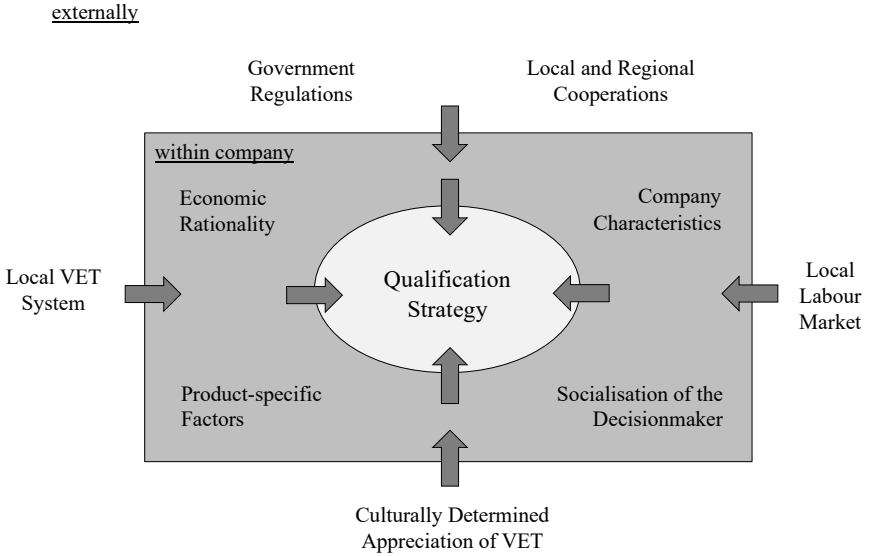

Fig. 1: Aggregation of the main influencing variables

(Wiemann 2020, p. 334)

5 Conclusions for the transfer of dual training approaches

More detailed and general findings can be derived from the survey material, which is unique in its complexity to date, and may be condensed into trends.

It thus becomes clear, that a detailed analysis of the needs of all involved actors, before the actual transfer begins, can provide fruitful insights for a target-orientated design. These actors include companies, young people with their parents, government representatives, representatives of the education system and, where available, trade unions and employers' associations. In particular, the high degree of interdependence between the influencing factors makes it clear how difficult it is to start at individual points or to sustainably expand lighthouse projects. Thus, the effects of the individual factors can only be understood if the existing interactions are considered as a whole, and their complexity is taken into account. Such a prospective analysis makes it possible to question assumptions of normality

arising from the functioning of dual approaches in Germany, and to identify possible inhibition thresholds in transfer activities before they occur.

In addition, the results of this study show that transformations require flexibility so that the reference object of dual education to be transferred is not too rigidly adhered to. The implementation and adaptation of qualification activities is not based on rigid strategic decisions, as is underlined by the low level of connection with the parent companies in this study. Instead flexible management, that reacts to changing environmental conditions, proves to be beneficial (see also Stockmann's findings, e.g., 2019). Local and regional collaborations that are used, or actively shaped by the companies in all three research regions are particularly helpful. This finding leads away from systemically orientated approaches, and towards those that focus on local or regional peculiarities and needs, in order to develop tailor-made solutions (see also Stockmann and Silvestrini 2013).

With regard to the theoretical foundation approaches described above, it can be stated that not all three forms of policy transfer can be found in an approach transformed to the enterprise level: Generally, a voluntary transfer takes place, which is implemented by the subsidiaries to solve the skills requirements in the respective country. On the other hand, in our study we could not find any involuntary transfer, in the sense of strict guidelines from the parent companies. As a result, ethnocentric approaches or geocentrically or globally optimized strategies were not, or only sporadically, identified in disordered individual measures.

Our data also show that, due to the strong influence of external factors in the host country, a complete transfer of the German dual system is not possible in the vast majority of cases. The importance of the regional and local influencing variables described in the scientific discussion, and the resulting need for adaptation in the transfer, were rediscovered for the German MNUs in the three study regions. In this respect, almost all measures recorded can be regarded as incomplete transfers (see above).

The relevance of the individual influencing variables is also perceived differently by the individual companies at different times (initial establishment or establishment of a subsidiary). In this respect, the flexibility in transfer described above is confirmed before specific qualification requirements. However, in some cases individual influencing variables are not perceived by the companies in the country at all, only belatedly, or in the event of a transfer problem. In addition, we found that processes are not always path-dependent or run in one direction. Thus, it was also possible to find companies that had developed a training system similar to the German dual training system over a number of years, but had reinstated it against the background of changed internal influencing factors and made use of local training arrangements.

Ultimately, this study offers a large number of future expansion possibilities. On the one hand, the aggregated and abstracted influencing variables, in terms of comparative research, could be examined in detail as study criteria (tertium comparationis, Pilz 2012, pp. 562–566) and transferred to other countries. On the other hand, the overall construct of all influencing factors can be applied to other countries beyond Mexico, India and China in order to reveal further findings and, if necessary, trends.

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How decent is work in the automobile industry in Shanghai? What does it mean for Chinese vocational education and training? An analysis of shop floor jobs in the Shanghai automobile industry

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Abstract

The fast technological advance in the automobile industry has influence on the nature and content of jobs. However, there has been very limited empirical study on the jobs in the automobile industry in China from the decent job perspective. Using in-depth interviews and content analysis, this study investigates, to what degree jobs in the Shanghai automobile industry chain are decent jobs. The results demonstrate a rather mixed picture. Although the pathway to reach decent jobs exists, for instance through professional progress to higher professional titles, some fundamental difficulties persist. Firstly, there is a contradiction between adequate earning and decent hours, secondly, vocational school graduates have ever limited opportunities for higher position, thirdly, the work in general is of hard and tedious nature. The study also illustrates competence gaps of vocational school students in automobile related majors, namely lack of endurance at work and lack of motivation towards a better performance, as well as insufficient professional competence.

1 Introduction

In an era of increasing globalisation, vocational education is gaining importance in many countries across the globe. In China, in order to strengthen the productivity of its workforce and maintain social stability, the government has been giving vocational education and training (VET) ever increasing priority in terms of both policy means measures as well as financial supports.

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Chinese vocational education has undergone various reforms and improvement projects. Statistics shows that the general employment rate of Chinese secondary vocational school graduates has stood at over 95% for ten consecutive years since 2006 (Chinese Ministry of Education 2019). However, the quality of the jobs remain unclear.

This is not a China specific phenomenon. Many developing countries are facing similar situation, where increasing numbers of young people graduate from vocational schools and enter the labor market, but it remains unclear what quality these jobs have and what it means to the national vocational education system. In a time of increasing global competition of productivity and international mobility, how the quality of employment varies among countries as well as its implication for VET systems worldwide, is an issue highly interesting to investigate.

The International Labor Organization (ILO) has developed the concept of decent work, which includes a framework of indicators deliberately illustrating the content, meaning and scope of what decent work means (ILO 2013). Until recently, most investigations using the ILO indicators focused more on tertiary level education. Very few empirical studies have been completed on the employment situation of vocational education graduates.

2 Selection of research object and field

In this study we focus on the quality of employment of young workers age below 25 in automobile industry in and near Shanghai from the perspective of the decent work framework developed by ILO. The reasons are illustrated as follows.

Automobile industry is one of the major industries in Shanghai which recruits thousands of young workers each year, many of whom graduated from or have studied at vocational schools. The automobile industry has experienced expansion of the market scale and the rapid increase in demand for more than twenty years since the mid-1990s (Department of Industrial Economics, Development Research Center of the State Council 2018). With the development of China's automobile industry and the acceleration of globalisation, the automobile industry has shifted from labor-intensive to capital-intensive and technology-intensive industries.

However, whether the expansion of the industry is accompanied with the increased skill demand of the labor force and improved work condition is in doubt. How the change of the industry influences vocational education and training is a crucial variable in the development of VET in China.

The focus of this study on the young workers is not only merely based on the consideration of its relevance to vocational education, it has much more social and economic meaning in contemporary China.

In the past four decades, Chinese economy has experienced enormous development and hundreds of millions of workforces have played vital roles in this incredible process. Many of these workers have received a formal vocational school education and many more have taken part in various forms of vocational training (OECD 2010). These workers, especially those who immigrate into cities from rural areas are known for their diligence, tenacity and endurance, and they can work for long hours under poor working conditions. They give high priority to money-making because they want a better life for them and their children.

The younger generation of VET students and shop floor workers is significantly different from their parents, especially the so-called 'post-95s' generation (born after 1995) who have become the majority of vocational school graduates for a couple years and now the mainstay of the labor market. Rather than just paying attention to salary and career development, the 'post-95s' prefer work for interest and hobbies. Compared with other age groups, they focus less on salary; for them, emotional release, self-expression and spiritual freedom matters a lot. More than half of them are willing to work for pleasure and more than 70% are willing to pay for hobbies, clearly higher percentage compared to the older generation (CBNweekly 2018).

Because of the good economic situation, the post-95s born in Shanghai are not so worried about the problem of finding a job. The relative economic well-being of their parents makes them willing to pay for their own hobbies without rushing to become a 'house slave' or a 'car slave', so even a stable salary is not always the objective of these workers.

Under the circumstances mentioned above, the supply side of the labor market is gradually transforming itself, which poses interesting questions, such as whether the demands side of the labor market have changed, how the workers respond to the change of the work reality. Here, the concept and framework of decent work developed by ILO can be a useful tool to make sense of the changes. It is interesting to investigate whether the jobs in the automobile industry are decent and how the young workers perceive them.

Therefore, the purpose of this study is as follows:

1. To clarify to what degree the existing jobs in the automobile industry in Shanghai are decent, and to find out, among these decent jobs which are accessible to the young graduates of secondary vocational education;
2. To shed some light on the development and reform of Chinese vocational education so that the vocational school graduates can enhance their capacity to obtain these decent works;
3. To test methodologically to what extent can an international category serve as an instrument in a country-specific investigation.

3 Methodology

The general report of the 17th International Labour Conference in 2003 elaborated the decent work measurement indicators for the first time (ILO 2003). ILO defines decent work as "promoting productive and decent work opportunities for men and women in conditions of freedom, fairness, stability and respect for personality" (ILO 2003, p. 21).

A more concrete framework was developed based on the concept. ILO provides a set of key indicators that can measure decent work in developing countries, countries in transition and developed countries. The indexes include employment opportunities, unacceptable work, adequate income and productive work, reasonable working hours, and work. Stability, fair employment, work safety, social security, work and family life, social dialogue and labor relations, and economic and social factors. In order to measure accurately, ILO has listed the specific quantitative indicators for each item.

According to previous research, the types of enterprises in the auto industry chain can be categorised into three branches: post-market services, automobile original equipment manufacturer (OEM) and automobile parts and subsystem suppliers. Semi-structured interviews were carried out with eight or nine companies from each of the three branches; for each company there were often one or two shop floor workers and a human resource personnel present; most interviews lasted between 25 to 45 minutes. All dialogue was recorded and then transcribed into written documents.

We use qualitative classic grounded theory to carry out the content analysis of all the relevant answers we received from interviews with respect to the research questions mentioned above. Classic grounded theory qualitative research methods using inductive reasoning can generate a new theory and understanding; the research problem identification from the perspectives of participants is a key component of this qualitative classic grounded theory (Elliott and Higgins 2012). By opposition, the deductive inquiry seeks to either prove or disapprove established theory and includes a search of the literature to formulate the research problem (Elliott and Higgins 2012). The seminal work of Glaser and Strauss (1967) was based upon the discovery of theory from data, known as grounded theory. Discovery of a core variable is a key factor in grounded theory in providing an explanation of phenomena grounded in social reality (Polit and Beck 2004, 2014). Grounded theory aims for development of a theory grounded in data obtained from the field (Creswell 2013). Discussion for this research study focused on classic grounded theory or Glaserian grounded theory.

This qualitative classic grounded theory study has significance for describing and analysing the shop floor workplace. This study explores the working condi-

tions on the shop floor level, the attitude of workers toward the work position and how their career developments routes are. It also examined how the senior workers who used to be secondary vocational school graduates get promoted.

A classic grounded theory study provides the following four key areas for the researcher. The first point establishes a meaning of inductive inquiry and how new knowledge generation makes contributions to science. The second point addresses the noteworthiness of questions applied in gathering and analysis of data. The third point reveals understanding to the "research-theory link as opposed to the theory-research link" (Elliott and Higgins 2012, p. 9). The final and fourth point of using a classic grounded theory study was to generate a theory through induction and deduction with a focus from the experiences of the participant (Elliott and Higgins 2012). These four key areas were included in this research study, using a qualitative classic grounded theory approach.

In this study, key indicators are used to assess whether a job complied with the decent work standard, including the following: dignity, equality, productive work, quality jobs and security.

A conceptual view of participant behavior is the aim of classic grounded theory (Breckenridge et al. 2012). Four core facets of constructivist methodology include (a) an interpretive comprehension of participant's meanings, (b) co-construction of data, (c) relativism, and (d) a philosophical position (Breckenridge et al. 2012).

Research Design Appropriateness

Methodological stages of classic grounded theory for employment in this research study includes (a) identification of an area of interest in a substantive area for working condition and attitude to their position among first-line workers, as the substantive perspective, (b) data collection, (c) open coding, (d) memo writing, (e) selective coding and theoretical sampling, (f) memo sorting to find the theoretical code(s), (g) review of the literature with integration with the emerging theory using selective coding, and (h) noting the developed theory by through writing.

The main research steps of the qualitative content analysis with grounded theory are therefore as follows:

1. Structured interview with relevant personnel in the industry;
2. recording and transcription of the interview;
3. development of codes for content analysis by analysing the transcription and matching it with literature on decent job, with the help of software such as NVivo.;
4. content analysis of all the transcriptions;
5. further analysis and summary.

Based on the framework of decent work developed by ILO, using grounded theory, we developed the analysis framework in this investigation as follows (the concrete codes of each criterion are not shown due to the limited space):

Tab 1: Analysis framework of decent work in this investigation (only key indicators and criteria are demonstrated)

Key indicator	**criteria**
dignity	social dialogue
	rights at work
	participation in decision making
	workplace relations
equality	access to work
	ability to balance work with family life
	gender difference
	age level
	discrimination
productive work	adequate earnings
	welfare
	decent hours
quality jobs	Industry status
	forms of economic activity
	number of employees
	job turnover
security	safe working conditions
	Supervision and management
	insurance and pension

Key indicator	criteria
	sustainable career development
	Elderly staffs' transformance
	ratio of labor dispatch workers
	competence requirements

4 Major findings

4.1 Case analysis: Employment in auto party and subsystem suppliers

The number of Tier 1 suppliers that can produce assembly products in China is relatively small, but the number of Tier 2 or Tier 3 suppliers is huge.[3] Compared with large-OEM, parts suppliers are located in upstream of the industrial chain and have less profits. Jobs available for vocational school graduates in Shanghai mainly include assembly worker, quality control, auditing and technical support.

There are great discrepancies among different suppliers, some of which can provide relatively decent jobs for the majority of the workers, whereas some offer only the minority advanced workers decent jobs.

4.1.1 Dignity

Most of the respondents in this study indicated that the 'right to speak' in their work process and the 'decision right' in the working environments are relatively low. In the words of the interviewer, "if the supervisor has made arrangement, we will just do it; there's no room for negotiation, the supervisors like those who obey" (Interview 6).

Meanwhile workers very often have to adapt almost 100% to the working tempo of pipeline production and this leaves no room for social dialogue or decision making on workers' part. The adaptability on the pipeline is an important factor influencing the leave or stay of beginners; "many people simply leave because they can not adapt to the working tempo and work environment" (Interview 7).

3 Tier 1: Suppliers, which directly supply OEMs. On a particular module, OEMs demand their technology supply. Tiers 2 or 3: Suppliers, which supply Tier 1 or 2 with product or service.

4.1.2 Equality

Gender equality is difficult to achieve. Companies in this branch has high requirements for physical strength and female workers have disadvantages, therefore there are relatively small number of female workers.

Due to various reasons, the first few months can be very difficult for new workers. To a certain degree, discrimination against workers with little working experiences is common.

Large auto parts companies normally have a two-month probationary period when recruiting workers, and they can be converted to regular workers after the end of the probationary period. An interviewer said about the workers who left within two months, “most of them found that they did not adapt to the fast-paced production line mode within the first week of work, and chose to leave” (Interview 6).
Older workers can face more challenges. As mentioned above, the ability to adapt to fast-paced operation of the pipeline is an important factor affecting workers’ possibility of staying in the firm. This also poses difficulties for older workers, as one respondent said, “because we have a certain amount of physical exertion, you can’t do it when you are old, relatively speaking, the younger body is better, even if it is tired for a while, it will be restored, not the same, that’s why we recruit young and strong workers” (Interview 6).

A human resource manager in a firm even said, “actually we almost only recruit those with age between 20 and 30, we don’t even recruit ones older than 30, why? Because the job has certain strength requirements and those older ones either cannot qualify or they are quickly tired” (Interview 6). Some companies have better opportunities for older workers. An interviewee mentioned, “this company’s overall workforce is young, mostly under 35 years old. But some of the management positions have been promoted from shop floor employees, and they are older and can reach 40 years old” (Interview 7).

Origins of hometown of the workers can have some impact. At present, many enterprises with employment on large number of workers have chosen to recruit people from other provinces such as Anhui and Shandong. Immigrant employees may have feelings of inferiority and lack of self-confidence, because they are not fluent in Mandarin and have difficulty in communication and other problems. Relatively speaking, Shanghai workers are better able to understand, easier to get promoted, and more outward-looking.

However, there is no evidence of discrimination at the company level for immigrant employees. Although a large number of immigrant employees and collective return of holidays will cause difficulties for the company's continuous production, the company needs to ensure the proportion of local employees, which is

currently maintained at half. The purpose of the work of foreign employees is clearer, in order to make money.

> For them to work from outside their hometown, it is definitely to make money. (Interview 6)

4.1.3 Productive work

Compared to other manufacturing jobs, the wages in large-scale parts manufacturing enterprises are somewhat higher. There are always subsidies for overtime work, and there will be a corresponding growth mechanism for wages every year. At present, due to a large number of staff gaps, enterprises adjust the wages of workers and keep the wages of front-line workers increased year by year.

Income level has significant impact on the possibility of staying in one firm for a regular worker, as one worker said, "if the salary is a little higher, I will endure the working load. If I get paid a lot, then I stay; if I think there's a gap with what I expected, then I have to go. This is the case" (Interview 7).

A clear dilemma can be seen concerning the decent working hour. Despite the growth in the past decades, due to inflation and other factors, the salary of regular shop floor workers is not decent enough; however, if overtime work is counted, then the subsides can be very helpful. Either they have low income, or they have decent income but excessive time of working.

Additionally, many companies apply shifts of working hours to produce higher amount of products. A typical three shift per day runs with eight and a half hours of work per shift, and ten minutes of rest between shifts and half an hour for meals. One worker said, "the first shift is from 8:00 am to 4:30 pm, the second shift is from 4:20 pm to 12:50 pm. The third shift is pure night shift, 12:10 am to 8:10 am" (Interview 7). This arrangement of shift of working has negative impact on the workers' balance of family and quality of life in general. An interviewee described it as "exhausting, don't want to anything after the work except lying on the bed" (Interview 7).

4.1.4 Quality job

Because of the automobile market swings and other factors, the production capacity also fluctuates at automobile parts enterprises. This has an impact on the income of workers.

