

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

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

Integration of Vocational Education and Training Experiences

Purposes, Practices and Principles



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

Series Editors Introduction

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

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

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

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

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

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

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

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February 2018

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Preface

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

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

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

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

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

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

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

Provision and Integration of Work Experiences Within Vocational Education

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

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

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

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

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

Integrating Work Experiences Within Vocational Education: Empirical Examples

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

The chapters are ordered alphabetically by country name.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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Part I
Provision and Integration of Work
Experiences Within Vocational Education

Chapter 1

Integration Between School and Work: Developments, Conceptions and Applications



Sarojini Choy, Gun-Britt Wärvik, and Viveca Lindberg

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

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

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

Developments Towards Integration

Historically learning a vocation has always involved practice settings and participation in ongoing work. The major impetus in vocational education, its aims and purposes commenced during the post-war period when reconstruction for economic revival through development of skilled workers became a priority. The advent of industrialisation also pressed forward the collapse of home and local workshops as sites of skill development and gave impetus to vocational education through traditional schooling systems. Transformations in vocational education systems across nations have been driven by national imperatives, albeit realised through government-sponsored vocational education institutions. Regardless of the national agendas around vocational education, the goal of vocational preparation globally has always been to combine education and work experiences. This is manifested through apprenticeships, cadetships and traineeships typical in trade courses. Such a goal is manifested through, for example, article clerk ships within law¹ and extended periods of practice in hospital settings for nurses and doctors.

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

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

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

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

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

Industrialisation as the Activator for Vocational Education

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

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

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

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

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

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

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

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