There is a growing interest in understanding learning in and through work and its relationship to what is required to be learnt for effective and productive working lives. This book offers a range of emergent perspectives based on current research on learning through and for work. The common focus among these perspectives is to understand how individuals engage in and learn through their work. This includes how they learn about, manage and respond to change in their work and develop approaches and responses to learning in, through and for their working lives. The key contribution of this book is to provide insights to support learning throughout working life in order to sustain individuals’ capacities for effective, productive and enduring working lives.

Comprising 15 chapters the book offers perspectives from Finland, Germany, New Zealand and Australia and across a range of occupations and places of work. Individually and collectively these chapters make important contributions to learning about the self and agency at work and about learning work tasks.

The origins of this text were a desire to bring together the work of a group of recently completed and current doctoral candidates at Jyväskylä, Regensburg and Griffith universities. This goal has been achieved here as supported by collegiate activities among the editors, contributors and their colleagues.
Emerging Perspectives of Workplace Learning
Emerging Perspectives of Workplace Learning

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This book offers a range of emergent perspectives about learning through and for work. The common focus among these perspectives is to understand how individuals engage in and learn through their work. This includes how they learn about, manage and respond to change in their work and develop approaches and responses to learning in, through and for their working lives. A clear understanding of these processes is required to support learning throughout working life in order to sustain individuals’ capacities for effective, productive and enduring working lives. Realising these goals requires the development not only of individuals’ capacities to initially participate in working life and in defined occupational roles, but also those capacities required to be competent across working lives. This includes being able to effectively meet or respond to the particular yet changing requirements of work and workplaces, and successfully negotiate transitions from one workplace settings to others and across occupations. Given the constant changes to work and work requirements in present times, most adults will experience workplace and occupational transitions within their working lives, perhaps now more frequently than in the past.

In considering how this lifelong learning might best occur through practice, this book addresses issues that are of growing interest within the disciplines of education, studies of work and lifelong learning, and more specifically within the fields of workplace learning, professional learning and professional development. The book offers fresh and innovative approaches to learning through work and throughout working life. It does this by drawing together a set of distinct but well-focused contributions that offer diverse theoretical perspectives and methodological approaches that, at the same time, reflect what has emerged in these fields in recent years. These perspectives focus on issues associated with the kinds of learning about work tasks, agency and the transfer of knowledge, and individuals’ learning about their sense of selves as workers, across a range of occupational practices and from a selection of countries (i.e. Australia, Finland, Germany, and New Zealand).

In presenting and discussing these approaches and issues, the book comprises a series of chapters of original research representing emerging and contemporary perspectives on learning through and for work, enacting effective work practices and learning throughout working life, and for different kinds of work and work life contexts. Each chapter offers something fresh, often from contributors engaged in or just completing their doctoral studies. The specific concerns of their studies, undertaken through broad programs of research associated with learning through work and learning for work and working life being pursued within the editors’ host universities, offer rich opportunities for the advancement and appraisal of a diversity of work-related learning experiences. The individual contributions use diverse theoretical positions premised on the interdependencies between work and workplaces, and among individuals’ participation, engagement and learning through work. Indeed, perhaps, the unique feature of this book is its bringing
together diverse theoretical positions and empirical findings from different countries and work contexts to identify important and pervasive concerns, issues and principles that help explain how learning through work may best proceed and for particular purposes. A subsidiary goal for this book is to identify some of the commonalities and peculiarities of approaches to understanding learning through work. Two central themes--(i) learning about self and agency and (ii) learning about work tasks--have been used to organise the research which spans a number of countries and a range of work context.

In these ways, the book addresses both emerging conceptual concerns and growing procedural needs about learning throughout working life. It also seeks to inform discussions about the initial learning of vocational and professional knowledge, and the ongoing process of maintaining vocational and professional competence throughout working life. The latter process is as much a concern for governments and employers, who wish to maintain and maximise the effectiveness of workforces, as it is for those individuals whose vocational and professional knowledge provides a basis for their paid employment and often a platform for their personal standing and social identity.