> The least amount of production in a month is between 150,000 and 160,000 (units), but do you know how much I reached when I got the peak in November, it was

> 380,000, one month, you see the lowest and the highest. More than double. So my incomes are not always stable, according to a worker. (Interview 7)

The fast pace on production can present big invisible pressure on workers, and some workers will resign or be passively dismissed because they are less likely to be at the pace of production. When workers adapt to the production rhythm of the assembly line, they can correctly handle the "fast-paced" (Interview 6,7) pressure in production. To adapt to this rhythm, it usually takes more than two months. Workers' physical exertion intensity is high, and they need strong willpower to persist. Some old employees are still engaged in front-line labor.

4.1.5 Security

Generally, companies attach great importance to safety in production. New employees will receive standardised operation training after entering, and will learn the specific operation actions of each process, and be educated about the consequences of not operating according to the safety specifications. Since the components enterprises supply to the whole vehicle production enterprises at the upper end of the industrial chain, in order to meet the needs of customers, the management system of the customer enterprises is adopted to supervise the production quality and safety.

> Like we are now called QSB Quality Management System, it means that our xx (car brand) and cc (car brand) are our customers. Then it means that cc is using the QSB management system. We have to follow his requirements to train some front-line workers. It is strictly required. (Interview 6)

4.2 Case Analysis: Employment in Auto OEM

There are fewer OEMs in Shanghai, and the larger ones are: SAIC (Shanghai Automobile Industry Corporation), SAIC-GM, SAIC Volkswagen, Shenlong, and Shenwo. As the end terminal of the automobile manufacturing process, the OEM has a higher profit compared with auto suppliers and services. Thus, compared to the other two branches in automobile industry, the OEM companies have the highest income level.

4.2.1 Dignity

There are two types of frontline workers, formal workers and temporary workers. Temporary workers are also divided into temporary workers who have signed contracts with the company and labor dispatch workers who have signed contracts

with labor companies. Formal workers are treated best, and they can engage in easier work. Labor dispatch workers are subject to exploitation by labor companies, and welfare protection measures are the worst.

4.2.2 Equality

There are very few female workers in this branch of the industry and the labor intensity is high.

There's clear and considerable difference on wage and stability between official workers and workers with labor dispatch contract; the latter ones don't sign a contract with the OEM factory directly, but rather with an employment agency and this contract does not guarantee long term employment. This is also common among other branches but as for OEM factory, the official workers have clearly better status concerning salary and stability. One respondent mentioned the inferior status of the workers with labor dispatch contract, "they do the same job as we do, but only have the salary of two to three thousand" (Much lower than the official worker) (Interview 3).

The pathway to become an official worker is not totally dependent on competence, connection plays an important role. An interviewee said, "it (competence etc.) does not matter, you can join as long as you have the connection" (Interview 3).

4.2.3 Productive work

Within an OEM company, income and working condition also varies among different factories and workshops. An interviewee mentioned, "Factories such as paint workshops that are dangerous to produce are highly subsidised; the powertrain workshop is easier and has higher wages, but sometimes it needs to work overtime; the workers in the powertrain workshop are older and may be the welfare of the old employees" (Interview 3).

Change of position usually happens in one the two ways: promotion on the original post and change of department. In the original post, a worker gets the chance to be promoted to the team leader. Another way to get promoted is to move to another position in other departments. An interviewee said, "sometimes the basic salary is the same, but because the physical burden is small, after the age is over, you can leave the post after 8 hours, which is much easier, and we consider that a promotion", he mentions, "this can be done when you are old, even retirement, very easy"(Interview 5).

4.2.4 Quality job

OEM companies normally provide relatively systematic training for its employees, especially the ones with official contract. This could benefit the workers in terms of income as well as future career development possibilities.

According to the skill level of workers, they can be divided into mainly three different levels of certificates: junior workers, intermediate workers, and senior workers.

Some companies evaluate the workers and organise them into the different levels according to examinations. The level of the certificate a worker gets has significant impact on his/her wages and benefits. The exam can be very competitive, as one interviewee said, "(in my company) there are only 100 workers (who would) eventually get a certificate per year, sometimes dozens, but often more than 800 people participated in the exam" (Interview 4). After the test rankings, the top 100 are qualified to get the certificate. In the past, individuals with non-Shanghai household registration were not able to take the test. This year, outsiders can start taking the test because the company cannot recruit enough Shanghai natives.

Older workers often face difficulty in the OEM company, because the workload can be hard for them. A respondent said, "the average age of workers is 23-24 years old, and 28 years old is already an older worker, they often leave if there is no great promotion hope" (Interview 3).

4.2.5 Security

Production safety assurance is generally good, and no safety production accidents have occurred.

4.3 Case Analysis: Employment in Auto services

The aftermarket service of a car refers to various services that start from the beginning of sales and around the use of the car after the automobile manufacturing process. In this investigation, we focused on the car maintenance and repair, accessories industry branch. This industry branch can be further divided into two types in Shanghai: 4S shop (bound to one certain brand) and chain repairing shop (all brands).

4.3.1 Dignity

The workers in this branch of automobile industry generally do not have much decision making power either, as in the first two branches; they almost only need to complete the tasks planned and given by the supervisor. Relatively speaking, they sometimes have a more harmonious relationship with the higher-level skilled workers in the company.

However, the repair shop is different. In addition to the intrinsic car repair work, the junior technicians also need to do additional cleaning work, such as mopping the floor, sorting out items, cleaning the factory hygiene and other piecemeal chores. They also need to handle personal relationships with higher-level workers. The non-standard management model makes it necessary for workers to consider the issue of soliciting business.

4.3.2 Equality

Female workers are also rare in this branch of industry.

In most companies in this branch, workers can be categorised into three groups: primary workers, mid-level workers and masters.

Masters normally have a very high position in a company. They have the best wages and good benefits. They also face less routine working tasks, as an interviewee said, “masters don’t do simple or cumbersome tasks themselves, only when you encounter complicated problems, you need the master to participate” (Interview 1). The mid-level workers are in a relatively awkward position, “not going up or down” (Interview 1, 2). They are the main force in this industry, but it is harder to get a promotion. Primary workers normally have the lowest status in the company. They are usually engaged in a very simple, mechanical, repetitive operation which requires greater physical exertion. “It’s common for primary workers to change jobs. Many of them graduate from school and start working, facing boring and intensive tasks on a daily basis, and therefore choose to leave and find a job in the service industry” (Interview 2). When they persist for more than two years, they have the opportunity to be promoted to a medium-level worker.

4.3.3 Productive work

Generally, the average income in 4S shop is higher than that of chain repairing shop. Whereas among the 4S shops, income at 4S shops depends on the brand of the shop and luxury auto brands generally have higher income, partly because they

have higher requirements for employees' skill level, partly because the sales situation of the automobile industry. This could result in more difficulty for fresh workers. The luxury shops need skilled maintenance personnel who do not need much training to become productive. So the employees must maintain a perfect state once they get started. Therefore, high-end brands generally do not accept interns. And the basic knowledge of employees such as chemistry and physics is high.

Compared to the other two branches, the post service branch has much more regular working time without any shift of work between day and night. But some of them still need to face some overtime (normally 6 working days out of 7).

4.3.4 Quality job

Most workers mostly deal with daily maintenance tasks and there's very few technically difficult problems in maintenance, so the skill requirement is low. One respondent said, "for car maintenance, the competence threshold can be almost zero" (Interview 1).

A manager of a 4S store mentioned that "there are 53 cars that are entering today, which is a small amount. 70–80 units a day are normal, so the operating speed must be fast, which is equivalent to the pipeline operation" (Interview 2).

4.3.5 Security

Since China's supervision of production safety is very strict, production accidents are extremely rare.

Stability at employment is rather low in this branch, as an interviewee said, "because many skills in this branch of industry are common, it is not difficult to find other jobs (if I quit); when the age is over 35 and I am still promoted to a higher level, for example, the master level, maybe I will choose to change careers, or return to my hometown, smaller cities, and start my own garages" (Interview 1).

Advancing from a mid-level worker to a master is very difficult and requires lots of learning. The possibility is very low, as a respondent stated, "(from the apprentice) very few makes it to master, the definition of master is that he can take care of both big and small trouble, can fix malfunction, but very few can actually do" (Interview 2).

5 Summary and conclusion

Despite the divergences between the three branches of automobile industry with respect to decent work mentioned above, some commonalities can be found.

The majority of workforces in automobile industries is still mainly low skilled or semi-skilled workers with low or hardly any professional skills. They can work regularly after simple training, which satisfies the human resource demand even in the process of industrial development and expansion. This is partly the result of companies wishing to maintain cost and price advantages. However, lack of technical competences and regular professional skills training, can be unfavorable for the long-term development of both enterprises and workers themselves.

Automobile companies are cautious about the employment of young workers. Young workers in this industry are mostly working at the bottom with low-level technical, which is difficult to obtain promotion. The first two years are a key job-hopping period, with unstable employment. Meanwhile the automobile industry appreciates workforces with a strong professional spirit, good work ethic and reliability.

One common positive aspect among the branches is that workers in the automobile sector in and near Shanghai have relatively safe working conditions, partly because any safety incidents can cause great losses to the employers and therefore they pay much attention avoiding it.

One common disadvantage for the workers is that skill requirements in all three branches of the automobile industry are relatively low, therefore vocational school graduates do not have much competitive advantage, compared to those without vocational education. It naturally means that many workers can relatively be easily replaced by those with lower education degree and lower income expectations.

Another common disadvantage is that companies have multiple recruitment channels, including labor market and connection with vocational schools, which means that the vocational school graduates have somehow better linkage to labor market as they look for a job, but not good enough to ensure them a job. Other risks exist concerning the recruitment is that it is subject to external factors such as government population control and auto market situation. In some circumstances, when the government wants to have a less friendly policy towards immigrant workers from other provinces (for example household and apartment regulation), these workers face a more difficult time finding a stable job.

As to the factor of income, there's a rather mixed picture. One the one hand, workers' salary will probably increase steadily due to lack of skilled labor, on the other hand many workers still have relatively low income, especially at the beginning of their career. This is one of the major difficulties the workers have from the perspective of decent work.

The possibility exists for workers to advance to higher level status with relatively decent earning in all branches, but the overall percentage is low. High turnover rate at the first two years of work is common. Discrimination against beginners is also rather common.

Soft skills, such as endurance and learning ability are regarded as an important factor influencing career development.

Gender preference can be observed, as female workers are rare in most companies. However, we do not regard this so much as gender discrimination, because many jobs have high requirements on physical abilities of the workers and these jobs do not necessarily fit the female workers.

The adaptability on the pipeline is an important factor influencing the leave or stay of beginners. Compared to other manufacturing jobs, the income in automobile industry is slightly better.

Pipeline jobs can be tough for older workers, who cannot manage the tempo or strength requirements; some companies tend to promote older workers to management positions. To summarise, it is safe to say that some fundamental difficulties and dilemmas concerning the pathways of existing jobs to develop toward decent work.

Firstly, there's contradiction between adequate earning and decent hours. For the majority of the positions, normal wage is not sufficient and the best possibility toward adequate earning comes from the overtime wage, which contradicts the criterion of decent hours.

Secondly, vocational school graduates have rather limited opportunities to proceed to higher positions which fits in the standard of decent work. With the expansion of higher education, education certificates gradually devaluated, a tendency toward over-qualification in factory jobs grows with it, in this case OEM, this leads to even less opportunities for vocational school graduates.

Thirdly, high work intensity, hard and tedious nature of the tasks, esp. in the first two years of career is very common. Workers in almost all branches mention the hardness of work. It is one of the major causes of high turnover rate at the first two years. The working hours shift (day-night) make it even rougher for the workers. It also makes the job not very sustainable because the elder workers cannot manage the high requirement on physical abilities.

Last but not least, despite the fact that the existing jobs are to a large extent not very decent, the following pathways toward more decent jobs exist for the workers:

- To become a master, a technical expert in the field;
- to advance in the professional titles, to professional trainer;
- to advance to other technical or management positions.

The findings also reveal some challenges and difficulties the contemporary Chinese VET system faces. The relatively poor employment situation makes vocational education not so attractive in the first place and makes it difficult to attract talented young people. At the same time, the findings also bring to light some shortcomings of the Chinese VET system, namely vocational graduates sometimes have rather little competence advantage in comparison with those without any vocational education. Largely still school-based, despite much development in the past decades, VET in China still need to constantly improve its responsiveness to industry requirements and the quality in general.

6 Implications

In this paper we present the findings of an empirical investigation on the employment situation of shop floor workers in automobile industry in Shanghai, with the help of ILO's framework on decent work. As it has been shown above, the findings of this investigation are quite intriguing. Much can be learned about the employment situation in the investigated field. In this sense, the framework has shown certain explanative power in a country-specific study.

However, during the content analysis process, certain difficulties are indeed encountered as to how to match certain contents expressed by the interviewee with the criteria. This is partly due to the very nature of content analysis with grounded theory, but partly it is also related to the question, to what extent the international criteria in the framework developed by ILO can fully captures the complexity and cultural specific understanding in the expressions. From this perspective, the international framework has its limitations in applying it in a culture that could be different from the European or western culture, although the framework itself was developed from an intercultural setting.

This limitation can be an obstacle if the ILO decent work framework is applied in international comparative studies, especially when comparison is made between countries with very different understanding of employment, decent work etc. Researchers need to be very careful in developing the comparative indicators and criteria, making hard efforts to apply the common ILO indicators in various country settings.

However, we tend to believe that, if the comparative research methodology is rigidly applied and researchers have good understanding of the country-specific concept, this framework has its potential to be a useful instrument in carrying out international comparative studies.

In fact, some previous international comparative studies have applied concept developed in the international context as the basis for comparative framework. Some scholars used concepts such as key competence as the foundation of content

analysis indicators of comparison of curricula in different countries, where the key competence framework developed by the Organisation for Economic and Co-operation and Development (OECD) play a crucial role (Li 2013; Berger 2015).

Although the concepts developed in international context may not capture the depth, complexity and culture-specific features of the compared objects, they could however have the advantage of being able to be applied in much diversified contexts. Researchers may even find such concepts have certain strength, when there's little concepts that have similar understanding in different social contexts and can be applied in comparative investigation. The very fact that these concepts are established in the international context may somewhat increase their applicability in comparison of various societies and education systems, if much caution is given to the establishment of the comparative framework as well as the adjustment of the concept in different settings and when the comparison is carried out.

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Part III
Lessons Learnt from Comparative VET Research in Practice

Comparative methods in practice: Using an iterative approach to explore aviation apprenticeships in England and Germany

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Abstract

In international comparative vocational education and training (VET) research, the discourse concerning the interlinking of theory and empirical practice often runs in one direction and asks: to what extent the theoretical concepts shape the empirical research design. The empirical limitations and challenges of field-based research rarely find their way into the theoretical debate. This is despite the particularly important challenges that need to be faced during field research in comparative VET to prevent misinterpretation and ethnocentrism. This chapter expands the discourse and outlines an iterative, reflective approach to interlink theoretical frameworks and empirical work through an explorative study of aviation apprenticeships in England and Germany. This study set out to examine the impact of international technical standardisation and regulation on the design, organisation and delivery of apprenticeships in the aeronautical and aerospace sectors in England and Germany. We identify the challenges we met during the empirical stage of the research and discuss the ways in which our responses influenced our theoretical elaboration.

1 Introduction

In international comparative VET research, comparative approaches and methods are discussed at the theoretical level and then variously applied at the empirical level. There is evidence to suggest, however, that the interlinking of theory and

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empirical practice often runs in one direction, namely to what extent the theoretical concepts shape the empirical research design (see Amos and Parreira do Amaral 2015). However, the empirical limitations and challenges of field-based research rarely find their way into the theoretical debate. Consequently, the theoretical discussion of comparative research runs the risk of an ideal-typical, utopian discussion without acknowledging or affecting the reality of comparative research.

This chapter draws on the international comparative VET research literature to highlight the challenges and limitations of empirical methods and the implications for international comparative VET research. For this purpose, the four phases of international comparative VET research as outlined by Pilz (2012) will be used for structuring the chapter. This model reflects the commonality of different phase models of the comparative methods in international comparative VET based on the ideal typical works of (inter alia) Bereday (1964), Holmes (1965), Noah and Eckstein (1969) and Phillips and Schweisfurth (2008) (see figure 1).

International comparative vocational education and training research usually begins with the selection of countries. The research question is developed according to the object of comparison. The derived criterion for comparison, the tertium comparationis, is then determined. In the next step, the research method is determined and implemented in order to carry out the systematic comparison and interpretation and to answer the research question.

In this paper, we draw on our recent empirical study of aviation apprenticeships in England and Germany to illustrate the challenges of international comparative research. We consider and reflect upon the relationship between the empirical challenges of the research phases and theories of comparative research. This small-scale exploratory project[5] set out to examine the impact of international technical standardisation and regulation on the design, organisation and delivery of apprenticeships in the aeronautical and aerospace sectors in England and Germany. The research design was informed by insights from economics, workplace and work-based learning, and comparative education. A case study approach was adopted and fieldwork included interviews and non-participant observation in workplaces and training centres in three companies in England and four in Germany.

5 The research was funded by the largest independent research agency in Germany, the Deutsche Forschungsgemeinschaft (DFG).

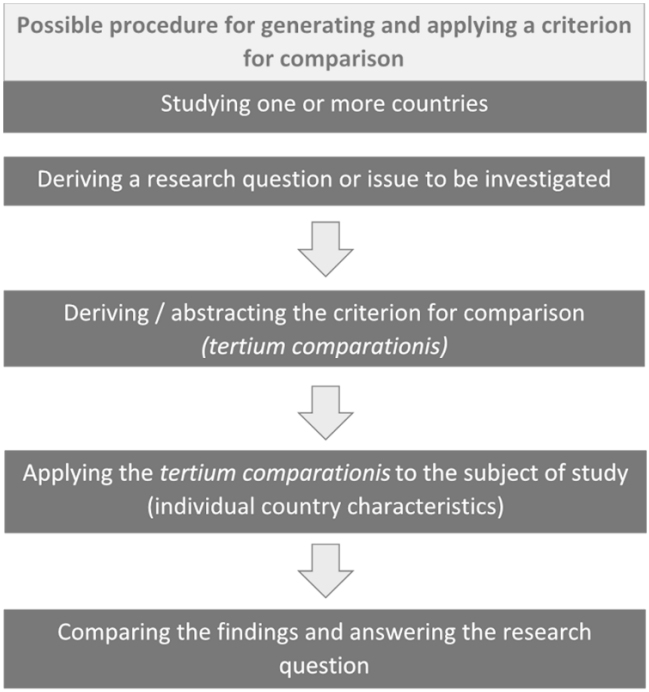

Fig. 1: Possible procedure for generating and applying a research design for comparison

(Pilz 2012, p. 564)

The findings show that there is considerable convergence across apprenticeship programmes in the aviation sector in England and Germany in relation to pedagogical approaches related to the fostering of the capacity to take responsibility for the quality of one's work, to work in and lead teams, and to respond to and work with customers. Increasing international regulation and technical standardisation underpins a shared language about learning through practice in technologically advanced workplaces (Lahiff et al. 2019).

2 Object of comparison and selection of countries

A key theory of international comparative VET research emphasises that it is vital that the object of comparison is carefully chosen. Selection must focus not just on the countries to be compared but also on a more concrete, pragmatic dimension. Here, at least two aspects are significant. First, the relevant sub-area within the VET system must be defined as global analyses frequently fail to answer the research question in any meaningful way and also often fail the feasibility test. Second, there should be clarity at the pilot phase as to whether what is being compared actually exists in the countries selected for comparison. This must also be open to validation by means of access to materials, sources, experts, data sets, and so on. Schriewer (1992), for example, suggests a three-level model. The macro-level includes the institutional structures of VET systems and their economic, social and political framework. The meso-level includes the concepts and models used to shape vocational training in organisational, didactic and methodological terms. The micro-level represents the concrete design of teaching and learning processes.