Most commentators on learning through and for working life would likely agree with two quite general propositions. Firstly, as foreshadowed, there is an ongoing need to maintain workplace competence as the requirements for work performance are changing with increased frequency and by greater degree, even though these requirements are quite situational. Secondly, the need to maintain workplace competence will become an increasingly important personal priority and imperative for individual workers as government and employers begin to expect workers themselves to play a key role in their ongoing development, albeit in concert with their workplaces. It is also a human need to experience oneself as competent. Theories about self-determination, motivation and self efficacy all emphasise the importance of maintaining competence in ways independent from economic and societal development. In doing so, they address important personal imperatives.

Yet, some groups who are marginalised by their age or particular range of abilities (including disability), may well be required to maintain their workplace competence through the exercise of personal agency and individual imperatives, rather than through support provided through the workplace. This is because employers and sometimes other workers are either uninterested or unaware of other workers’ needs for ongoing learning, and these workers themselves may be reluctant to rely on others or wholly expose themselves in uncertain and dynamic economic times. These issues play out differently for particular groups of workers, and across industry sectors. So there are important issues to be addressed, and this can only likely arise with any success if the processes of learning through work is understood and this understanding informs efforts to promote learning, including for those that are marginalised.

The audience for this book are those interested and participating in courses in education and psychology which refer to issues of people acting and learning in
their occupational domains, as well as for those involved or interested in considerations for learning through practice and professional development.

Stephen Billett, Christian Harteis and Anneli Eteläpelto May 2008
1: EMERGING PERSPECTIVES ON WORKPLACE LEARNING

ABSTRACT
This introductory chapter discusses the development of considerations about learning through work and perspectives of workplace learning that are currently emerging through research internationally. A key purpose here is to map recent developments in thinking about learning through and for work. When one also considers individuals’ needs to be learners as workers as they seek to secure continuity and development within their working life and social world, such perspectives help to inform how we might best organise, shape and appraise the character and processes of learning through and for work. This concern is never more important than when such learning is conceptualised simultaneously as processes of both social reproduction and transformation and of individual development and change. The chapter provides a bridge between existing contributions to our understanding about learning through work and the contributions offered in the following chapters. In doing so, it seeks to identify the strengths and the limitations of existing perspectives through theoretical and empirical work by focussing on the interdependent relations between the individual and social world in the processes of learning through and for work. Thus, it also foreshadows the analytic categories: (i) learning about self and agency; and (ii) learning about work tasks, that shape the structure of the book. In advancing these two bases as being particularly salient for elaborating understandings about learning for working life, the chapter first outlines the scope of the emerging interest in learning through work, as well as some of the purposes for and conceptions of learning through work. Next, procedural and conceptual developments that shape and reshape considerations of workplace learning are discussed. The chapter concludes by offering some parameters for workplace learning as a duality between what the workplace affords learners in terms of opportunities and support, and how individuals engage with these affordances as they learn through their experiences.

EMERGING AND GROWING INTEREST IN WORKPLACE LEARNING
There is growing interest in workplace learning as being broadly applicable to provisions of education across a range of educational sectors and practices. This interest seems set to continue as the securing of skills and the maintaining of workplace competence throughout working life become, globally, important
priorities for governments, industry and workers (Organisation of Economic Cooperation and Development, 2000). Because of these priorities, there are growing demands for and interest in the provision of workplace experiences across a range of education sectors.

For instance, university programs in advanced industrial economies are increasingly emphasising occupational preparation in what is now being described as higher vocational education. Just as with the provision of vocational education in technical and vocational colleges, there are growing expectations that university students’ educational preparation for professional work will include experiences in instances of their intended occupations. The aim is increasingly about securing a smooth transition into specific instances of professional work practice that they will engage with upon graduation. Consequently, experiences in workplaces are now becoming an increasingly common feature of higher education programs. There are also growing efforts to find ways of best integrating experiences across these two kinds of settings. School-organised workplace experiences have long been acknowledged as making important contributions to the preparation for working life and post-education transitions. Moreover, workplace learning experiences are used for a range of educational purposes. These include assisting individuals to identify the occupations that they prefer and to which they are suited, to experience and understand the world of work beyond educational institutions, and perhaps most commonly, to contribute to the development of occupational capacities (i.e. the conceptual, procedural and dispositional knowledge) required to participate in paid work.

In addition, increasingly (and in their own right), workplace learning experiences are seen to offer an effective means for maintaining skill currency across working lives (Raelin, 2007) as well as meeting specific enterprise skill needs, and maintaining the effectiveness of older workers (Tikkanen, Lahn, Ward, & Lyng, 2002) and those who are otherwise marginalised and excluded from structured opportunities for skill development, such as those with disabilities (Church, Shragge, Fontan, & Ng, 2007). Understanding how to best such needs can be realised through work and work-based learning may assist overcome some of the disadvantage. This includes providing learning experiences for workers from whom there are no course provisions to support their initial and ongoing occupational development. Thus, learning through workplace experiences offers the potential of realising important social, economic and personal purposes, including important equity outcomes—interests which are often tightly intertwined.

In these ways, workplaces as learning environments are moving from being seen as primarily providing experiences to support preparation for the trades and major professions (e.g. law, medicine, accountancy) to having a wider set of social, personal, equity and economic purposes. These include (i) developing and maintaining occupational competence for all kinds of workers across all kinds of occupational fields and hierarchies, and (ii) generating the skills required for enterprise-specific needs, as well as the economic imperatives of governments for having and sustaining competitive economies. Further, the social, personal, equity
and economic purposes have now come to include: (i) assisting workers resist redundancy through maintaining their occupational competence; (ii) enhancing the kinds of learning experiences provided in educational institutions; (iii) supporting the effective transition for students from educational institutions into paid work activities; and (iv) being able to meet individuals’ working life long needs through maintaining their skillfulness. It follows that such a salient set of purposes requires an equally comprehensive set of understandings about curriculum and pedagogic practices in order that they may be realised through workplace learning experiences.

Certainly, the growth of societal interest in learning through work has been paralleled by an expansion in the amount and fields of scholarship about learning through work—a scholarship which is providing helpful and increasingly nuanced conceptual and procedural accounts of adults’ learning in and throughout working life. These developments serve to inform the pragmatic and strategic economic and social concerns about effective workforces, adequately skilled workers, competitive enterprises, and how workers can learn about new workplace requirements. They also serve the broader educational project through elaborating and advancing understandings about the process of human learning and development, in general, and how individuals’ work life learning can be supported through activities and interactions in workplace settings. Certainly, adults’ needs for conceptual and practical learning are often central to their personal subjectivity as well as to the place or practice in which they work. For these reasons, the concept of work life learning goes beyond the development of occupational capacities (i.e. competence), when defined narrowly. Instead, it incorporates the broader personal and dispositional qualities that are necessary requirements for the exercise of occupations by the individuals who are practising them (Billett, 2006b). Consequently, learning for work includes negotiations between its personal and social dimensions. It is through a consideration of these negotiations and individuals’ conceptual and practical developments that bases for considering, organising, promoting and evaluating adults’ learning through work can be best understood and advanced.

Without doubt, the legitimacy of learning through workplaces was boosted by the situated cognition movement of the late 1980s and early 1990s (Brown, Collins, & Duguid, 1989; Collins, Brown, & Newman, 1989). This movement emphasised the particular contributions to learning from the settings in which practice occurred and provided evidence that strategic as well as situationally-specific learning can be realised through such experiences (Raizen, 1991). In addition, the value of situational contributions to learning and the prospects for the application of that knowledge to circumstances beyond those where it was learnt, rather than cognitive capacities alone, (Scribner, 1984) did much to support the value of practice settings as sites for learning. Yet, the key motivation for the movement was towards improving the quality of learning experiences in educational institutions (Resnick, 1987), by understanding processes of transfer from one setting or activity to another. The need to enhance the transferability of school-learnt knowledge, even of general kinds (e.g. maths), was based on the realisation that such knowledge is not readily adaptable when applied to activities
and circumstances that are different from the school-based activities through which they had originally been learnt (Raizen 1991). Therefore, considerations of situationally-distinct goals for practice and the authenticity of the contributions for learning through practice offered an explanation for the paucity of the transfer of learning from educational institutions to circumstances and practices beyond them (Newman, Griffin, & Cole, 1984, 1989). The realisation that school-learnt knowledge did not necessarily transfer to other settings challenged the privileging of educational institutions as sites of learning. Indeed, research into the situated nature of learning often looked to workplaces as sites of authentic practices to see how learning arose through participation in work activities. However, and importantly, many of the more recent accounts of learning through work have moved beyond a concern to improve schooling and to legitimate workplaces as learning environments. Instead, they now focus on the pedagogic and curriculum potentials of workplace and work experiences, not just through a consideration of their physical and social settings, but also on those who engage in and learn through work.