Given the centrality of the global dimension in our project, this model is problematic as its frame of reference is the national context, whereas as our study was concerned with the impact of global developments at the cross-national sector level. A straightforward alignment of the study to one of the three theoretical levels mentioned is therefore not possible, because many influencing factors act between the different levels and must be considered simultaneously in order to enable a holistic analysis. At the international level of comparative VET research, two approaches, the 'total analysis' approach and the 'problem approach', could be chosen. The 'total analysis' approach has commonly been used as a mean of gathering knowledge and experience on a predominantly descriptive basis (Lauterbach 2003). The 'problem approach', by comparison, focuses on specific aspects of the research question and generally adopts empirical methods as well as hermeneutic processes (Epstein 1992; Lauterbach 2003). Due to the 'problem approach' of our study, which is concerned with specific aspects of the international convergence in apprenticeships at the sector level, the focus of the study is on all three levels, the macro, meso and the micro-level. On the micro-level, we investigated the different phases of the VET programme in the companies. However, we also needed to identify the VET programmes that exist in Germany and England in a similar way and which are comparable. The identification of these VET programmes was only possible through an intensive exchange between the English and German research team members. This is because the reality of how the VET programmes are organised and delivered at the micro level differs in part from the way they are described at the meso level on government websites and in some of the research literature on VET systems. At the macro level, the international and national

standardisations and regulations were analysed. In addition, elements of the two countries' programme descriptions, which appear to be similar, were found to be interpreted differently due to the organisation of the national VET systems. These challenges make it clear that understanding the research object in another VET context is only possible through constant dialogue between the respective country experts and through a first field visit. This immersion in the lived realities of each other's VET systems enabled the members of the research team to begin to detach themselves from the preconceived ideas they held about those systems and, hence, to begin framing new questions.

The *selection of countries* is crucial to the comparison and is closely linked with the research question and other, more pragmatic, considerations relevant to access (see above). In relation to the first aspect, Georg (2005) makes some trenchant comments. If the aim is to draw conclusions about legitimate relationships between two variables outside a specific country context, then the cases (here, countries) chosen should demonstrate as many differences as possible (this is sometimes referred to as *most different systems design*). If, however, such a design still throws up significant similarities in the relationship between dependent and independent variables, then this indicates that national differences are irrelevant and that the findings are universally applicable (examples include the growth in training or trends towards globalisation). This research design is turned on its head in cases where the focus is on investigating the influence of particular factors on variable phenomena. In such cases, countries are chosen to have as many commonalities as possible and then, as in a scientific experiment, treated as constants (the *ceteris paribus* principle) (Anckar 2008).

We selected Germany and England as comparator countries because their VET systems align with the 'most-different' approach. In the comparative research literature, the key differences between the two systems are often considered to arise from the two countries' training cultures and the institutional arrangements for VET (see Busemeyer and Trampusch 2012; Pilz 2016). The German dual system approach to apprenticeship links workplace training with vocational education in VET schools and is highly regulated by a corporativist collaboration between the state and the national social partners (see also Pilz 2009; Ryan and Unwin 2001; Busemeyer and Trampusch 2012). England has a more market-driven approach and its VET system is subject to a much greater amount of change with regard to government policies (see Keep 2006). Its VET system is more liberal due to the less regulated nature of the labour market than in Germany, though apprenticeships that are supported by government funding are subject to national regulations. The typologies of vocational training research (Busemeyer and Trampusch 2012; Pilz 2016) in the literature were helpful in the first phase of the

research to determine the similarities and contrasts between the various VET systems, but we were mindful that typologies can over-generalise.

The choice of countries is also relevant to the second aspect — *access* — since it is not always feasible to carry out the comprehensive type of 'area study' as described, for example, by Bereday (1964). For this reason, it was of central importance that the research team for our study was proficient in both German and English in order to facilitate access to aviation companies, and for translation of national regulations and documentation on apprenticeship curricula and assessment. Although all the fieldwork was conducted in English, there were times when the ability to translate particular terminology or workplace vocabulary was critical to ensure everyone was able to follow discussions with research participants.

3 Development of the research question

As far as our object of comparison — apprenticeship — is concerned, structural similarities between two differing systems are neither an argument for comparison nor an argument against it. Instead, we sought a fresh starting point for the comparison by asking to what extent apprenticeship in England and Germany was being affected by globalisation. As a consequence of globalisation and the worldwide mobility of labour, the harmonisation of education systems worldwide is increasingly being investigated. Even here, though, the arguments are mostly based on education policy drivers (Meyer and Ramirez 2000). However, globalisation is not caused by political decisions alone, but by a combination of economic, political and social factors. In the age of increasing digitalisation, the enforcement of technical standards, regulatory frameworks and legislation at the sector and sub-sector level has become much easier. Yet this phenomenon has not had much of an impact on the research literature in the fields of workplace and work-based learning, apart from some notable studies such as Felstead et al. (2009). England and Germany are both members of the European Union Aviation Safety Agency (EASA), which is responsible for regulating the common level of aviation safety through the European member states (EASA 2019). They also have substantial aviation-related industries. These factors led us to formulate our main research question: *To what extent is international technical and regulatory convergence in the aerospace and aeronautical industry leading to convergence of process and outcomes in apprenticeship training?*

As mentioned above, the tertium comparationis is the derived criterion of comparison, which need to be defined for the research. The tertium comparationis is driven by the research question of the study and will be adapted by the field research. As a consequence, the discrepancy between expectations and reality of the empirical comparison becomes evident.

4 The rhetoric of the tertium comparationis

The *tertium comparationis,* as the criteria for comparison has to be defined as broadly as possible, in order to avoid an ethnocentrical validation of the findings (Epstein 2008; Matthes 1992). The tertium comparationis of this comparative study are derived from insights from three theoretical perspectives. Firstly, the theories of workplace and work-based learning are used here to analyse the level of training practices within the companies (see also Beckett and Hager 2002; Billett 2002; Fenwick and Nerland 2014; Fuller et al. 2007; Lave and Wenger 1991). The tertium comparationis cover all phases of workplace and work-based learning from the recruitment of apprentices, through training activities, training methods, materials to assessment and career pathways. The second perspective is the economic concept of productive systems (Felstead et al. 2009). As a result, the interconnection between external international technical standardisations and regulations and internal organisation of work and skill formation is investigated in all phases of workplace and work-based learning mentioned above. Last, but not least we draw on insights from theories of convergence and divergence from comparative education (see Aarkrog and Jørgensen 2008; Green 1999).

To reduce the complexities, we structure the tertium compartionis into an input-process-output model of workplace training. This model enables a systematic investigation of the extent to which international technical standardisations and regulations impacts on the different levels and stages of respective apprenticeship programmes. This model is not intended to suggest a rigid correlation nor to portray apprenticeship as a static phenomenon. Instead, it enables, we can analyse the findings whilst being aware of the national VET characteristics to draw the extent between the sectoral convergence and national VET system.

5 The reality of applying the tertium comparationis

The derived tertium comparationis were reviewed for their adequacy for the VET programme in the aerospace industry.

We analysed government documents relating to the national standards for apprenticeship training in Germany and the U.K. in order to select the most appropriate type of occupations for comparison. This enabled us to identify the generic occupation of ‘aircraft mechanic’ (with specialisms in production engineering, maintenance engineering, or engine technology) as being the closest match.

Despite an analysis of documents on standardisation in this sector, we found it difficult to develop an in-depth understanding of the complexity of the different contexts in this sector. Therefore, in order to establish a robust basis for the research, we held a one-day workshop in Germany with experts in the fields of

aerospace and aeronautical standardisation and regulation, VET, human resource development (HRD), and business organisation.

During this workshop our understanding was deepened. For instance, the documents already reviewed were clarified through the exchange of knowledge of the experts of the workshop participants in the sector-specific and country-specific context. This workshop was also important for the validation of the tertium comparationis. Only after this workshop, observation and interview guidelines could be derived from the tertium comparationis.

To address the research question at the level of the workplace, an analysis of the industry was required. Given the small-scale nature of the study, the most important companies were identified. The selection was therefore restricted to large companies with well-developed apprenticeship programmes which reflected the breadth of the sector. This meant including component producers and aircraft manufacturers in both countries as well as maintenance companies. We therefore approached three companies in the U.K. and four in Germany[6]. All seven companies were willing to participate in the research due to their interest in sharing their knowledge and experience. We also visited a vocational school in Germany to interview the teaching staff there. In the case of one of the U.K. companies, a further visit was made to one of its plants in Germany, which also trains aircraft mechanic apprentices.

The research question was explored through non-participant observation of apprentices in the workplace, and semi-standardised interviews with apprentices, trainers, and managers. We adopted an "unobtrusive observer" role (Robson 2002, p. 309) to enable descriptive narratives of the observation setting to be made. The descriptive narratives (enhanced by photographs of settings, where appropriate) enabled the physical reality of the working context to be captured and used in comparative analysis if necessary. The interviews and observations in each company took a total of between six and 20 hours and were conducted by at least three researchers. Detailed field notes were taken by all researchers and later shared to produce a single document which included a descriptive narrative, vignettes of apprentices, and verbatim quotes from participants in the study (where recorded in the field notes) (Lahiff et al. 2019).

During the field research, the complexity of this topic became apparent to its full extent. Reflecting on the first half of the field research, we did not always fully understand certain information and statements of the research participants. Despite

6 The research was funded by the largest independent research agency in Germany, the DFG (Deutsche Forschungsgemeinschaft, funding No. PI 418/6-1). Application made by Prof. Dr. Matthias Pilz, University of Cologne. The funding covered travel and subsistence expenses for the researchers to hold the initial workshop, visit the case study sites and to meet in the U.K. and Germany.

the use of various questioning techniques, certain statements remained abstract. However, in the second half of the field research and following an account of a company training manager, connections between different international and national regulations, were finally made. We were able to put certain statements and accounts from the first half of the field research into a more knowledgeable context. With this new knowledge, the tertium comparationis could be transformed into even more focussed observation dimensions and interview questions in the course of the second half of the research.

This example from research practice shows the significance of being aware of the context in which the fieldwork is to be conducted in order to understand the in-depth information in field research appropriately. It also becomes clear that the necessary prior knowledge cannot always be directly identified despite intensive preparation through literature studies and expert workshops. Many facts only become tangible for the research team during field research, and misunderstandings are only discovered and clarified through confrontation with the research object in an authentic context. Consequently, the process of developing tertium comparationis and applying it is not, as is often the case in theory, a linear but an iterative process. This iterative process during comparative research should be emphasised more strongly in the methodology literature.

According to the tertium comparationis, the results are first analysed in each of the countries and then compared. We have divided the result of the empirical study on aircraft apprenticeship in England and Germany into one table (see Table 1) with the pre-defined tertium comparationis based on the literature research and the expert workshop. A second table (see Table 2) presents the results according to the tertium comparationis developed during the field research through the iterative process. The tables show that the study has two empirical research steps, the deductive one (see Table 1) and the inductive one (see Table 2) to cover the full picture of the research object.

For each tertium comparationis the characteristics in England and Germany are compared. Differences in the values are assigned to the country-specific columns in the table. The similarities are shown in the middle column. The tables do not represent the whole finding of the study. A comprehensive presentation of the findings is published in the paper by Lahiff et al. (2019).

Tab. 1: Summary of the findings from the pre-defined tertium comparationis

Tertium Comparationis	**England**	**Common structures between England and Germany**	**Germany**
Recruitment of apprentices		The recruiting process takes between 9 and 12 months including group-based problem-solving assessment, individual interviews, cognitive and dexterity tests	
Training venue		The basic training is conducted in the training centre followed by training on the placements.	
Training curriculum	The curriculum responds to the national requirements of the English Apprenticeship Standard	The curriculum responds to the international requirement of the EASA and the national requirements of the country.	The curriculum responds to the national requirements of the German VET framework, 'Ausbildungsordnung'.
Training methods		The companies follow a problem-solving and situated learning approach to strengthen the creativity of the apprentices. There is a strong feedback culture to improve the training progression of the apprentices	
Certification		For the maintenance focused companies the EASA requires that every staff need the recent CAT-A licence. For the production-focused companies, the EASA regulations are delegated to companies and require internal quality standards, which end in the award of a personal 'stamp'.	

Tab. 2: Summary of the findings from the iterative process during the field research

Tertium Comparationis	**England**	**Common structures between England and Germany**	**Germany**
Importance of technical manuals		There is a strong relationship between requisite manuals and the organisation of apprentices' learning at the placement. The apprentices have to learn to read and interpret the technical manuals in the correct manner.	
Awareness of safety critical industry		The awareness of safety critical industry is emphasised strongly during the whole training process through different training methods and activities e.g. through the analysis of photography of airplane damage.	
Used language		The language used by apprentices, trainers and managers during the apprenticeship is characterized by international technical and regulatory standardised terms and expressions.	

The data shows convergence across all the investigated dimensions. With regard to the input dimension, the study showed convergence across the factors such as the recruitment of apprentices, training venue and the structure of the curriculum according to technical standardisation and regulatory requirements. In terms of the process, we have showed convergence across training methods, the importance of technical manuals, the awareness of being part of a safety critical industry, and the used language of training and work. In relation to the output factors, the data showed convergence across the different certification requirements between the maintenance-focused and production-focused companies. As this paper argues, it is possible to identify degrees of convergence which are overlooked in macro-level studies and which shed light on how vocational training itself is adapting and innovating in response to changes in technology as well as in the workplace. This type of research can generate findings that can then be used to inform policies at the national and cross-national levels.

6 Conclusion

As Bereday (1964) emphasised, the study shows how essential it is for a research team to have a shared knowledge of the relevant conditions in the compared countries. His plea for many years of intensive fieldwork within a country or 'area' in order to acquire knowledge about the framework conditions of the research object is, however, highly problematic due to resource limitations. What we can do as comparative VET researchers is to try and design studies which seek to critically question the perceived wisdom of classifications and typologies that are overly based on macro-level analysis.

In the context of this study, the framework conditions and the understanding of the research object were intensively discussed by the country experts in order to understand the structure of apprenticeship in Germany and England and to avoid an ethnocentric view. At the same time, the danger of ethnocentrism in international comparative VET research is once again outlined here. In order to understand the object of investigation in a different national context, the researcher must be able to detach themself from their own culturally influenced pattern of interpretation. For this reason, this step in international comparative VET research is an essential prerequisite for a more grounded empirical approach.

The challenge of field expertise is also evident in the tertium comparationis. As we explained earlier in this chapter, a workshop was held prior to the field research in order to acquire a fuller understanding of aerospace regulatory conditions. However, by researching the object *'in situ'* a more comprehensive understanding of the macro contextual conditions was realised. Research teams are confronted with similar challenges if the research design cannot be realised due to different organisational cultures, including, for example, communication culture and time management in the countries. In many research disciplines such challenges can be identified by a preliminary study. In international comparative research, it is not always possible to conduct preliminary studies in all countries to be compared due to the limited resources available. Here, the additional question arises: to what extent is a purely deductive research approach realistic for comparative research? Additionally, VET is formally and informally linked to other subsystems of a society and goals associated with them. For the development of independent, genuine comparative VET research, all the typical challenges mentioned here need to be addressed. VET is characterised by a high degree of complexity. For example, VET interfaces with general education, such as pre-vocational education, as well as with adult education and higher education. This particular complexity calls for independent theoretical approaches and corresponding methodological implementation. Since VET research has not yet offered its own comparative theory or specific methodology (Lauterbach and Mitter 1998) and consequent-

ly draws on a range of theories and methods from, for example, educational science, sociology and political science, empirical research is often faced with the challenge of not capturing the real complexity of VET in a sufficiently holistic way (Pilz 2013; Ryan 2012).

In comparative VET research, for example, an iterative cycle must be implemented in the phases of the development of tertium comparationis or research design and data collection in order to make it possible to adapt and supplement the research design locally (see figure 2).

Fig. 2: Possible procedure for generating and applying an iterative process for comparison

(Author's own compilation)

Against this background, we argue that our contribution highlights the need for the further development of specific iterative comparative methods in VET research. Furthermore, in order to be successful, it is essential for a research team to reflect on its own approach to these challenges and review its own conceptions

and interpretations of the research object continually in reflective iterative micro cycles and discuss the results transparently.

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Reflections on typologies of comparison studies and the necessity of cultural-historical views illustrated by the analysis of the Swedish vocational education system from abroad

Franz Kaiser[1]

Abstract

Like the other so-called Nordic states Finland, Denmark and Norway, Sweden is a country with a long tradition of a welfare regime. The Swedish vocational education and training (VET) system is internationally known as a school-based system with a strong link to the integrated comprehensive upper secondary school. This educational system has the cultural embedded aim to give every adolescent the opportunity to make and change career at any point along their educational path. In order to make university education as well as continuous VET accessible at any point in their career, both educational routes have been traditionally free of charge.

This article aims to reconstruct the discussion on classifications and typologies of VET systems in a critical perspective and then seeks to outline the linkage between the Swedish culture and history with its current educational system. The analysis focusses on VET and the current changes, based on some interviews with stakeholders in politics, companies and visits to schools as well as the findings of current and historical research in Sweden in addition to comparative data on Europe and Germany. The tension between inclusive approaches on the one hand and ways to put more emphasis on work based learning (WBL) during the educational phase on the other, will be particularly highlighted in this analysis. The latter is at the heart of recent reforms in Sweden and is a sign of the specific tensions of the political debate and practice in Sweden between 'folkhem' and global marketisation.

The overall argument seeks to highlight, that whilst typologies can be a helpful tool in VET comparison, but risks being too reductive. The socio-historic analysis highlights the necessity to understand educational systems within the socio-cultural and historical context out of which they have grown.

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1 The need of cultural awareness in comparative research

1.1 What has led me to the socio-historic approach?

During my tenure at the federal institute for vocational education and training (BIBB), I regularly introduced foreign delegations to the German dual apprenticeship model. The German model was often enthusiastically received and many foreign experts wished to implement the same model in their home countries. However, a more in-depth analysis of the social and institutional structures enabling the dual apprenticeship model, revealed the complexity of the system and the difficulties to implement it in a different socio-political and cultural context. Through these encounters, I understood the necessity to understand foreign vocational training systems within their socio-political, cultural and historic context of their respective countries and regions. A standardised vocabulary and typologies are nevertheless necessary to communicate and compare the specificities and levels of regional VET systems.

Following an extended research visit to Sweden and Finland, I would like to outline the limitations of typologies by illustrating the historical genesis of the Swedish system.

1.2 The discussion about typology and classification

If we want to avoid getting lost in the international comparative research process (Wiemann et al. 2019), orientation points and fundamental understandings are necessary and helpful. On the one hand, they facilitate the mutual exchange among researchers, who come from different countries with diverse understandings and enable the comparison of countries based on agreed categories.

At the same time, we have to be aware of a growing number of publications that oversimplify these complex systems by pressing them into standardisations, which would allow politicians and stakeholders to get an overview of the different systems in the countries in only a few pages but are overly reductive (European Centre for the Development of Vocational Training [CEDEFOP] 2018). We therefore have to consider that in contrast to the general education system, in many countries, a high degree of complexity within vocational education and training often leads to confusion and incomprehension or to inappropriately reduced conceptions among both domestic and foreign policy makers. In this dialectical tension, classifications offer through their reduction and abstraction the possibility of obtaining an initial, ordering overview of the structures and processes as well as those involved in a vocational training system (Pilz 2017). However, modelling tend to ignore facts and context, which the classification cannot describe.