Certainly, considerations of the worth of this kind of learning—conceptions of processes of learning through work and how these experiences might be organised to secure particular kinds of purposeful learning—are now warranted as important educational goals. Among the considerations are identifying what kinds of practices have demonstrated efficacy in supporting work life learning of particular kinds and the potential to guide workplace experiences towards particular desired learning outcomes. However, there are perennial issues about the worth and legitimacy of learning through work and in workplaces that need to be addressed and re-dressed. The societal sentiment about workplace learning is often ambiguous. Although there may be considerable acceptance of its worth and particular contributions, in an era that has come to accept mass and compulsory and ongoing education, workplace learning is often seen as inferior and subordinate to learning processes and outcomes that are provided by educational institutions. That is, rather than offering a different kind of (potentially rich) learning and affording particular kinds of experiences, workplaces are still often seen as being inferior (Billett, 2002). Therefore, there is often little effort given to granting workplace experiences the same kind of consideration and recognition as those afforded in educational institutions. Hence, there is still a need to provide bases for understanding and advancing workplaces as legitimate and worthwhile environments in which to learn.

It follows that although there is growing interest in practice-based contributions to learning, genuine efforts to integrate the two kinds of experiences in ways that acknowledge the particular contributions of each have been until now probably the exception. However, in many advanced industrial economies there are growing demands from students, the community and government for graduates to be able to move smoothly into professional practice and perform effectively in that practice. Therefore, as the desired educational outcome shifts from preparation for an occupation to the capacity to demonstrate professional competence upon graduation, the need to secure rich learning from the contributions of both settings...
means a greater focus on work-related learning and its effective integration in the higher education curriculum. Conversely, for those who are entering work or occupations where there is no available or accessible education provision, practice-based learning experiences become particularly important. For these learners, workplaces are the only source of learning experiences to develop the capacities for performing their work. In these ways, as the contributions of Allan, Lewis and Smith propose in their separate chapters, such experiences provide important opportunities for workers to learn about the techniques, practices and values of working life, and in particular specific occupations. These authors, respectively, refer to learning about farming, road transport and working in a restaurant, all of which required learning through practice. The authors emphasise the need to elaborate the distinct kinds of educational purposes to which learning is directed, and, therefore, the worth of particular kinds of workplace learning experiences in realising those purposes.

PURPOSES OF LEARNING THROUGH WORKPLACES EXPERIENCES

There are perhaps three key educational purposes for learning through work or through work practices. The first is to secure the contributions from authentic work or workplace experiences as part of an educational preparation for work and working life. As already noted, this includes assisting individuals to understand the requirements for working life and to identify the occupations in which they are interested and to which they are suited. For learners engaged in structured programs of occupational preparation in schools, universities and colleges, workplace experiences can be used to practice, apply, augment and extend learning secured in educational institutions. Moreover, the purposeful integration of experiences in the workplace can be used as a basis for the organisation of curriculum in educational institutions (Choy and Delahaye in this volume), or vice versa. For instance, it is possible to use students’ reflections of work experiences in the classroom to assist their learning about the world of work, including a critical appraisal of its worth. This can be achieved by what Bailey, Hughes and Moore (2004) refer to as capturing and using the teachable moments that arise from students’ discussions about their experiences in workplaces. This kind of pedagogic approach might also be used to realise other educational goals, such as informing about the transitions into work or across occupational practices, for older worker-learners.

Secondly, workplace learning experiences support the development of capacities (i.e. conceptual, procedural, dispositional) required to effectively engage in paid work, practice an occupation and to reach a high level of performance. Occupation preparation for both the professions and trades has long engaged students in extensive periods of occupational practice. Concerns about post-school pathways and transitions are also now leading schools to provide workplace experiences to assist students understand the world of work beyond schools. Moreover, as already noted, concerns about the transition from university and the applicability of what has been learnt there to professional practice is now motivating universities to...
engage their students in experiences in practice settings and in finding ways to integrate these experiences into their programs. Although long exercised in teacher, nurse and medical education, these kinds of experiences are now being extended across university programs preparing graduates for professional occupations—a trend that has been referred to as the growing field of higher vocational education. Again, this is not a particularly innovative step, as the co-op education movement of North America represents a long-standing response to this education concern (Van Gyn, 1996). However, these kinds of curriculum arrangements are often directed towards programs with applied purposes and for students with ‘practical’ rather than ‘academic’ interests and capacities. Hence (with the exception of medicine), they are often seen as being offered through less prestigious universities and programs.

Thirdly, as foreshadowed, beyond initial preparation, there are growing imperatives for governments, employers and workers themselves to maintain skills throughout working life in order to resist redundancy, make effective work transitions as occupational requirements change and contribute to the workplace’s continuity and development, and contribute to the economic prosperity of their communities. For instance, Vähäsantanen and Billett (this volume) note how educators find ways of negotiating significant changes to their professional practice. Their processes of learning for and through working life illustrate the kinds of negotiations that occur between social imperatives and personal contributions. Added to these are growing concerns about older workers and others who are marginalised (e.g. people with disabilities, non-native speakers) who often need to maintain their employment viability with limited assistance from their employers, and also a desire not to been seen as making demands upon co-workers. Thus, these workers engage in specific kinds of purposeful learning processes through negotiations with the workplace, and throughout work life.

Clearly, workplaces stand as distinct and legitimate learning environments in their own right and make particular contributions to educational programs and curriculum, and as sites for learning for individuals not engaged in educational programs. Yet, in order to fully utilise and perhaps improve the contributions of the workplace learning experiences, it is important to understand something of the worth of the contributions and processes of learning through work activity.

PERSPECTIVES OF WORKPLACES AS LEARNING ENVIRONMENTS

To understand more fully the qualities and potentials of workplaces and work practices as worthwhile environments in which to learn, it is necessary to capture their pedagogic qualities, that is, how learning arises through work. Certainly, there is a long held acceptance of the value of learning through practice and through workplace experiences. Plato describes the process of learning to become artisans and artists as that occurring through association, imitation and practice, starting with play, within the family of artists and artisans and in the circumstances of practice. As Lodge (Lodge, 1947) notes
... at first, the imitation would be playful and childish, carried out with such toy tools as a child could handle. Later, it would become more deliberately purposive. Practice produced technical proficiency in detail and the growing boy would act first as his father’s ‘helper’, then as his associate, and would eventually himself become the head of a family, and the centre from which further training in the family craft would radiate (p. 17).

Even before then, similar processes are described as being enacted in ancient Babylonia (Bennett, 1938). Subsequently, traditions of learning through practice for occupational purposes extended well into mediaeval times, buoyed by the practices and power of guilds (Deissinger, 2002). Most of the buildings, structures and artefacts from these times were the product of learning through work practice. The skills developed for constructing the most impressive and colossal of cathedrals across Europe progressed in ways similar to those described in ancient Babylon and Greece, through apprenticeship experiences and places of work and engagement that supported the construction of these buildings across generations of workers (Gimpel, 1961).