Heikkinen and Lassnigg highlight this incorporate danger of reductiveness and point to the interests in a capitalistic world of research and practice:

However, these modelled structures at the same time develop a life of their own: they transform into seemingly real objects that are prone to be manipulated and even transferred from one context to another. Although this transformation is typically done by practitioners and policy-makers, advocacy driven researchers or developers also contribute. We contend that at this stage of reification mystification of models begins, followed by branding them with creative and colourful phantasy (Heikkinen and Lassnigg 2015, p. 2).

In the past decades, there have been numerous publications on the question of modelling and typology, which will be briefly outlined below. Greinert (2010) early presented the often-received trisection in: liberal market economy model, state bureaucratic model and the dual corporatist model. In addition to that, Busemeyer and Trampusch (2011) presented a more political point of view on the degree of involvement by state or companies in the system and differentiate statist, liberal, collective and segmentalist systems of vocational education.

Focusing more on the goals of the respective systems, through the lense of the system-theory dimension 'sense', in 1996 Clement already distinguished three classifications with regard to:

- Humanistic education (highest possible educational attainment),
- Employment (job-oriented utilisation orientation) and
- Occupation (systematic, broad qualification bundles).

It thus looked at the culturally traditional understanding of vocational education and training in the respective country. In a later publication, Clement (2015) follows that kind of approach in tradition of Niklas Luhmann and in combination with the concept of Busemeyer, Trampusch and Heikkinen, Lassning and differs the ways of steering in vocational systems from centralisation to decentralisation. She favours a way out between direct and indirect control by using terms such as 'culture', 'tradition', 'attitude', 'occupationality', 'trust' and 'honour' (pp. 41–48).

Deißinger (1998) focuses with his approach on different 'qualification styles' and distinguishes between:

- Function-oriented (job-related, company-specific functional),
- science-oriented (indirectly work-related, scientific instruction) and
- occupation-oriented (standardised, job-related qualification profiles).

In an article, Philipp Gonon (2014) compares the above mentioned models and others to get a broader picture of the characteristics of VET systems. He concludes

> a strong occupationally-based orientation, strong links between school, work and civic education, a more interventionist as well as more coordinated approach, which is, moreover, based on demand-orientation and embedded in a welfare regime is a sign for a better-established VET system. (Gonon 2014, p. 5)

In order to understand how the so called 'strong' VET system developed, he analysed the historical roots of the system in Switzerland, finding that the dual system of VET still has a high status there, a high rate of participation and offers new possibilities for further studies (Gonon 2014).

Mathias Pilz (2017) criticises the emphasis on the macro level in existing classifications of the comparative consideration of vocational training systems and, in his recently published typology, takes up the actual learning and appropriation level and the modes appearing there. This results in the following categories in its scheme: stratification, standardisation and practice orientation. It assigns all three categories to different levels (macro, meso, micro) and makes exemplary assignments of countries in order to underline the functionality of the typology. For this purpose, he distinguishes, parallel to the model of Trampusch and Busemeyer, the influence of state and employers (Pilz 2017, p. 773). However, these categories further comparative contemplation in a meaningful way, this system also loses the historical and cultural perspective found in Gonons and Clements research.

A recent approach published by the CEDEFOP 2017, used a multidimensional model with several subcategories and echo the approach of Clement. The three main categories constitute pedagogical-epistemological, education-system and socio-economic-labour market perspective. They focus on the learning sites and the teacher-student relationship as well as on the key providers, age, parity of esteem, governance and occupational hierarchy (Markowitsch and Grollmann 2019, p. 391).

The discourse on typologies of VET systems has thus reached an impressive level of complexity and sophistication. Nevertheless, they continuously omit details and analysis of functions, attached status and interdependent relationships of educational pathways within their respective regional context. They also fail to explain why for example in one region a function-based approach is preferred to a knowledge-based approach, to use Dreißingers (1998) characteristics.

1.3 The need of cultural historical based understanding of mentality towards work and education

All typologies and characteristics are thus inaccurate, but they can still be helpful. The following analysis aims to highlight the need for contextualisation in the

comparison of vocational education within their cultural historical genesis. Thomas Deißinger and Dietmar Frommberger emphasise in 2010: "The manifestations of the VET related reality cannot be understood without knowledge of the cultural, social and economic history of its origin and developmental context" (p. 344). This was illustrated in Gonons 2014 analysis of the dual VET systems of Germany and Switzerland. The analyses proves that the historical conditions are the key factors for the development of these respective systems. They are changing the roles in VET due to the downfall of the privileges of handcraft apprenticeship in the 19th century (Zabeck 2013). This followed the strong interest of the growing industry and unions to get influence on the apprenticeship training regulations and content for industrial vocational education. These collaborations are one of the reasons for this particular legislation that took place in Germany in 1969 (Herkner 2018).

In a recent article, Stefan Wolf (2019) shows that even in an international advisory role for German vocational education and training researchers, a closer look at the different spatial developments in the German history can become a lesson that is helpful to develop a participatory advisory approach. Only by taking such a view, it becomes clear that there is no 'one best way', but that educational policy decisions have to be based on the government own values and goals and must fit in with the respective cultural development of the respective country.

Simplified comparative research related to vocational education and training equates the Swedish system with the French system, because they are both school-based and oriented towards central guidelines. However, this categorisation fails to give an understanding of the historical and cultural backgrounds of the specific form and attitude towards vocational education and training in one country or another and omits considerable differences between the two systems. Even though both systems are school-based and oriented towards central guidelines, France continues to distinguish between upper secondary schools in respect to their vocational, technical or general education orientation. It also continues its tradition of an elitist university system that has its roots in the Napoleonic tradition of meritocracy. Sweden in contrast, integrates its VET into its overall upper secondary educational system and continues to focus on equal access to its university education (Wederhake 2017, p. 246). This contribution will therefore now look at Sweden's VET-system in the past of the country in order to get an insight into the specific mentality of Sweden.

2 Folkhemmet and lagom as the cultural basis of the Swedish educational system

During a presentation for the central steering department of the central Swedish agency for Schools, the 'skolverket', in Stockholm, I stated that at the heart of

VET, lies the aim to develop the whole personality of the learners. The aim of this character 'Bildungsprozess' integer to VET, was to train individuals to become self-reflective and confident employees with a matured ability to think critically (Kaiser 2017). One of the participants interrupted me and asked: "Isn't this a point of view that is shared by only a few stakeholders, when you state that in Germany? I was there several times and found it is not very common. But in Sweden we share what you presented — it is common, that developing democratic citizens is one of our shared main goals of education!"

This anecdote supports Christian Helms Jørgensen (2018) characterisation of what the Nordic countries share: Welfare state models and political cultures. These values are not exclusive to Swedens educational culture, but here the specific historical terms 'lagom' and 'folkhemmet' are cultural containers for these values.

'Lagom' originates anecdote from the Viking Age in Sweden and describes the values of equal sharing. Around the fire sit about 15 people sharing a common drinking vessel by passing it around in a circle. It is expected of everyone within that circle to drink only as much from the vessel, to quench his or her own thirst, so that everyone in the circle receives something of the drink. This attitude aims at a strong self-responsibility in one's own supply and a sensitivity for the community. The attitude that lies at the heart of 'lagom', is that that everyone should be integrated and has his and her place in the community as equals (Wolf 2011). This value was the basis for the reforms of the former chair of the Swedish Social Democratic Party Per Albin Hanson. In 1926, he established the term 'folkhemmet' as a symbol for a good home where everybody should live as equals without existential fears. To invest money in the education of everybody and to collaborate as social partners was the next milestone in the year 1938 with the agreement of Saltsjöbaden of employers' organisations and unions (Tuchtenhagen 2008). The widespread distribution and the free provision of adult education (Ministry of Education and Research Sweden 2013), which also invests in library buses that provide peripheral areas with the latest literary books and media, are still today a sign of this welfare-oriented state action in education policy (Kaiser 2019b).

Swedish culture and community are characterised by the high level of involvement of the Swedish population in civic associations and the high level of participation in political decision-making (Jahn 2008). A high degree of trade union organisation is just as much a guarantor and component of this design of the 'folkhem' as the implementation of a public comprehensive school to abolish class structure in society. The vision of Per Albin Hansson has become reality in relation to other countries, when we look at the OECD Better Live Index (Organisation for Economic Co-operation and Development [OECD] 2017).

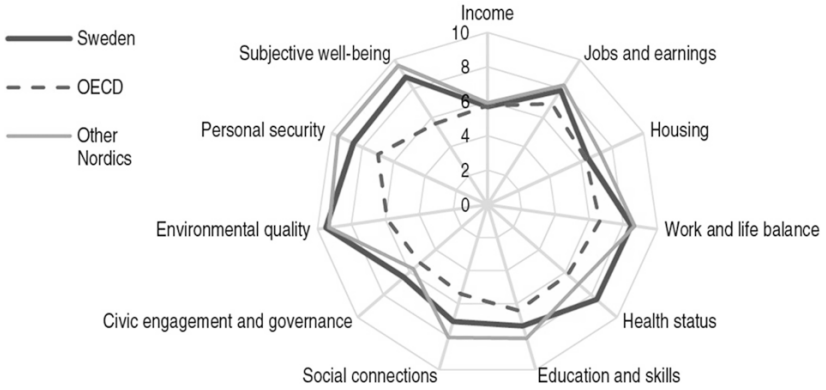

Fig. 1: OECD Better Life Index – Sweden 2017

(OECD 2017)

Good quality of health care, a high rate of civic engagement and very high rates of personal security and subjective well-being, makes Sweden to a good home for its citizens in their own experience. All that is influenced by the shape of the educational system, professional life and the way behaviour of the people within those contexts. They have shared the main aims of vocational education as part of the upper secondary school on Sweden since the 1970s as:

1. Forming the upcoming generation into democratic and responsible citizens.
2. Improving the opportunities for educationally disadvantaged students' transitions to higher education.

These aims have changed in the 1980s and 1990s when the increasing rates of youth unemployment became a major challenge.

3 The turn to marketisation and current debates in Sweden

3.1 The shift towards marketisation in the 1990s

Vocational education becomes an integral part of the Swedish educational system in the early 1970s through the establishment of vocational courses in the secondary school (Wärvik and Lindberg 2018). This goes hand in hand with the elimination of almost all still existing vocational qualification pathways outside the state

school under the leadership of companies or industry associations (Lundh-Nilsson 2013). The Social Democratic ideal of joint schooling continued into the late 1980s until it has been changed influenced by neoliberal ideas (Michelsen 2018). The 1990s reforms liberalised the education market admitted state funds to promote private schools and decentralised the steering and control of VET.

> After the economic turn in school administration in the 1990s, the state was announcing that much of the work of the school was to be governed on the basis of the teacher groups' own professionalism and with cooperation between local educational authorities and the teaching body. This was no longer the job of the state and the Parliament. (Hartmann 2007, p. 258)

Students were now free to choose their own schools and as the funding was led through student enrolment, a steep increase in private schools followed and continues until today (Olofsson and Person Thunqvist 2018). In the year 2014/15 already a quarter of all pupils are at private high schools. Nevertheless, the hope of rising the quality through marketisation and meeting the regional demands failed. In contrast to the expected effects, more discontinuities occurred, as schools adjusted their curricular and introduced programs based on learners interests, but not the demand of the labour market (Alexiadou and Lundahl 2016).

The 1970s reform was successful in raising the number of participants in professional programmes to up to 75 % (Olofsson and Persson Thunqvist 2018, p. 133), however simultaneously their relationship to the work processes in the companies decreased at the same time. Vocational education and training thus had more of a vocational orientation character than actually qualifying for the immediate transition to work. Nevertheless, the reform of the 1990s, which introduced 14 three-year vocational programmes and several general education subjects, led to a massive increase in dropout rates and the failure to complete school at least after four years (Skolverket 2016). As an approach to solving the problem of youth unemployment, the aim of linking vocational training programmes more closely with work processes and integrating work-based learning more strongly into the curricula of vocational education programmes is still being discussed.

3.2 Bringing the students closer to work – New apprenticeship since 2000

Following the steep increase in drop out rates, the Swedish government pushes the so-called "New apprenticeship" massively forward since the latest reform of 2011. In that programme, which is running as an experiment model since 2008, learners spent a minimum of 50% of learning time at the workplace (Karlsson et al. 2016) while remaining student at school and not an apprentice at a company. Responsi-

bility for shaping and planning the learning process is thus still in the hand of the teachers. They have to coordinate the times and content of learning at school and at the workplace although they have little influence on what is happening at the workplace. In the starting phase, the interest of learners and companies was not very high and the success rate after three years was low with only 44% (Berglund and Lindberg 2012, p. 2). A current research project on the apprenticeship model in Sweden found that the demands for VET teachers have changed towards being able to establish a kind of work-based school learning (Paul and Gåvels 2019). Furthermore, Berglund and Lindberg (2012) point to the importance of trilateral conversations between teachers at school, the supervisors in the company and the students during the school based apprenticeship model. They stress that these conversations are of paramount importance for the introduction of learners to the workplace, the monitoring of the learning process and, finally, for determining the learners grade in concerning his or her workplace learning process (p. 1). These changed requirements pose a new challenge for teachers, who are not only responsible for identifying the companies and workplaces that offer the relevant learning opportunities, but also for implementing these systematic trilateral discussions (Andersson 2018). Within these discussions teachers are required to identify which specific learning opportunities may not exist at the respective workplaces, but may be substituted by similar — available — learning process and adapt the training plans accordingly. Since teachers have no influence on the local work processes, difficulties arise in fulfilling the learning tasks and teachers do not want to risk the loss of the corresponding company because of problems arising when weaker learners are placed in workplaces. The different objectives of the partners in the negotiation of this form of vocational qualification are implemented up to the practical aspects (Kristmansson 2016).

However, there are some other reasons for the failing of the new approach besides the mentioned pedagogical ones. At the annual meeting of the Teknik Colleges in November 2018[2] I conducted several interviews with representatives from companies about the new apprenticeship model in Sweden. They stated that most of them are not interested in the apprenticeship model, because, from their point of view, it is a model for young people and adults with a predominantly practical approach. The dynamic changes of technologies focuses their interest on young people who are able to analyse complex technical processes with a high level of

2 Teknik Colleges are regional networks of VET schools, providers of further VET, municipalities, unions and companies that try to create synergies in providing high quality technical education. At the same time, they try to increase the attraction of technical education because of an increasing demand for technically qualified skilled workers and engineers in Sweden. Each year they meet at the annual 'Rikskonferens of Teknik Colleges' to share their experiences and develop their network further.

abstraction. The young people themselves criticise the early loss of relationships with their peer group, a social decline and limited perspectives, or rather an early commitment to their further professional development in the current model (Karlsson et al. 2016, p. 371).

3.3 Current challenges and concepts in Sweden

We can conclude, that there are some major challenges for Sweden's VET system, which have many similarities to the challenges Helms Jørgensen described for all Nordic countries (2018).

One challenge is to bring the school based learning processes closer to the demands at the workplaces. To meet that challenge a stronger focus on work-based learning during initial VET seems to be the most promising approach. The National Agency for Education in Stockholm has launched a support programme for schools to develop workplace-based learning for students and trained VET-teachers as well as supervisors at the workplaces. The Agency has commissioned universities to educate VET teachers to support schools in their development of workplace-based learning. Upon the completion of the training, teachers may be engaged in a position as national WBL-developer and as such, support the VET providers in their strategic work with quality development of the workplace-based learning.

Sweden sticks to the goal that all VET programmes at the schools should enable students to move their educational pathway further towards university. This is important, not only because of the above-mentioned demand for a highly qualified workforce in Sweden's industry but also because of the cultural and social-democratic values in the country mentioned earlier. A one way system of initial VET that only leads to employability is not an option (Kaiser 2019a).

In the last decade, a second dramatic challenge hit the VET system in Sweden: the large proportion of new immigrants in Sweden called 'new citizens[3]'. The Swedish state launched several projects and programmes for the integration of refugees and new immigrants in school and work. As language is deemed a key factor in the process of integration, Sweden has been investing considerable funds in the so-called 'språkintrudionsprogrammet', which has been running in Sweden since 2014. With its immediate and concerted efforts to offer integration programmes and training to its new citizens, Sweden is exemplary in its efforts in the education system, even though the conditions are not the same in all regions and in all municipalities (Park et al. 2018). The validation of prior learning and competence helps new citizens as well as adults born in Sweden to develop their livelong

3 'nybörjar'

careers, to change their occupations if necessary without paying anything for the continuing education. That has to do with the strong establishment of adult learning in Sweden based in its culture (Kaiser 2019a).

Still, there are some challenges for VET in Sweden. The attraction of the VET school programmes has been continuously lower than the 'academic' programmes since the 1990s. The 'new apprenticeship' seems not to be the helping solution that was expected (Paul and Gåvels 2019).

The search for VET teachers that have both vocational experience as well as academic abilities and are willing and able to finish the study programmes for VET teachers at the universities is still a challenge. This is particularly the case with the technical programmes although those are not at master-level (Kaiser and Lindberg 2019). Furthermore, it continues to be a challenge to ridge the cultural gap between vocational training with the aim to be practically applied in the work place and the culture and structure of research in academia. It is thus a challenge for universities to find and train staff that manage to study, train and think in both contexts (Isacsson et al. 2018).

In Sweden as well as in the Nordic countries the relationship between a social democratic oriented political tradition in the context of an increasingly globalised and capitalistic world continues to be conflictual.

There are tensions between the goals of a welfare state and economic efficiency, between steering of educational learning processes by the central or decentral public institutions on one hand and the influence of the workplaces, branches and social partners on the other. This conflict manifests itself among others in the conflicting demands of the labour market and the academic study programmes (Michelsen 2018). One current debate arises from the discussion about the new apprenticeship model and the increasing importance of WBL to realise better transitions from school to work.

4 Consequences and critical self-reflection

The author favoured concepts that combine comparison studies with a deeper look into history and cultural mentality of countries in order to find some understanding as to why the situation in one region or country appears in the way it does. In the case of Sweden, the focus on the main reform changes in the 1970s, 1990s and 2011 should illustrate how the current tensions of goals in the political discourses and activities between 'folkhem-better life' and 'neo-liberal-marketisation' developed and to outline their consequences in the Swedish VET system. I would like to state, that it is not the ideal approach to tell a historical development of a countries VET system on some pages, and to use that case to reflect on the question of the use of typologies. However, we have to realise, that to go one-step above to

reflect on a more abstract way on the mode of our descriptions on what is going on in a country, is an essential part of what makes it a scientific view.

The combination of the Ute Clements system-theory based approach through sense with Markowitsch and Grollmanns (2019) new model of comparison through a historical lense, may help us to understand what is necessary to change the direction of a given track. Through the multiple approach, we may be able to gain an understanding as to how certain solutions or pathways that have worked well in some countries may be successfully applied in others and their respective contexts.

In the case of Sweden, the increased focus on vocational education and training at the expense of the general education curricular in the upper secondary school system with the aim to ease the transition from school onto the work place, led to undesirable side effects. It ended up reducing the enrolment rates for VET programs and a general quality reduction of the VET system. This development is not apparent when we analyses the Swedish VET system through the lenses of typologies, but rather through a socio-cultural and historic approach.

Typologies can help as basic description of concepts and beliefs as well as terminologically schemata that serve mutual understanding. However, they should not oversimplify complex systems because of the aim to understand a specific structure and institutions different roles and the interaction in two or three days. The complexity of interactions between political actors, the meso-level of, for example the cooperation of providers and companies and the individual learning and interaction and explicit used methods of learning on the mikro-level has to be contextualised to economy structure, political system and history of the educational system.

In order to avoid the danger of an inadmissible simplification in an international comparison, a Scandinavian country's comparative research serves a good example. The VET researchers in the Scandinavian countries have chosen two ways to compare each other's systems. They first started historical reconstructions (Michelsen and Stenström 2018) and then add a problem based approach. They shift into a diachronic perspective and focussed "how different VET systems develop as they manage common challenges" (Helms Jørgensen 2018, p. 4). Recent studies, in the context of globalisation and the mutual exchange of countries, show in addition that hybrid models are increasingly developing (Verdier 2013) as I tried to show in case of Sweden.

At the same time a research approach at the University of Flensburg made evident, that in Germany there are big differences between regions within one state (Hjelm-Madsen 2017). We are also aware about differences in occupations that have different characteristics in their qualification systems (Host and Larsen 2018; Olsen et al. 2018). There is a big difference for example in the linkage of VET and

higher education between the construction sector (2% student in higher education after VET) and the health-care programmes with 20% in Sweden (Helms Jørgensen 2018).

However, fast ways always fail or as Theodor W. Adorno (1975), a well-known researcher of Frankfurt's critical theory stated once in a critical comment to Georg F. W. Hegel:

> Unconsciously the conscious should sink into the phenomenon, to which it seeks to apply itself to … Should thought divest itself into the subject, it would validate the latter and not the category, and thus the object would reveal itself under the gaze of thought and inquiery. (p. 38)

In comparative approaches we thus have to treat the object cautiously and be aware of our own limitations in fathoming its complexities. Categorical thinking and schemata are always based on a very specific approach as I sought to illustrate by contrasting various typologies with my own perspective and approach.

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The value of ethnography and the comparative case study approach in VET research – exemplified by the project "VET cultures in a European comparison"

Erika Gericke[1]

Abstract

This methodological contribution argues for considering an ethnographical approach in comparative vocational education and training (VET) research and illustrates its usefulness with the study "VET cultures in a European comparison". This ethnographic comparative study uses lesson observations, guided interviews and photographs in order to investigate how educational traditions shape the social practices of teaching and learning in vocational classes/courses for car mechatronics and office management in England and Germany. With the analysis of the first of four sets of data, a need for an analytical framework for the ethnographic comparative VET study arose in order to systematise the first emerging findings. Thus, the second part of the contribution scrutinises the usefulness of the comparative case study (CCS) approach by Bartlett and Vavrus (2017) by applying it to the ethnographic comparative study on "VET cultures in a European comparison". This contribution shows that for comparative VET research, which deals with learning and teaching practices, an ethnographic approach is a promising approach and that the CCS approach is a helpful analytical framework for systematising empirical results of comparative studies.

1 Ethnography and comparative VET research

After a short introduction to ethnography — its aims, approach and advantages — the author will briefly refer to existing ethnographic (comparative) VET research in order to present ethnographic research objects within the field of VET. This will be followed by an outline of a neglected but important comparative VET research object, which calls for an ethnographic approach.

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"Ethnography is the study of social interactions, behaviours, and perceptions that occur within groups, teams, organisations, and communities" (Reeves et al. 2008, p. 1). Originally, ethnography arose from anthropology, which studies humans, human behaviour and societies in the past and present. Ethnography aims to provide a detailed depiction and holistic insight into people's views, actions and their living conditions. Thus, preferred ways of data collection are the observation of people (in situ) and interviewing them. The ethnographer's task is "to document the culture, the perspectives and practices, of the people in these settings. The aim is to 'get inside' the way each group of people sees the world" (Hammersley 1985, p. 152). This is often done by applying methodological triangulation, meaning different sources of data are used in order to examine a phenomenon in a number of different settings and at different points in time and space (data triangulation); multiple researchers work together in order to develop a complex range of perspectives on the data (investigator triangulation); and different concepts and theories are used in order to understand the data (theory triangulation) (Denzin 1970; Reeves et al. 2008). However, it is rarely the case that an ethnographic study makes use of all three forms of methodological triangulation; most studies apply one form of triangulation.

There are several advantages of using participant observation. One is that the ethnographer has the opportunity to immerse herself in particular settings developing a high degree of contextual and cultural sensitivity, which helps her to understand 'what is going on here'. At times, the ethnographer gets access to hidden social practices, which are normally hidden from the public, when undertaking participant observation. Another advantage of ethnographic research in general is that it can "identify, explore and link social phenomena which, on the surface have little connection with each other" (Reeves et al. 2008, p. 4) due to its holistic approach. Ethnography does, of course, have its drawbacks — even for a researcher committed to qualitative enquiry. To name just two disadvantages: getting access to the field can be very problematic as well as the unpredictability of the ethnographic encounter, which puts the ethnographer in the position of having to be very flexible (Reeves et al. 2008).

VET researchers have utilised the advantages of ethnography and there are some examples of comparative VET studies using ethnography. There is for instance the study on attitude development in vocational education in New York by Claus (1984). Here the researcher employed "classroom observation, in-depth interviewing, relevant documents, and inductive analysis to identify those characteristics of a vocational program and its students that, in their interaction, constitute attitude-influencing events" (Claus 1984, p. 1). Another example is the research by Gobbo and Sansoé (2011) which look at young immigrants and vocational education in Italy. Using participant observation, informal conversations

and non-structured interviews the researchers investigated the reasons for enrolling in a vocational course and "the meaning that such a choice, together with the school experience, had for non-Italian youth" (Gobbo and Sansoé 2011, p. 2300). Regarding ethnographic comparative VET research there is, for instance, the study by Rosvall et al. (2017), who explored how VET teachers teach mathematics to students in Finland and Sweden by undertaking classroom observations and interviews. They were able to show that the teachers' pedagogic practices "tend to strengthen the idea of a vocational learner as being practically oriented; using their hands instead of their heads and in need of care and surveillance" (Rosvall et al. 2017, p. 425). Another ethnographic comparative VET study focuses on the learner biographies of apprentices in retail and motor vehicle maintenance in England and Germany using biographical interviews and multi-site participant observation (Brockmann 2010). Brockmann's (2011) results show that the German and English learning cultures differ greatly and affect the teacher-student (including the researcher herself) interaction and practices.

By briefly pointing to some of the existing ethnographic (comparative) VET research, research topics which call for an ethnographic approach, include such topics as attitude development, reasons for and the meaning of choosing vocational education, teaching practices and teacher-student interaction. Furthermore, all these studies focus on practices and (influences) on the process of teaching and learning in VET.

Broadfoot and Kazamias call for comparative studies of education, which place a greater emphasis on the learning process and practices than on the organisation and provision of education (Broadfoot 2000; Kazamias 2009). Alexander even states that "pedagogy is a neglected field in comparative enquiry" (Kazamias 2009, p. 924). The reasons for neglecting this topic are manifold. A practical explanation is that ethnographic comparative VET studies are costly, slow and complex in respect to data collection and analysis. Furthermore, the research object itself is hard to tackle. Practices of teaching and learning do not begin and end in the classroom and are in addition a result of the present and past. Thus, location and time are two main obstacles. This issue will be picked up in section 3.2. However, by comparing practices of teaching and learning one identifies, explores and explains their similarities and differences across designated units of comparison. The aim is to find out "what is universal in [practices of teaching and learning] from what is culturally or geographically specific, informing the development of pedagogic theory, and extending the vocabulary and repertoire of pedagogic practice" (Alexander 2009, p. 927).

It is universally acknowledged that teaching and learning are not only influenced by institutions, policies and so on, but also by values and educational tradi-

tions (McLean 1990; Georg 1997; Osborn et al. 2003). Alexander points out the importance of values:

> Values, then, spill out untidily at every point in the analysis of pedagogy, and it is one of the abiding weaknesses of much mainstream research on teaching, including the rare accounts that appear in the comparative education literature, that it tends to play down their significance in shaping and explaining observable practice. (Alexander 2009, p. 932)

The effectiveness of educational traditions and values when creating and maintaining learning environments and conducting the social practices of teaching and learning within the field of VET is a neglected but an important research object, which can be investigated by using an ethnographic research approach. The following section will present an ethnographic study, which uses such an approach.

2 The ethnographic study "VET cultures in a European comparison"

The ethnographic study which aims at reconstructing how values and educational traditions shape and influence learning environments and social practices of teaching and learning in VET and presented here is called "VET cultures in a European comparison: social practices in vocational classes/courses for car mechatronics and office management in England and Germany". This section starts with a brief description of the term, concept and work model of VET culture.

The term 'VET culture' is understood as a physical and at the same time a symbolic frame for the different facets, which influence vocational education and learning processes. This includes but is not limited to, communication and negotiation processes, learner and teacher identity but also learning environment and subject culture as well as historical development and VET policy.

The term underlying the concept consists of three interwoven elements, which one can imagine like an onion layer model: culture as the outer shell, learning environment as the middle shell, social practices as the inner kernel. The author has a specific understanding of those three interdependent elements. According to the cultural turn, culture is understood as a basic phenomenon of social order, which penetrates all areas of society, including VET (Hörning and Reuter 2004). Culture is not only reproduced in learning environments but also through social practices and these social practices are shaped by culture (Hörning and Reuter 2004). That is what makes the turn in the cultural turn. Learning environment — the middle shell — is a heuristic and at the same time spatial-material and symbolic frame of activities, which are carried out as learning and teaching activities within this frame (Schmidt 2012). The physical room (for instance, a classroom or

workshop) gets produced through a specific social arrangement of human bodies and artifacts (Reckwitz 2014). In line with Reckwitz' social practices theory (based on Schatzki 1996 and 2002) social practices are behavioural routines, which are based on the actor's incorporated knowledge and which are connected with objects, which the actor uses (Reckwitz 2003).

Based on these three layers the author differentiates the single layers and applies them to the VET system. The result is a work model which is deliberately designed as a container-like model of VET culture as it provides a frame or starting model for comparative VET research.

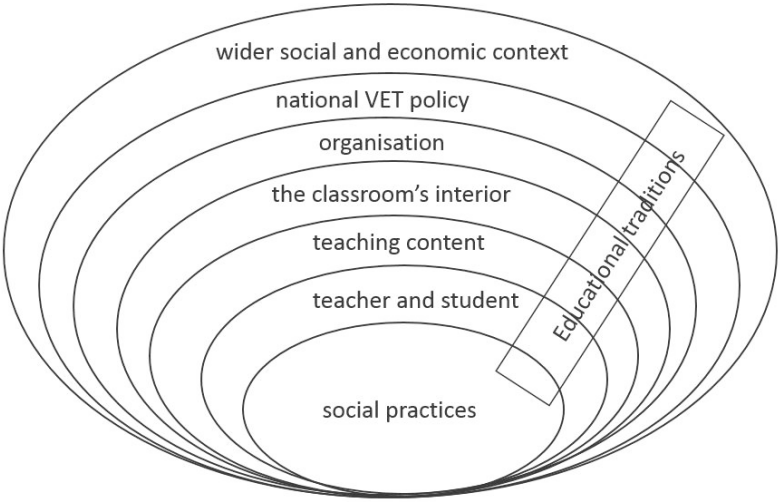

Fig. 1: Work model VET culture

(Author's own compilation)

Looking at the work model from the inside out, the core are social practices, which are carried out by actors, such as the VET teacher and her students (layer 2). The reason for the interaction between the VET teacher and student is the teaching and learning objective (layer 3). All this happens in a concrete physical learning environment, such as the classroom (layer 4). The classroom is part of an educational institution, the VET college (layer 5). This institution has a specific place within the country's VET system and policy (layer 6). The country's VET system and policy has to be looked upon in the country's wider economic and social context (layer 7).

Now, the crucial point about this work model is that (a country's) values and educational traditions lay across and affect all those layers. There has been a number of studies which have reconstructed the effectiveness of national values and educational traditions on single aspects of education and schooling, such as the classroom set-up in secondary schools in France, Denmark and England (Osborn et al. 2003), teaching practices in mathematics in grammars schools in England and Germany (Kaiser 2002), studying mechanical engineering in Finland, Rumania and Germany (Martz-Irngartinger 2010). However, there is no study which reconstructs how values and educational traditions shape the teaching and learning in VET across different countries. This research object is important because of at least two reasons. First, it contributes to explore the cultural leeway of a country's VET system. Knowing the cultural leeway can predict and explain how and to what extent it is possible to implement European VET policies in a country and its VET culture. Second, for actors in VET it is important to be aware of their own cultural background mechanism and to reflect on them, especially when in contact with students with a migrant background, who bring along their own educational traditions. This comparative study on VET cultures revolves around values and educational traditions and "how they explain observable practices" (Alexander 2009, p. 932) in vocational classes/courses for car mechatronics and office management in England and Germany. The research questions raised are:

- What social practices are evident in lessons for students for car mechatronics and office management in German and English vocational colleges?
- Which and how are national cultural values, education traditions/philosophies reproduced in those social practices?

With these two research questions in mind the researcher will focus on the first four layers in the work model of VET culture, namely social practices, the actors VET teacher and student, the teaching content car mechatronics and office management and the classroom in respect to data collection. It is anticipated that the data collected will give insight into the next overlying layers.

The two questions raised can be tackled by applying an ethnographic research design. Aiming at data triangulation in order to examine a phenomenon — in this case, educational traditions acted out in social practices — in a number of different settings and at different points in time and space, three kinds of data are collected. First, the researcher undertakes lesson observations. Her role is primarily one of a non-participative observer. The lesson observations allow the researcher to see social practices of teaching and learning within specific settings. Second, the researcher conducts guided interviews with the same students and VET teachers observed in the lessons. Here the researcher is able to gain an insight into motifs for

certain social practices and the persons' self-understanding. Values and educational traditions which have been observed in lessons, can now be addressed directly and connected to the person's self-understanding. Last, the researcher asks the students to provide one photograph of their most important place of learning within the VET college premises. The world is not only constructed through language but also through pictures. By analysing the photographs, the researcher can reconstruct the habitus of the picture producer (Bohnsack 2008, p. 19).

The sample consists of German and English VET teachers and students for car mechatronics (maintenance) and office management. Those two skilled occupations were chosen because they represent a handicraft/technical trade and a commercial trade, respectively. In addition, both occupations are popular with young people and represent both genders, respectively. Furthermore, the data shall be collected in two different countries: England and Germany: in each case an economically weak and an economically strong region.

So far, the first of four datasets has been collected. This data collection has been completed in an economically weak area in Germany, namely Saxony-Anhalt. The researcher has observed ten lessons each in classes for car mechatronics and business administration (2nd and 3rd year of training, full-time apprenticeship). No pre-structured observation sheet was used in order to observe as openly as possible in this first survey wave. The researcher went along with the VET teachers, observing lessons, the teachers' interaction in their staff room and the students during their breaks in the schoolyard. The observation was carried out as a complete observer (Gold 1958), i.e. the researcher "does not participate or interact with insiders to any great extent" (Baker 2006, p. 174). This kind of observation is often used in conjunction with other data. As mentioned above the researcher has conducted three guided interviews with VET teachers for car mechatronics and three interviews with car mechatronic students as well as with three VET teachers for office management and three of their students. The response rate regarding the photograph was not met at all by the car mechatronics students, but the more by the office management students. Getting access to the field in England has proven to be difficult. The German researcher has applied the same strategies for getting access in Germany and England and finally realised that the different historical developments and institutional set-ups of the VET systems demand different strategies. As the issue of historical development of a VET system belongs to the outer layer wider social context and the issue of institutional set-up of a VET system can be located in the layers social context and national policy the researcher is now aware of those two aspects of the VET culture and its influence on the field access. This issue will be dealt with in a separate paper.

In order to analyse the first dataset, the author has used the CCS approach, as outlined below.

3 CCS approach as an analytical framework for the ethnographic comparative VET study

Barlett and Vavrus (2016; Vavrus and Bartlett 2013) developed a comparative analytical framework which is characterised by three features: a) two logics of comparison (3.1) b) process-orientation (3.2) c) comparison across three axes (3.3.). In the following sections, these three features will be used to organise the analysis of the single case. The usefulness of the framework for future analysis of further sites in this comparative study will then be considered.

3.1 Two logics of comparison

Barlett and Vavrus (2017) propose two logics of comparison. The first logic is the *what* and the *who* that is being studied, referring to individuals, groups or organisations (Babbie 2012). They call this logic the "traditional 'compare and contrast' logic of comparison" (Bartlett and Vavrus 2017, p. 7). Applied at the author's ethnographic comparative study the *what* are social practices of teaching and learning in classes for car mechatronics and office management in Germany and England and the *who* are VET students and their vocational teachers for car mechatronics and office management in VET schools/colleges in Germany and England. Whereas the first logic looks at single separate units, the second logic looks at connections — the linkage across places, space, and time and is in the author's case the educational traditions, which shape the single layers of the national VET culture. These two logics of comparison help the researcher to detect not only single social practices, the specificity of learning environments and so on, but also how those different findings are linked and shaped through educational processes.

With the focus on linkages comes the focus on processes. It is the processes which are shaped and maybe steered by actors and events in the past and present as well as the processes in different locations and at different scales that generate the linkage between the what and the who (Bartlett and Vavrus 2017, p. 7). Consequently, there is a strong process-orientation in Bartlett's and Vavrus' comparative approach.

3.2 Process-orientation

There are a number of single process features in this approach, however due to limited space and a specific intent the author has decided to illustrate four of Bartlett's and Vavrus' (2017) process features:

- Boundaries are constructed
- divorce the phenomenon from the context
- consider context
- focus on action

The first process feature is that *boundaries are constructed*. "Boundaries are not found; they are made by social actors, including by researchers, whose demarcations can often seem quite arbitrary and can have the effect of sealing off the case hermetically from other places, times, and influences" (Bartlett and Vavrus 2017, pp. 10–11). From a methodological viewpoint, this calls for an ethnographical way of dealing with this issue, where the researcher immerses herself into a particular setting (see section 1). Additionally, from a theoretical viewpoint it also provides a link to the author's used social practice theory according to Reckwitz (2003). Both approaches (social practice and ethnography) aim at making visible how social order is generated by actors and is constantly maintained. According to social practice theory generating social order is understood as local and recurring actions (Schmidt 2012).

That boundaries are constructed shows itself in the empirical results through the phenomenon of 'blurring boundaries': the boundaries of the social practices of teaching and learning are blurred by students and VET teachers. For example, during one lesson observation, a VET teacher offered those students, who had not been able to finish their written assignment during the teaching hour, to send their written assignment to her via e-mail till ten p.m. on that day. Here it is the VET teacher, who blurs the spatial and temporal boundaries of teaching and learning. On another occasion the author observed that while a VET teacher was supervising the schoolyard, she was addressed by two of her office management students asking her about an upcoming test. The VET teacher was willingly answering her students' questions (observation protocol 1b p. 1, l. 1–4). Here the students blurred the spatial and temporal border of learning and teaching as they addressed their VET teacher outside of the classroom and of the teaching hours. Additionally, it shall be noted, that if the researcher had restricted her observations to the classroom and teaching hours she would not have discovered the students active blurring of the borders. However, as the researcher had restricted access and had not been able to be everywhere at the same time, there are undiscovered social practices for sure. The CCS approach — here with the process feature of constructed boundaries — proved to be very valuable for the researcher as she would not have detected the social practice of 'blurring boundaries', if she had not used this process features as a stencil to put on the data in order to find additional social practices.

Bartlett's and Vavrus' second process feature is "to *divorce the phenomenon of interest from the context* in order to gain analytical purchase" (Bartlett and

Vavrus 2017, p. 11; emphasis by the author). That means, instead of thinking of vocational colleges in Germany/England as a case, the attention is on single social practices of teaching and learning in German/English VET classes as the phenomenon which the author seeks to understand, "and the case is formed by tracing across sites and scales to understand how the phenomenon came into being, how it has been appropriated by different actors, and how it has been transformed in practice" (Bartlett and Vavrus 2017, p. 11). Thus, the starting point are explicit social practices and not specific VET colleges. This process feature helps the researcher to remind herself of her starting point when analysing and comparing data and to work herself up from there, preventing shortcuts and rash decisions.

Considering the context is the third process feature. It is commonly known that "no 'place' is unaffected by history and politics; any specific location is influenced by economic, political, and social processes well beyond its physical and temporal boundaries" (Bartlett and Vavrus 2017, p. 13). Using an Elias term it is always a 'figuration' we look at. A figuration is a network of interdependencies of social practices and actors (Elias 1986). So, context is made. Context is "both relational and spatial in that proximate and distal connections among actors mutually influence each other and, in so doing, produce relevant contextual relations" (Bartlett and Vavrus 2017, p. 14; see also Gupta and Ferguson 1997). Again, this understanding is in line with the social practice theory (Reckwitz 2003) — social practices are changeable and do change due to the context (Reckwitz 2003) — and is mirrored in the author's work model VET culture (see chapter 2). How important the consideration of the context is in order to understand or make sense of the data illustrate the following three examples.

One part of the author's ethnographical research has been conducted at a vocational college, which has two sites and had been originally two separated colleges (in two different towns). Due to a decline in number of students the two vocational colleges had to merge (now one college with two sites, each site in a different town). Due to structural and organisational changes some teachers and students who live in one town have to commute to the other town of the now merged vocational school. This was important background knowledge for interpreting certain comments made by some students and VET teachers. Another example had been observed in an office management class (2nd year of apprenticeship) in a lesson on human resources. The VET teacher comments on the textbook, which she and her class use:

> "There you see that your textbook is not good." A female student asks: "Why do we have it then?" Her teacher answers: "Because you submit to the majority." (Observation protocol 3, l. 264–275)

The researcher asked the teacher after class what she meant with this statement and the teacher explains, that she and her colleagues had the task to decide which textbook they will work with and that the majority of her colleagues chose that textbook. She was in favour for a different textbook. As a last example for the consideration of context serves the following observation in an office management class (3rd year of apprenticeship). As the researcher observed the group dynamics in this one specific class, it appeared to her that there is an invisible dividing line in that class. It showed most clearly when the class was entering the computer lab and the students split into two big groups and placed themselves at the right and respectively left side of the computer lab, although there were many workspaces in the middle of the room. The researcher shared her observations and feelings with the teacher after class, who confirmed that the class consists of two groups. She explains:

> "Unfortunately, the numbers weren't high enough for two separate classes."(Interview TK, l. 192–193)

meaning that this class used to be two separate classes but due to drop-outs and that there is a minimum and maximum number in respect to class size, the two classes had been merged into one. The teacher added that she has to be very careful when setting up group work or calling students for oral exams in front of the class considering the two groups. This process feature helps the researcher to make sense of her data, to widen the researcher's view on the data and to sensitise her for additional influences and layers of the VET culture.

The last process feature presented here is the *focus on action*. As the focus is on "how actions at different scales mutually influence one another" (Bartlett and Vavrus 2017, p. 14) and thus context is created, the concluding task is to identify "the historical and contemporary networks of actors, institutions, and policies that produce some sense of a bounded place for specific purposes" (Bartlett and Vavrus 2017, p. 15; for examples see Vavrus and Bartlett 2009). Transferred to the author's research interest it is all about identifying educational traditions and their creative power. One of the reconstructed social practices in the sample of car mechatronics is 'practice orientation', which is acted out through different social practices, for instance integrative teaching or practical exams (see section 3.3 penultimate paragraph). Thus, this process feature helps the researcher to focus on social practices, which mirror the context 'educational traditions and values'.

3.3 Three axes of comparison

Based on their two logics of comparison (see chapter 3.1) and process orientation, Bartlett and Vavrus have developed three axes of comparison. They call the first

one the 'horizontal axis' and it compares how similar phenomena unfold in distinct locations that are socially produced and complexly connected. Adapted to the author's research the similar phenomena are certain social practices of teaching and learning and the distinct locations are a) the skilled occupation car mechatronics and office management in themselves b) vocational colleges within one country and between two countries c) VET teachers and students in different settings.

The second axis is the 'vertical axis', which compares influences at different levels. This axis can be found in the author's work model of VET culture (see section 2 and fig. 1): the influence of educational traditions on social practices of teaching and learning, on the actors VET teacher and student, on the teaching content, on the classroom decoration, on the vocational college, on the national VET policy and so on. The 'transversal axis' is the third one and situates the processes or relations under historical consideration. Adapted to the author's research this axis stands for the educational traditions. The following figure shows all three axis.

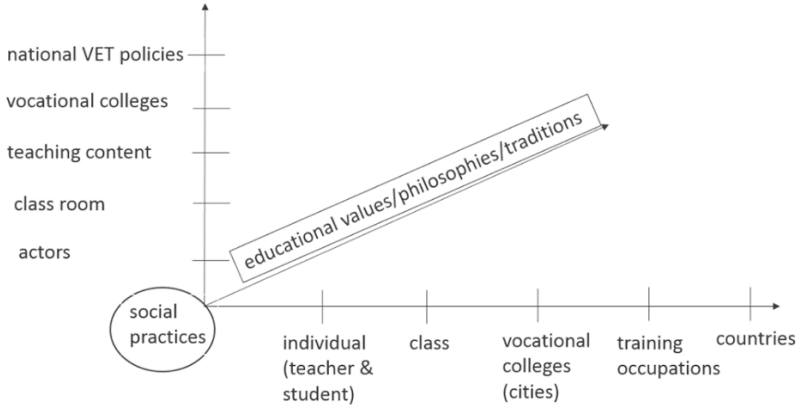

Fig. 2: Three axes of comparison applied to the comparative study "VET cultures in A European comparison"[2]

(Author's own compilation)

In order to illustrate how these three axes of comparison work together the author will present a final example from her research. So far, she has been able to reconstruct some educational traditions, which mirror themselves in the learning envi-

2 Comment on the figure: Due to the author's lack of sketching a three-dimensional figure, the figure is drawn two-dimensional but the reader is asked kindly to imagine it as three-dimensional with the transversal axis being the third dimension.

ronment and in the social practices in German VET classes for car mechatronics. One of the reconstructed educational tradition is — not surprisingly — practice orientation. This practice orientation is part of the learning environment as it is written into the curriculum, namely as area of learning (Lernfeld). The curriculum is part of the VET teachers' environment.

> "We develop such a plan [annual didactic plan], in such a form out of the framework curriculum, which is fixed. They are structured according to the areas of learning …" (Interview MK l. 173–174)

Based on this environment the observed VET teachers show integrative teaching at times:

> "We do everything in these areas of learning, which belongs to this topic integrational. There the specialised knowledge is included. Things which have to be calculated will be involved in the area of learning …" (Interview MK l. 364–366)

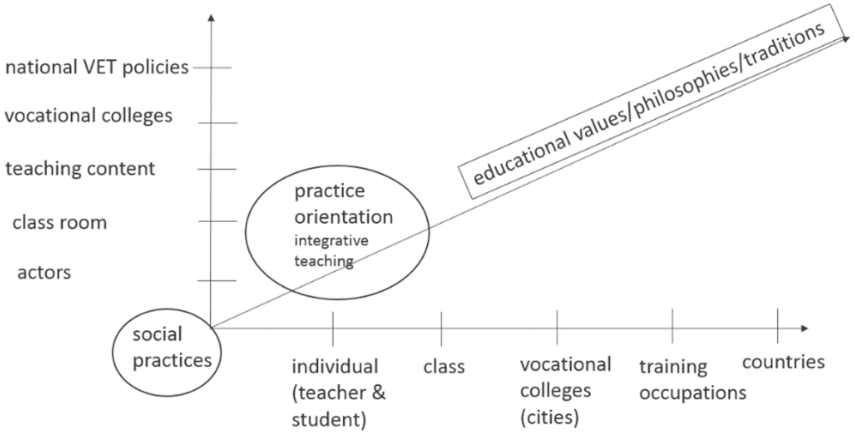

Fig. 3: Three axes of comparison illustrated with an example

(Author's own compilation)

The researcher observed that one VET teacher integrates technical drawing and maths in his lesson on hybrid drive announcing his social practice of integration to the students. He swings open the right side of the blackboard and announces to his students that this part of the blackboard has the function of a notepaper, where he will now rearrange the equation (observation protocol 1a, l. 66–67). This example is represented graphically in the following figure. It shall be noted here that

this example shows that although data collected is limited to the first four layers of the VET culture — social practices, the actors VET teacher and student, the teaching content car mechatronics and office management and the classroom — the influence of the next overlying layers shine through (see section 2) as the teacher refers to the German VET policy when he speaks about areas of learning (Lernfelder) and curriculum.

These three axes of comparison provide a tool for the researcher to systematise her single empirical results and to systematise making comparisons.

4 Conclusion

The aim of this paper was to argue for more ethnographic comparative VET research. One neglected but suitable research objective for the ethnographic approach is the social practices of teaching and learning in VET across different countries. One such research is undertaken in the study "VET cultures in a European comparison — Social practices in vocational classes/courses for car mechatronics and office management in England and Germany", which uses data triangulation, namely lesson observations, guided interviews and photos, in order to examine how social practices are generated and affected by educational traditions and values. As the first empirical results came in, there grew a dire need for a comparative analytical framework in order to systematise the single results. So far, the CCS approach by Bartlett and Vavrus (2017) proved to be a valuable tool. This was exemplified on the three features a) two logics of comparisons b) process orientation (with the four characteristics: boundaries are constructed, divorce the phenomenon from the context, consider context, focus on action) and c) three axes of comparison illustrated through empirical data. These three features helped the researcher detecting additional social practices, sharpening the eye for actions and systematising single empirical results and comparing them. However, as the author will continue to analyse her data and the data complexity will increase, it has to be left for the future, whether the usefulness of this framework will be further approved or not.

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Comment on Citation

Observation protocol – p. stands for page and l. stands for line
Interview TK – stands for teacher Ms. Kruger (masked name) and l. stands for line
Interview MK – stands for teacher Mr. Karell (masked name)

Undertaking comparative VET research in international teams: The example of exploring recruitment and training cultures in SMEs in Germany, Australia and the United States

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Abstract

In recent years, international comparative vocational education and training (VET) research has increasingly been characterised by joint cooperation of international research teams. Inherent in this process there are two main challenges. First, team members from different countries need to coordinate with and calibrate each other. Second, the research subject is not limited to only one country but is framed by the respective structures, processes and history, as well as socio-cultural and economic characteristics, of the different countries involved. Accordingly, this paper focuses on these distinct aspects of comparative research and illustrates how such challenges were addressed in a small-scale, international project in the field of VET. The project researched the recruitment and training activities of small and medium-sized enterprises in Germany, Australia and the United States. Researchers from these countries generated findings in the craft and service sectors, specifically concentrating on automotive technicians and hotel front-desk staff. Using a qualitative research approach, five interviews per country and per occupation were conducted with human resource managers in small and medium-sized enterprises (SMEs), resulting in 30 in-depth interviews. Not only were the major challenges and corresponding countermeasures identified, but working within an international team was found to be beneficial for significant areas of the research process.

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1 Introduction

Internationally, comparative vocational education and training (VET) has a long tradition. In the past, however, country studies or country comparisons drawn by individual researchers have dominated. Yet, in recent years, this research area has undergone significant internationalisation. Today, various examples of internationally comparative VET research by international research teams can be found. Research teams primarily from different universities and research organisations in different countries work together. This research is often project-related and limited in time. Or supranational institutions such as the European Centre for the Development of Vocational Training (CEDEFOP) or the International Labour Organization (ILO), as well as the World Bank, work institutionally on corresponding research questions. Of course, there are also mixed forms, for example, through CEDEFOP research projects funding a consortium of research teams from different countries.

These forms of international cooperation lead to new questions regarding research coordination and implementation. This is because different research traditions in different countries and different research discourses and definitions (despite the use of a universal language, usually English) present challenges for research (Schratz 2000). On the one hand, research is carried out in international teams, where the team members have to coordinate and calibrate each other (Pole 2000). On the other hand, the object of research is not limited to one country, but is based on the respective structures, processes and history, as well as the sociocultural and economic characteristics of two or more different countries.

In the comparative research literature, such issues are usually taken into consideration and intensively discussed under the notion of 'insider and outsider research' (e.g., McNess et al. 2015; Osborn 2004). It is claimed that insiders are experts on their respective countries as a consequence of their familiarity and intimate knowledge. Nevertheless, outsiders are also of great importance because they are often in a position to be able to question with fresh eyes the traditional and established patterns of thought and explanation that exist in the countries, thus opening up new perspectives and avoiding the emergence of 'blind spots' in the research process. What can productively be created is a 'third space' at the meeting point of the insider and the outsider (Harris and Simons 2006). As McNess et al. (2015) declare, "this liminal space of in-betweeness can be an area of hostility but also one of great creativity, mutual understanding and new wisdom" (p. 306). Therefore, this paper grapples with this aspect of comparative research and illustrates from an actual international VET research project how the challenges can be addressed.

2 The starting point: the common research objective

The starting point for the international research project was the common interest of the authors to compare the recruitment and training activities of small and medium-sized enterprises (SMEs) in three countries.

While training activities of larger enterprises are regularly the focus of research (e.g., Gessler 2017), there is less research regarding SMEs. In particular, there are currently no scientific findings available in the comparison of training measures between three countries according to the framework conditions at the macro and meso levels of education systems in very different countries (Pilz 2016).

The selection of countries followed, beside the personal background of the researchers, both the 'most similar' and 'most different' design approaches (Przeworski and Teune 1983). While all three countries are advanced, industrialised economies, and the initial vocational training and design of labour markets show systemic similarities between Australia and the United States, Germany is the 'most different' case (Burke and Reuling 2002; Busemeyer and Trampusch 2012; Gospel 1994; Pilz 2012; Vossiek 2018).

The theoretical basis will not be explained here. In the project, particular use was made of the concept of 'training cultures' (Pilz 2009), which had already successfully compared German and Anglo-Saxon training activities in the past. This paper focuses on the following research questions:

1. How do SMEs recruit and train apprentices in the three countries?
2. What trends and/or differences, if any, are identifiable between the three countries? How could they be explained?

3 Planning and coordination of international comparative research

In a one-year preliminary phase with various international telephone discussions, as well as meetings in Germany, the project implementation was finalised. It was helpful to record all discussions and resolutions in order to identify any misunderstandings and ambiguities at an early stage and to document the status of the project on an ongoing basis. Such documentation is very important, especially when coordinating research groups in spatially and temporally separated countries.

While the theoretical basis and the research questions could be readily and quickly established, the determination of the research object posed greater challenges for the researchers. In view of limited research resources, the first step was to search for individual occupations within which the research would take place. Problems were already identified here, as the nature of the occupations differed from country to country. While one country tends to train specifically for indivi-

dual fields of activity, other countries tend to train broadly and comprehensively for a broad spectrum of activities (see below).

In order to keep the project manageable, we concentrated on two sectors, yet ones whose profiles were as different as possible — the craft sector and the service sector — and specifically, on automotive technicians and hotel front-desk staff. We sought to ensure that these occupations were represented in all three countries, employed large numbers of people and offered future potential (Federal Ministry of Education and Research [BMBF] 2016; U.S. Department of Labor 2019; Vandenbroek 2018).

In a further step, the operationalisation of the sampling resulted in problems also described in the comparative research literature (Osborn 2004). For example, the definition and thus determination of the SMEs differed across the three countries. Germany's statistical service follows the EU recommendation 2003/361/EC in its classification of company sizes. Micro-businesses have up to nine employees, small businesses between 10 and 49, medium-sized businesses between 50 and 249, and large businesses 250 or more (European Commission 2015). In Australia and the U.S., there are no universally accepted definitions for company sizes, due in part to the relative nature of the 'small' and 'medium' size classifications which can apply variously in different economic sectors (United States International Trade Commission 2010). However, the Australian Bureau of Statistics (2002) for statistical purposes defines a micro-business as less than five employees, a small business as less than 20, a medium-sized business between 20 and 199, and a large business as more than 200. In June 2017, there were 2.2 million small businesses and 52,200 medium-sized businesses in Australia, representing 97.5% and two per cent respectively of all businesses (Commonwealth of Australia 2018). In general, the U.S. Small Business Administration defines a small business as one with less than 500 employees, although for the purposes of loan procurement, the range for a small business can be from 100 to 250 (U.S. Small Business Administration 2017). In the final analysis it was decided to represent a broad understanding of SMEs in order to take into account the differences between the sectors in the countries, for example, hotel chains in the United States and Australia versus family-run hotels in Germany.

An interview schedule was then developed to use when interviewing training experts in the SMEs in each of the countries. Although English was the working language throughout, various conceptual differences and blurred definitions occurred in the team during the preparation of the schedule, which are repeatedly described in comparative research (e.g., Osborn 2004). These had to be minimised, through a modified form of 'cognitive interviewing' (Harris and Simons 2005; Willis 2005) in order to reach a common understanding. This is illustrated here using the term 'employability' as an example.

Employability is an elusive concept. Paid considerable attention as a vital attribute in the world of work, it is, however, very difficult to define. It is relevant to practice and research around the world, but the problem remains of differing perceptions. The ILO has defined it as the

> skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the labour market at different periods of the life cycle. (Brewer 2013, p. iii)

Employability is clearly very significant internationally. Yet countries conceptualise and interpret it variously, especially when endeavouring to put it into practice, whether making policy, teaching and assessing it, or articulating it in workplaces to seek strategies for improving both employment prospects of workers and productivity of companies. The problem is particularly acute when it comes to pinpointing what these 'skills, knowledge and competencies' actually are, and their relative significance in the workplace vis-à-vis technical skills. Even in attributing a name to the cluster of these skills, different labels are applied, such as employability skills, key competencies, soft skills, transferable skills, essential skills and core work skills.

We agreed to use the term 'employability skills' as it appeared to be the most commonly used and understood label in the three countries. In Germany, 'Ausbildungsreife' (vocational maturity) describes the expectations employers have about skills of school-leavers. Use of the term is therefore comparable to the English 'employability'. The German Federal Employment Agency (BA 2006/2009) defines 'Ausbildungsreife' as the combination of basic knowledge (literacy, numeracy), psychological performance characteristics (logical thinking, command of language), physical characteristics (health, age-appropriate development), psychological characteristics of work habits and personality (teamworking skills, reliability, frustration tolerance, communication skills) and career choice maturity (BA 2006/2009). In Australia, there is the Core Skills for Work Developmental Framework (Australian Government, 2013), which involves three skill clusters — 'navigate the world of work', 'interact with others' and 'get the work done' — and encompasses five stages of performance from novice to expert. There is also the National Foundation Skills Strategy for Adults (Australian Government 2012), in which foundation skills are defined as the combination of English language, literacy and numeracy, and employability skills (collaboration, problem solving, self-management, learning and information and communication technology). In the United States, the National Network of Business and Industry Associations (2015) defines employability skills as: personal skills (integrity, initiative, dependability and reliability, adaptability, professionalism); people skills (teamwork, communi-

cation, respect); applied knowledge (reading, writing, mathematics, science, technology, critical thinking); and workplace skills (planning and organising, problem solving, decision making, business fundamentals, customer focus, working with tools and technology). No universal understanding could be used without these national particularities being lost and the survey results being compromised by incomprehension on the part of the interviewees. Rather, the focus was to provide a country-specific explanation and interpretation of the findings.

The next step was to determine the research locations and the number of interviews. Five qualitative interviews per country and per occupation were conducted with human resources (HR) managers in SMEs (a total of 30 interviews) (King and Horrocks 2012; Roller and Lavrakas 2015). In geographical terms, the interviews focused primarily on three comparable cities: Cologne in Germany, Adelaide in Australia and Columbus, Ohio in the U.S. The research group comprised nationals of these three countries, who took responsibility for setting up and conducting the interviews in their own country.

The guidelines for the semi-structured interviews (King and Horrocks 2012) were based on the previously-made agreements. The researchers were aware of the problems especially of translating German concepts (Brockmann et al. 2011), and adopted the British/U.S. understanding of 'skill'. We do not intend here to provide a detailed differentiation between 'skill', 'knowledge' and 'competency', as Brockmann et al. (2011) have provided such an account. As well as focusing on employers' expectations of young people's employability skills, we also investigated issues such as recruitment patterns and the problems companies encounter in finding suitable applicants to fill vacancies. Minor country-specific adjustments — for example, explaining the types of educational institutions from which apprentices are recruited — were made where necessary.

In order to further coordinate the research process and to standardise the interviewing process as much as possible, two master's students were sent from Cologne, one to Columbus and one to Adelaide, during the data-gathering phase. Both students were very familiar with the procedures due to previously-conducted German field research.

Preparation of the data was realised by partial transcripts of the recorded interviews. The interviews were analysed by means of qualitative content analysis (Schreier 2012). The category system was the product of our design of the interview guidelines, but additional categories were created on the basis of the empirical data. The data analysis was carried out per country on the basis of these categories. In the next step, the data were compared by all researchers between the countries and then further condensed. Finally, the country findings were subjected to an international comparison. The process took one year. The ongoing calibra-

tion of the research team was undertaken through telephone and, where possible, face-to-face meetings.

4 Key findings

The goal of this paper is not to present all the findings in detail; rather, exemplary elements are to be discussed. Comparison of the country findings will therefore only be briefly presented here. In the planning of the project it became clear that, in addition to detailed information on the respective research procedures on site, a brief overview of the general status of recruitment and training in SMEs per country must first be provided in order to be able to interpret the data collected later against the background of the country-specific context conditions in vocational education and training, the education system as a whole, the labour market and the social setting (Pilz 2016). The detailed information was compiled by the respective country experts and summarised below to give an estimate of the effects of the country-specific complexity on the research project. For example, it was very important for the international research team to understand the German apprenticeship system on a formal level in comparison with the training systems established in Australia and the U.S. In addition, individual findings are summarised in order to show, at least to some extent, the complexity in the country-specific embedding and in the findings.

4.1 Germany

The interview partners for the German case study reflected as wide a variety as possible of SMEs and training activities so as to portray the full range of expectations and subsequent recruitment patterns. Of the five hotels, one was a micro-business with a staff of fewer than 10; one was a small business with a staff of 20; one was a leading owner-managed luxury hotel with a staff of around 120; and the remaining two were part of global hotel chains but enjoyed autonomy in terms of their HR decision-making and employed around 100 and around 240 people respectively. In the automotive mechanics sector, we interviewed two micro-businesses with a staff of fewer than 10 and three businesses with their own workshop and a number of branches; as with the hotels, HR decision-making was branch-based. Each branch employed around 40 and around 150 employees respectively. Not all of the micro- and small businesses take on an apprentice each year, but all the companies are regularly involved in training activities.

Recruitment and training by SMEs

Over recent years, there has been a steady decrease in the number of training companies in Germany. This can be attributed to the decline in participation in training by micro-businesses. One of the reasons these companies cite for their withdrawal from training is the difficulty they have in recruiting suitable applicants. By contrast, there has been a modest increase in the involvement in training of small, medium-sized and large companies (BMBF 2016). Company size correlates with the likelihood that the company will engage in training activities: In 2014, around 40% of micro-businesses registered to offer apprenticeships were actually engaged in training, compared with around 97% of large companies. Micro- and small businesses in particular are not continuously involved in training, and their training activity is often geared to their specific need for skilled labour (BMBF 2016).

Most young people embarking on training for the two selected occupations — motor vehicle mechatronics technician and hotel business specialist — do so as part of a 'dual' apprenticeship. The main feature of such apprenticeships is that training takes place in two locations: the training company and a vocational school (for further information about the dual apprenticeship system in Germany, see Pilz and Fürstenau 2019; Fürstenau et al. 2014; Hensen and Hippach-Schneider 2013). Companies themselves decide which apprentices to recruit. The only conditions for admission to a dual vocational apprenticeship are completion of compulsory education (nine or ten years' education) and the existence of a training contract between the individual and the training company concerned (Fürstenau et al. 2014). Vocational schools automatically accept any apprentice with a training contract. Because companies themselves decide which applicants they take on, their expectations of future apprentices are particularly relevant. Research into transitions shows that a school-leaving qualification is relevant to recruitment decisions (e.g., Gerhards et al. 2013), micro- and small businesses tend to recruit higher numbers of apprentices with the secondary general school certificate than medium-sized and large companies (Gerhards et al. 2013).

Our own research results are complex. Overall, the expectations of German training companies broadly reflect the elements spelled out in the criteria for a vocational qualification (BA 2006/2009). However, there are clear sector-specific differences in the priority attached to individual elements, and these differences can be attributed to the demands made by different occupations.

Delving more deeply into potential problems with recruiting apprentices as reported by the interviewees reveals a number of sector-independent trends:

- Micro- and small businesses are generally less satisfied than medium-sized and large companies with the quality of school-leavers and are more likely to report difficulties in filling training vacancies.
- Companies perceive applicants' oral and written expression, literacy and basic numeracy as being poorer now than in the past. However, these shortcomings are not seen as a major obstacle to recruiting apprentices.
- The problems companies face in recruiting and training young people can be attributed primarily to social trends, including:
    - Generational conflicts (Generation Y and Generation Z)
    - Demographic change, leading to a decline in applications
    - Greater numbers opting to go to university (reflecting an obsession with academic qualifications)
- One problem identified across the board is a lack of vocational orientation on the part of young people, which is amplifying existing social trends, such as a higher proportion of young people going to university and the shortage of applicants for apprenticeships.
- Sector-specific causes for the decline in apprenticeship applications have also been identified and include:
    - Poor reputation of the sector (hotels)
    - Greater occupational demands (automotive sector)

The trends identified by interviewees reflect current debates at training policy level (Deutscher Industrie- und Handelskammertag [DIHK] 2017; BMBF 2016). For example, a lack of vocational orientation has recently been identified as a problem at the macro- as well as at the micro-level of the apprenticeship-system (DIHK 2017). The only macro-level trend that our interview findings were not able to substantiate was that companies are unable to fill training places because of a shortage of suitable applicants. However, the interviews demonstrate clear cross-sectoral trends that correlate with company size: for example, while micro- and small businesses reported problems with recruiting apprentices for the two selected occupations, this was not the case for medium-sized businesses. Our study, however, was a small-scale one, restricted in its regional scope and limited to two occupations, so it is not possible to draw more general conclusions for Germany as a whole.

4.2 Australia

The interview partners in Australia were a spread of small-to-medium companies in terms of size and work. The hospitality sites ranged from 47 to 306 staff in total, with front-desk staff numbering between 10 and 23. Two of the five were autono-

mous components of international chains and two of national companies, while the fifth was a boutique hotel. All interviewees were HR managers responsible for recruitment and in-house training at their respective sites. None were involved with apprenticeships, though other areas in their companies (food and beverage, kitchen, housekeeping) did and graduates from these areas were often later moved into front-desk work if they exhibited desired attributes. In the automotive area, the work was more diverse, with different sites specialising in cars, trucks, and earthmoving and construction equipment. Company sizes ranged from 25 to 600, with mechanics numbering between 12 and 225. All employed contracted apprentices, numbering from four to 12, who were undertaking their off-job studies in registered training organisations. Four companies were family businesses, while the fifth was affiliated with an international company. The interviewees had various job titles, though again, all had full responsibility for recruitment and internal training.

Recruitment and training by SMEs

In Australia, surveys of employers' use of the VET system indicate that, though use has dropped slightly since 2005, satisfaction levels have remained relatively constant (Australian Government 2019). In 2017, 54% of employers used the VET system and 24% employed apprentices and trainees. Of these employers, 75% were satisfied that vocational qualifications provided employees with the skills they require for the job and 78% that apprentices and trainees were obtaining skills they require from their training. Overall, a recent study has found that training increases with firm size, which has been well known, but medium-sized employers seem to be increasing their training activity, with regulatory requirements cited as a major driver for training and training being more closely linked to business strategy than previously (Smith et al. 2019).

School-leavers, to combine theory and practice through a combination of work-based training and training within a registered training organisation, have the option of undertaking an 'Australian Apprenticeship'. This is a legal contract ('indenture') between an employer and employee, an arrangement that has been in operation in Australia for over a century. Traditional apprenticeships typically lead to Australian Qualifications Framework (AQF) Certificate III or IV, run for three to four years, and approximately 80% of the apprentice's time is training on the job, with the remaining 20% spent at a training provider undertaking off-the-job training, the cost of which is borne by government. In the 1980s this traditional apprenticeship model was extended to non-trade occupations as 'traineeships'. As the skill requirements were usually less than in traditional trades, duration of the training contract for traineeships was shorter — six months to two years, but ty-

pically one year — and the qualification obtained lower, usually the equivalent of AQF Certificate II or III. Traineeships operate in much the same way as traditional apprenticeships, including government funding for the off-job training and relatively low wages.

With respect to the Australian companies interviewed for this research, some summary statements can be made:

- SMEs recruit their own apprentices either through public technical and further education (TAFE) institutes or through private group training organisations (GTOs). GTOs organise the wages, workers' compensation, superannuation and other employee benefits, and manage the training apprentices receive; consequently the host company is responsible for only providing the practical training in the company.
- In this study, mechanics apprentices in four companies were undergoing training at TAFE, while those in the fifth company attended a GTO. None of the hospitality sites were involved with apprenticeships or traineeships for front-desk staff, as they recruited either internal employees from other sections of their company or new applicants who already had degrees in such fields as hotel management.
- Australian interviewees from both industries were searching primarily for passion and personality, which they claimed could be discerned in application letters, resumes and early interviews.
- Beyond those attributes, the automotive employers tested for literacy, numeracy and reasoning skills, while the hospitality employers searched for people-related skills, customer-service mentality and previous working experience.
- However, desired skills and attributes (for example commitment and reliability) continue to be a challenge for many entry-level workers to demonstrate, and when quizzed on the problem of quality, the key issues mentioned by managers were generational attitudes, parental upbringing and role of educational institutions.

4.3 United States

In the U.S., in order to examine structured training and recruiting, organisations affiliated with multinational companies were chosen. Of the five hotels, all were representatives of multinational chains, and ranged in size from 35 employees to 240. Each had high levels of autonomy involving hiring of staff, and somewhat less autonomy with regard to training, as standardised company training of front-desk staff was common. In the three smaller hotels, the interviews were held with the hotel manager, who among other responsibilities, also handled the human re-

sources function. In the two larger hotels, interviews were held with the human resource manager.

In the auto mechanics sector, the five organisations interviewed were also affiliated with multinational companies: three U.S. automotive companies and two Japan-based. These 'dealerships', as they are known in the U.S., are full-service entities which sell cars, provide financing for purchases and service the vehicles they sell. As such, the organisations for this case study were quite large, with a range of employees from 40 to 180. Human resource decisions were locally-based but each of the dealerships had highly structured and standardised training for their auto mechanics, directly from the automotive manufacturer. To obtain information related to the recruiting, hiring and training of automotive mechanics, the five interviews were held with the service department manager, not the human resource manager, as this individual had more influence on the working relationships of automotive mechanics. One notable difference for this study related to apprenticeship training. In the U.S., the occupations of front-desk staff and automotive mechanic are not associated with formalised apprenticeship models: Training for these occupations is provided by various methods, including formal education and training in secondary and postsecondary schools or by in-house training, which can include classroom training, online instruction or on-the-job training.

Recruitment and training by SMEs

The U.S. education system is highly decentralised, and responsibility for elementary and secondary education is left to each of the 50 states. As such, there can be differences in both the requirements and structure of education at this level. In general, however, the U.S. elementary and secondary educational system consists of 13 years of schooling (one year of Kindergarten and 12 years of graded instruction). While the elementary grades (1–5) have a significant focus on academics (math, reading, writing), the secondary grades (6–12) exhibit some significant differences, especially related to preparation for the workplace. Some states have only comprehensive high schools, which offer general academic courses, university preparatory courses, and vocational curricula. Typically, students in these schools have few choices related to vocational education, as the costs associated with offering these courses are high. To address this problem, many states have developed a system of career centres, located geographically close to several high schools. Students can elect to attend these career centres, which may have from 10–40 different vocational courses. The high schools and career centres work cooperatively to provide multiple options to students. Students complete a vocational training program as well as requirements for a high school diploma at the same time.

When examining the two occupations in this research — front-desk staff and automotive mechanic — individuals take very different and widely varying paths. Many individuals interested in becoming automotive technicians begin their training at a comprehensive high school or career centre, where the training is available. In most cases, students complete 1,200–1,500 clock hours of training over a two-year period. As part of this training, students may participate in work-based learning activities with an automotive business, sometimes in the summer between their last two years of secondary education, or during their last year of secondary education, where they may attend school half-day and work half-day. Participation in these work-based learning activities is usually reserved for those individuals with good grades and attendance and with instructor recommendation. At the conclusion of a secondary education, a student in a vocational course has the option of entering the workforce, or pursuing further education at a community or technical college, a university, the military or through a registered apprenticeship program. At any time, an individual can choose to enter the workforce while also pursuing education and training. For example, an individual can be enrolled in a technical college training program in automotive mechanics at night and be employed by an automotive dealership or private company by day. In many cases, they may be using their salary to pay for the required tuition.

The education and training for hotel front-desk staff is much more convoluted. The skills and knowledge required for this occupation are largely focused on interpersonal skills, organisational abilities, computer/technical skills and the ability to 'think on your feet'. As such, individuals from a multitude of work backgrounds with a variety of educational credentials may be appropriate candidates for these positions. While there are some secondary programs focused on hospitality management that could potentially prepare students for entry into a front-desk position, the additional skills needed are typically found in university programs focused on the same subject. These four-year degree programs are focused on developing writing skills, communication abilities, marketing and management knowledge, and customer service. In addition, these programs usually require students to complete an internship, cooperative education experience or some other type of work-based learning as part of the bachelor's degree.

With respect to the U.S. companies interviewed for this research, some summary statements can be made:

- The need for literacy is prevalent in both industry sectors, and is surprisingly on the increase in the automotive sector due to the demands of customers and manufacturers.
- Interpersonal skills, especially communication skills, are highly relevant, but often insufficient.

- Personal skills and attributes, such as reliability and dependability, continue to be a challenge for many entry-level workers to demonstrate.
- The generation of workers entering the workforce today are more likely to see their work life as a series of journeys rather than one final destination for lifelong employment. The poor work ethic of young people was mentioned as a significant problem.
- It can be assumed that many of the mentioned problems can be attributed to social trends, like the millennial generation.
- Above all, the motivation and passion for the profession is one of the most important requirements.
- There is a significant portion of U.S. young people with no desire for technical, physical work.

The inability to pass a criminal background check and/or a drug or substance abuse test is a pervasive problem in the U.S. workforce.

5 Some major differences in comparing the countries

As mentioned above, no comprehensive comparison of country-specific data will be made here. Nevertheless, our data reveal some central findings, of which a few will be presented here.

Recruitment and training differ fundamentally from country to country. For example, German trainees even in SMEs are intensively trained in the dual training system over three years. Due to the integrated attendance at vocational school, where general education subjects are also taught, the importance of employability skills in recruitment is not geared to specific skills for the sector or even the profession. Rather, 'apprenticeship readiness' plays a central role, which is based on more general skills such as reading and writing as well as good manners.

The opposite has been observed in the U.S. Although literacy and interpersonal skills are also important here, the existence of job-specific competencies is expected to be much stronger. These are acquired in particular through previous industry work experience.

The findings from Australia indicate a mixed situation. It is true that employers in SMEs here, as in the U.S., expect development of job-specific skills in addition to general competencies. However, these are not acquired through work experience as in the U.S., but the SMEs recruit job-starters from (TAFE) institutes or through private group training organisations.

Our small-scale investigation in the SMEs shows, therefore, an interesting differentiation compared with many past studies. Typically, the recruitment and training models of Australia and the U.S. in a 'liberal market system' are con-

sidered to be largely identical in these studies (Busemeyer 2015). This finding cannot be further discussed here and is also subject to limitations.

6 Conclusion: Major considerations in undertaking international research in multinational teams

In conclusion, we arrive at some conclusions from our actual experiences on this project about how to plan and manage research on comparative VET in an international team.

There are advantages in working as a multinational team. They include the following:

- Insiders and outsiders coming together maximises opportunities for insiders to collect research data in their respective countries more consistently and for outsiders to be less likely to misinterpret. As a result, findings can be analysed and evaluated more accurately, and misunderstandings or errors due to either over-familiarity or ignorance are largely avoided. In addition, a long research stay, which enables comprehensive immersion in a different training culture and which has been recommended by earlier experts in comparative education like Bereday or Hilker (Adick 2018), is not absolutely necessary.
- Agreement on a common research method is relatively easy due to international standards and conventions of social science research. Correct operationalisation is facilitated by country knowledge, for example, with regard to culturally-adapted and contextually-situated questions in the interviewing process (Verhoeven 2000).
- Field research can be carried out without major bias through the respective cultural expertise and language skills (no translation required in the interview).
- In comparison, the risk in nostrification is reduced by the multi-perspectivity of the various national researchers (McNess et al. 2015).

However, there are also challenges that need to be acknowledged and addressed. These can be minimised by appropriate countermeasures.

- An extensive calibration at the commencement of a project is necessary for development and clear articulation of the research question(s), scope and methodology. Many issues need to be discussed, clarified and agreed, such as: Is this relevant for each country? What discourses and findings already exist in each of the countries?

- The ongoing dissolution of simplifications and stereotypes (for example, in Germany there would supposedly be only the apprenticeship system in the VET sector) can be achieved through in-depth and intensive communication between all research team partners.
- Intensive recording and determination of the meaning/interpretation of technical terms and constructs is tedious and sometimes difficult. However, this process is essential for consistent data collection, analysis and interpretation.
- The search for a homogenous object of investigation can be completed more accurately and efficiently with insider knowledge. However, detailed knowledge from within different countries can make compromise based on simplifying assumptions difficult.
- Analysis and interpretation of the data can be very complex due to the expert knowledge of the respective insiders and subsequent comparisons difficult due to this high complexity. Compromises between complexity and simplification have to be sought again and again in multi-stage, coordination processes.
- Identification of the 'tertia comparationis', the features in common, can be made more difficult by the significant risks in the ethnocentric perspectives of different researchers (Pilz 2012). Again, compromises need to be reached through ongoing communication and coordination.

Finally, we emphasise that the most crucial aspect in any project lies beyond pure research rationalities. This fact concerns the personal side of working in multinational teams: the cooperation over several years is highly motivating and promotes mutual trust. It is not merely a matter of content learning among researchers, but also of cultural enrichment and the growth of genuine friendships (e.g., Harris 2019).

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Closing Chapter

Comparison of VET approaches through history, with a particular focus on Africa

Kenneth King[1]

Abstract

This chapter seeks to capture the rich variety of approaches to VET through a whole series of different lenses as well as through the author's writings on VET over 50 years. The historical periodisation of VET, right back into the colonial period, is a crucial first lens. The notion that VET was particularly appropriate for specific groups of people was evident in different colonial regimes. Thereafter, development cooperation agencies pursued many different policies on VET, and these changed markedly over time. Because of VET's close linkage with work and employment, there have been many priorities for VET that have reflected political concerns with VET's possible role in dealing with the threat of educated unemployment. These would include the connection between VET and the informal sector of the economy. Somewhat in parallel, there was widespread policy interest in the link between non-formal education and VET. The awareness of the relevance of skills beyond formal education and training led to the adoption in many quarters of the wider term, skills development. The actual terminology for varieties of VET or skills development has proved hugely important to the way that these fields were captured in the major international agreements about support to education world-wide. Equally, it has been vital to tease out VET's connections with science and technology, enterprise development and educational planning. Despite these crucial connections to the labour market, both formal and informal, VET remains a poor relation in many major series on educational planning and on comparative education.

1 Introduction

One approach to comparison is to explore how methods and discourses concerning vocational education and training (VET) have altered over the past fifty years. Arguably there have been major shifts in the lenses for examining VET both in

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developing and industrialised countries, and in the development cooperation approaches that have often connected the two. In many ways, VET has had a very special history, making it rather different from other education sectors such as secondary or higher. Because of its close connections with employment and the world of work, there have been more politics around VET priorities and approaches than with education more generally. This has been particularly evident in the aid policies which at different times have paid a good deal of attention to the role and potential of VET in developing economies.

With the discovery of the informal sector of the economy in the early 1970s, there was a recognition that skills development could lead to different forms of self-employment, thus reducing the alleged political dangers of educated unemployment. It was also recognised that there were forms of apprenticeship within the informal sector of the economy, and that these operated in ways that were often very different from apprenticeship in the formal economies, either of the developing or more developed worlds. With the rise of interest in world-wide education policies from the time of the World Conference on Education for All, in 1990, there was a natural concern with the positioning of VET in such priorities, as well as in the Millennium Development Goals (MDGs), the Global Monitoring Reports, and in the Sustainable Development Goals (SDGs).

The author was involved in the analysis of many of these critical VET developments over the past five decades. This provides for a longitudinal comparison around VET, and particularly in the theatre of development cooperation. During this period, the terminology of VET also changed, as it had done in earlier decades. Thus, what had been called industrial education changed to technical or vocational, and also to diversified education. Technical vocational education and training (TVET) became widespread along with vocational education and training (VET), especially within Europe. But the term, skills development, captured a wider segment of preparation for work, and in some situations, technical vocational skills development (TVSD) became the preferred term. Interestingly, in the final text of the SDGs, the following is used with the vital link to work: "…relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship" (UN 2015, p. 28).

2 The era of industrial education in the United States and Africa

The first education commissions to advise on the character and priorities of education and training in Sub-Saharan Africa drew their principal insights from the American South. These Phelps-Stokes Reports had judged that just as industrial education was their clear preference for the blacks of the Southern States of the USA, so too was their priority for Sub-Saharan Africa, where the two Commis-

sions reported in 1922 and 1925 (Jones 1922; 1925). The proposals around industrial education for blacks were linked to the traditions of Booker T. Washington of Tuskegee Institute and were in opposition to the policies of W.E.B. Dubois who argued the critical need for there to be college education for young blacks. Transferring this political debate from the Southern States to Africa was the work of these education commissions, and understandably it was received warmly within the colonial regimes of the time. Government officials and missionary societies in Africa visited Tuskegee Institute in large numbers over the 1920s and early 1930s and brought back their insights to the developing education systems of their countries. It was an early example of what would later be called policy borrowing or policy transfer. But it was also a highly charged illustration of the political nature of industrial education, and especially so in the white settlement countries of Kenya, Southern Rhodesia and South Africa. The notion of the suitability of industrial education for the young people in such societies was in fact deeply contested (King 1971; 2016b).

The views about the particular suitability of industrial and agricultural education for the developing societies of Africa were very far from being accepted universally across the continent. Academic secondary schools were established in small numbers in many territories including in South Africa, Kenya and the Gold Coast (now Ghana), and there were the beginnings of university colleges, particularly in Anglophone Africa. But even at independence many decades later, industrial and practical education was still a compulsory element in many school curricula.

3 Technical and vocational education and training: A donor priority

Although several of these colonial curricula, along with industrial education, were abandoned at Independence, several of the key development agencies to which countries turned for assistance, and especially for the expansion of secondary education, found that agencies from the Ford Foundation, to the World Bank to Swedish Sida and Germany's GTZ (now GIZ) considered some version of VET to be critical in planning for a modern society. The World Bank, for instance, from its first education grant for secondary education in 1963 until 1979 felt that the curriculum for secondary should be 'diversified' towards agricultural, technical and commercial subjects. Famously, the Bank in its education sector working paper argued:

> This (general secondary) education is dysfunctional for most types of employment — wage or non-wage — and for playing other roles needed in a developing society…. Emphasis on vocational and technical schools and centres, and attempts to 'vocation-

> alise' the curricula of academic schools are illustrations of attempts to achieve such an orientation. (World Bank 1974, pp. 21–22)

With the build-up of research capacity in the World Bank in the late 1970s, opinion began to shift, and even if the diversified secondary school continued to be supported, the Bank's 1980 education sector policy was already acknowledging that the "diversified secondary school is a questionable method for training large numbers in specific vocational skills" (King 2003; World Bank 1980, p. 45).

Even though the World Bank had terminated its support to this version of diversification by 1980, it had by no means been the only type of VET being offered to the newly independent nations of the world over these almost twenty years. Often within the same country like Kenya, there could be several distinct donor-supported models being supported, including Swedish support to practical subjects in academic secondary schools (Lauglo 1985).

The sheer range of what was on offer in versions of VET through donor support in the different regions of the world is captured to an extent in King's chapter "Technical and vocational education and training: A donor priority" in his *Aid and education in the developing world* (King 1991b). Several aid agencies, including SIDA, GTZ and the U.K.'s Overseas Development Administration, had separate departments dealing with technical and vocational education, and many increasingly carried out reviews of their work in the field, notably Swedish SIDA with its review of *Vocationalising education* (Lauglo and Lillis 1988).

Over this whole period, the World Bank's influence across the education sectors and across regions was becoming much more marked; so, the publication of its key policy document on VET, in 1991, just a year after the World Conference on Education for All, was a milestone. The first page of its executive summary underlined that there was a key role for the private sector when it came to skills development: *"*Training in the private sector — by private employers and in private training institutions — can be the most effective and efficient way to develop the skills of the work force" (World Bank 1991, p. 7).

The text continued with an acknowledgement that the private sector was alive and well in the informal sector of the economy: "Even the very small unregulated enterprises of the rural and urban informal sectors can provide training needed for existing technologies and production practices" (World Bank 1991, p. 7).

4 The discovery of the informal sector: Implications for training and historical comparison

Twenty years earlier, in 1971, the term 'informal sector' had been first used, and had been internationalised in the ILO's mission to Kenya which had resulted in

Employment, incomes and equality: A strategy for increasing productive employment in Kenya (ILO 1972). As it happened I had gone to Kenya in July 1972 to work on the new post-secondary technical institutes, and by chance came across some of the earliest of Kenya's indigenous machine-makers on some waste land in Nairobi. It was the beginning of more than twenty years of documenting Kenya's informal sector, and in particular the place of training and apprenticeship within this newly expanding form of employment.

The discovery of a different kind of apprenticeship in Kenya from what was well-known in the great apprenticeship nations of Switzerland, Germany and Austria, and from what Callaway had found in Nigeria, and had termed *Nigeria's indigenous education: The apprenticeship system* (Callaway 1964), underlined the importance of the comparative dimension in understanding training systems (King 1977). This encouraged me to look at different understandings of apprenticeship, whether in the U.K., in Sierra Leone, or in India (King 1976; 1991a; 2012a). The very different cultures of work, roles of trade unions, and attitudes to formal vocational qualifications meant that 'learning on the job' meant very different things in different work environment. In many situations, in developing countries, there is a formal apprenticeship system, often very small and organised with the larger international firms, and there is a very much larger apprenticeship system, organised informally, both within the formal sector labour market and within the informal sector. In countries, such as Kenya, where there are international firms, local Indian firms, and African firms, there may be as many as three different systems of learning on the job co-existing, but also influencing each other.

Comparison is not just about looking at different versions of what may sound like the same phenomenon occurring in different work environments. It is also about examining change over time within a particular system of learning and working. Hence, historical depth is invaluable.

This is one reason why I chose to revisit Kenya's informal sector twenty years after I had first carried out research there (King 1977; 1996). It proved possible to meet with many of the small-scale operators I had studied earlier, but also to review how the changing political and policy environment had impacted on the sector between 1972 and 1995. Certainly, this kind of 'tracer' study can prove invaluable for understanding change over time.

The historical lens is invaluable in this kind of comparison, but it is also important to try and understand what I termed the 'prehistory' of the informal sector in the case of Kenya. Where had it come from? What had been the influence of different waves of settlers? What had been the influence of the colonial government? (King 1996). Taking stock does not need to be only backward-looking. Ideally, it is also worth looking forward and examining how informality has become widespread, well beyond the informal sector. The process of 'eating from one's

job' in the sense of corruption is just one illustration of how the informality admired by the ILO in its Kenya Report can begin to have very negative dimensions (King 2001).

One further example of the value of historical comparison with a link to self-employment can be taken from one of the best known articles in the field of comparative and international education: "The vocational school fallacy in development planning" by Philip Foster. It proved possible 40 years after its publication to ask some of the same survey questions used by Foster, in the same country, Ghana, and in some of the same schools. The results cast some new light on Foster's powerful claim that children's aspirations were influenced by their perceptions of the opportunities in the formal sector of the economy and not by the curricular orientations of the schools. The original article had been influential in changing World Bank views about the impact of diversified secondary schools. But the new research seemed to suggest that there might be a curriculum effect after all. And in particular the schools did seem to encourage forms of entrepreneurial self-employment (King and Martin 2002).

5 VET's natural policy connections – a) Nonformal education & skills development

If history is a crucially important methodological dimension of VET, there are several other lenses that have been found to be creative in approaching VET in a comparative way. One of these has been the potential link between VET and nonformal education (NFE). NFE emerged in 1969 as a term that covered a whole range of organised learning and training activities taking place outside the traditional confines of formal primary, secondary and tertiary education. Its progenitor was Philip Coombs, the creative first director of the International Institute for Educational Planning. It appeared just two years before the term informal sector was coined, and the two domains had some common characteristics, as they pointed to worlds of work and world of education and training that lay beyond the formal sector of the economy and the formal sectors of education.

One of the first publications to make an explicit connection between the parallel domains of the informal sector and nonformal education was *The African artisan* (King 1977, pp. 1–45). In outlining the nonformal option, it was argued that it offered 'a skill to live by…': "Hence the interest of nonformal enthusiasts has been directed towards indigenous apprenticeship systems, on-the-job training, and particularly to innovative methods of acquiring skill in institutions that are not too institutionalised" (King 1977, p. 4). When sketching out the range of research on NFE supported by the donor community, it was noted that amongst the main areas where NFE had been recognised as relevant was in "its ability to assist with

skill development and productivity for the many who had not got a school diploma to help them" (King, 1991b, p. 165).

Conceptually, the term 'skills development' proved valuable since it suggested that there was, like NFE, a world of skills outside the limits of the formal technical and vocational institutions. The term had been used also in 1991 by the World Bank's *Vocational and technical education and training* policy paper, but none of the articles in its long bibliography used the term. It was therefore a relatively new term in 1991, but it proved a natural development from the wide circumference of NFE, and, importantly, it used the word skills rather than education. Thus, when the intention was to indicate the range of providers and locations of technical and vocational education and training, the term skills development proved attractive, at least in English. When King and Palmer did their *Fundamental in educational planning*, they chose a title which married the more formal and less formal dimensions of VET: *Planning of technical and vocational skills development* (King and Palmer 2010).[2]

6 VET's natural policy connections – b) Science and technology

At one level VET is often seen to be a different silo than science and technology. Thus India's Industrial Training Institutes (ITIs) are a world away from the prestigious Indian Institutes of Technology (IITs). But the creation of local technological capacity is bound to draw upon traditions of skills development as well as upon science and technology via the formal school system. Some of these interactions between skills, knowledge and capacity were teased out in King's "Science, technology and education in the development of indigenous technological capability" in *Technological capability in the third world* (King 1984). The centrality of science and maths in skills development is also underlined by the many varieties of dual systems of vocational training and apprenticeship.

7 VET's natural policy connections – c) Educational planning

Too often educational planning has been concerned with school, college and university education and insufficient attention has been given to its crucial connections with vocational education and training. In the case of UNESCO's International Institute for Educational Planning (IIEP), this vital connection to VET was covered by the presence of Atchoarena and Caillods in the Institute for many years.

2 The French title of this Fundamental does not bridge these two worlds: Planifier le développement des compétences techniques et professionnelles.

But it may be noted that in the long and distinguished history of the 'Fundamentals in Educational Planning' of the IIEP, from 1963, there had been almost no item covering technical or vocational education until that referred to above – by King and Palmer in 2010. There had been one publication on *Education, training and the traditional sector* in 1981 (Hallak and Caillods 1981). And there had been some focus on 'Education, the nature of work and employment' in the late 1970s and early 1980s. This had led to at least two volumes, and in one of them, King had written on "Planning education for self-employment: A contemporary creed" (King 1980). This had particularly looked at skill acquisition in the informal sector but had connected that to skill development in nonformal education as well as in the formal sector of the economy.

This tendency to leave VET concerns outside of the mainstream focus of education can also be seen in other spheres of educational publishing. Thus, in the well-known Comparative Education Research Centre series on comparative and international education, the volume by King on *Education, skills and international cooperation: Comparative and historical perspectives* was the first volume since 2001 to look at many different dimensions of skills development.[3]

8 VET's natural connections – d) Enterprise development

Another of VET's obvious connectivities is with enterprise. This has already been referred to in relation to self-employment, but enterprise development is wider than self-employment, covering medium and small enterprises as well micro and large. Teasing out the many different links between vocational training and enterprise requires a review of many different cultures of skills development and of work (King and McGrath 1999). But it was also vital to make the connection between skills development, globalisation and the knowledge economy. This was done, in final form, by Simon McGrath, drawing insights particularly from our joint projects in Ghana, Kenya and South Africa (King and McGrath 2002).

9 VET, Education for All, and poverty reduction

It was mentioned above that the World Bank's policy paper on *Vocational and technical education and training* appeared in 1991 just a year after the World Conference on Education for All (EFA). The Bank paper had a direct impact on VET in developing countries, as it was widely, if too critically, interpreted as being negative about government-supported VET. Be that as it may, VET in developing

3 See list of 36 publications inside front and back cover of King, 2019.

countries was also affected by the EFA movement which was generally thought to be about prioritising basic and particularly primary education. Arguably, this is not an accurate reading of the World Conference Declaration or Framework for Action of 1990. Skills were certainly supported in the World Conference, in several different senses, but one proposal in the declaration is clearly concerned with the domain being discussed thus far in this paper: "Other needs can be served by: skills training, apprenticeships, and formal and nonformal education programmes in health, nutrition, population, agricultural techniques, the environment, science, technology, family life…" (UNESCO 1990, p. 6).

When it came to putting these ideas into one of the six dimensions of EFA targets, this became "Expansion of provision of basic education and training in other essential skills required by youth and adults…" (UNESCO 1990, p. 3).

While this seems relatively clear, the same could not be said when, ten years later, the EFA targets were drawn up at the Dakar World Forum. Instead of the essential skills discussed in Jomtien, the new target talked merely of "equitable access to appropriate learning and life skills" (UNESCO 2000, p. 2). The term 'life skills' proved to be hugely problematic when the series of EFA Global Monitoring Reports (GMRs) started effectively in 2002. Year after year, the GMR team commented on the difficulty they faced in monitoring 'life skills'. It would not be until 2012 that they finally had an EFA GMR which looked thoroughly at skills development. They examined foundation skills, transferable skills, and technical and vocational skills, and even then their lens on technical and vocational skills was restricted.

A detailed, historical account of how skills development was actually handled in this crucial EFA arena over the period from 1990 to 2012 is available (King 2019), as is an analysis of how VET was in practice dealt with rather narrowly in the 2012 EFA GMR: *Youth and skills: Putting education to work* (King 2014). One interpretation of this period could be that the international VET community was insufficiently engaged in analysing how its own complex domain could more effectively be connected to the new politics of basic education which emerged in Jomtien and was confirmed at Dakar.

This insight about the importance of positioning VET in relation to basic education was one of the reasons that a team in Edinburgh University carried out a multi-country project from 2004 to 2006 on post-basic education and training, resulting in a volume entitled *Educating out of Poverty?* (Palmer et al. 2007).

By 2011–12, twenty years after the Bank's policy paper, VET had begun to regain its place in global reporting. There were a whole series of global reports dealing with different dimensions of skills development. These included the forthcoming 2012 GMR, but also UNESCO's *World TVET Report* (King 2011). And by 2013, there were many more, including from the ILO, the OECD, UNESCO,

the World Bank, and McKinsey Global Institute. They were all reviewed in *NORRAG News 48* which celebrated this special year of global reports on TVET, skills and jobs (King 2012b).

10 Securing and monitoring VET in the post-2015 agenda of the Sustainable Development Goals (SDGs)

Unlike the framing of the Millennium Development Goals (MDGs) which had only covered primary education and gender equity, the different parts of the international VET community were determined to ensure that there was due recognition of technical and vocational education and training, and of skills development more generally. Not only was 'affordable and quality technical, vocational and tertiary education' captured in target 4.3 of SDG 4, but it was made quite clear in target 4.4 that the concern was not with life skills but work skills: 'relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship' (UN 2015, p. 28).

Arguably, the challenge now would be how to make provision by 2030 'of equal access for all men and women' to such levels of technical and vocational skill. But at least the commitment was there, loud and clear. Which had not been the case in Dakar in 2000 or in the MDGs a decade later.

What would require careful attention, however, was not just the process whereby these crucial targets for education and skills had been secured over a period of many decades (King 2016a), but what would happen to them when the international monitoring community decided on the global indicators. Would the good work done in gaining these targets be lost in translation into indicators (King 2017)? This remains an issue of concern to the international VET constituency, as the title of this volume 'Lost in VET?' makes clear.

11 In conclusion

This brief safari over fifty years of attention to different interpretations of industrial, technical and vocational education — or of skills development more generally — has used a variety of methods. Historical content analysis of key documents has gone hand in hand with interviews, as well as some limited survey work. Dissemination has been critical, whether in book, journals or in conferences. But it has also been important to involve the policy community itself. This had been one of priorities of *NORRAG News* over a period of some 30 years. Comparative perspectives have been vital along with historical. Connecting with a concerned community over time has been essential. And ideally the community is drawn from

several different but overlapping disciplines, including area studies, history, development studies and comparative & international education. The role of development cooperation has also been shown to be a key factor in the way VET and skills development have been promoted and supported. This has not only been true of the traditional western donors, but it will continue to be of concern as the so-called emerging donors such as China and India give their attention to supporting skills development beyond their borders.

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