Indeed, long before education institutions were created for these purposes, hundreds of generations of skilled artisans across Europe, and elsewhere, learnt how to undertake skilled occupations solely through practice-based experiences. It was the impact of the decline of the guilds and the erosion of work based experiences in some European countries that created the need for specific educational institutions (Kieser, 1989). In addition, the shift from Latin as the language of science and knowledge enabled greater access to the knowledge needed for education and occupational practice. However, despite the growth of educational institutions for such purposes, the requirements for experience of practice have been sustained to this day in the trades and the professions, and periods of occupational practice are mandated as requirements to being credentialled as a practising tradesperson or professional. Indeed, these periods of practice are now being enacted more widely than ever across countries and educational sectors. Yet, despite all of this, there is often a parsimonious acknowledgement of the quality of learning processes and outcomes that arise through these practice-based experiences. Perhaps because of the legitimisation of learning processes and outcomes through (i) compulsory education and its massification at all levels of education, (ii) the status afforded written curriculum, and (iii) the role of trained teachers, learning experiences occurring outside of educational institutions are relegated to lower standing and worth (e.g. (Marsick & Watkins, 1990)). Hence, workplaces are still often seen in terms of experiencing practice, rather than providing essential learning experiences in their own right. Yet, the evidence suggests that the potency of learning through such experiences is as great as that of learning within educational institutions, if the robustness of the learnt knowledge is the measure (Rogoff & Lave, 1984). Further, there are consistent bases to understand the contributions of workplaces to learning occupational practice that arise from opportunities to learn through engagement in activities, being guided in that learning indirectly through observation as well as learning with the direct assistance by more experienced workers (Billett,
Yet, even in programs for the trades and professions these experiences are still often seen primarily as a means to apply or practice what has been learnt in educational institutions. For instance, rarely are curriculum approaches or pedagogic measures enacted to draw upon and maximise the learning from apprentices’ and professionals’ experiences. That is, seldom are the workplace experience components of courses explicitly integrated into the curriculum or assessed in ways that are commensurate with their contributions to student learning.

Therefore, despite these traditions and newly emerging legitimisation of workplace learning experiences, their status still stands as being inferior, rather than different, to what is provided and experienced in educational institutions. A significant barrier is legitimising learning through practice in an era where strong associations between teaching and learning have become embedded through universal, compulsory and lengthy education; and in which teaching is seen as how important learning is best mediated. So, despite the fact that those who have learnt occupational practice invariably report the importance of learning through practice (Billett 2001), workplaces still lack the legitimacy, standing and credibility of certified learning through participation in educational institutions. This seems to be the case across all education sectors, including those whose purpose is to develop specific vocational knowledge. Indeed, institutions express concern that their academic standing may be jeopardised through the inclusion of work-based experiences. Moreover, there are fears that some educational norms, such as a liberal and critical education are being threatened by such inclusions (Boud, Solomon, & Symes, 2001). Furthermore, and not surprisingly, in the discourses of educational institutions and practice, teaching is privileged over learning. Therefore, as Marsick & Watkins (1990) identified, the absence of written curriculum, qualified teachers and experiences purposely focused on individuals’ learning may lead to workplace experiences as being seen as inevitably inferior.

However, many of these concerns and claims do not stand scrutiny. As studies from anthropology have found, robust (i.e. transferable) learning can arise as much through experiences outside of those organised and enacted in educational institutions, as in other settings (Rogoff & Gauvain, 1984). Indeed, the anthropological literature provides helpful accounts of this kind of learning and evidence of its efficacy (Lave, 1990; Pelissier, 1991; Rogoff, 1990; Rogoff & Lave, 1984). Experiences in educational institutions it seems are not necessarily better at developing these kinds of knowledge. More likely, it is the kinds and combinations of activities and interactions that are afforded learners and how they engage with them that are central to the development of knowledge, not where the experiences occur. These contributions then suggest a need to understand and appraise workplace learning through a consideration of both personal and social contributions to the processes and outcomes of that learning.

It seems that frameworks for understanding learning through work in contemporary times are well-served by a long tradition of learning through practice. These accounts also characterise workplaces as potent and legitimate environments for learning, not just for ‘experiencing’ and trialling and refining
knowledge learnt elsewhere. They refer to contributions such as activities, interactions, artefacts and others as being pedagogic and purposive for learning, thereby offering frames for pedagogies and curriculum models for the workplace (e.g. Pelissier, Rogoff and Lave). Importantly, rather than didactic and school-like accounts of supporting learning, indirect forms of guidance and highly active roles for learners emerge as key qualities of such learning environments. The organisation of learning through activities and interactions, and the active process of observation and rehearsal stand as central elements of the workplace curriculum and pedagogic practices as identified in these accounts.

So, much of the ‘first generation’ of literature on workplaces has been directed at understanding how workplace experiences might improve learning experiences in educational institutions (i.e. schools, colleges and universities). However, building on these accounts, a second generation of research is now giving more attention to the particular attributes of sites and circumstances of practice (e.g. work and workplaces) as places to both participate in and learn. For instance, theoretical and procedural considerations of the pedagogic qualities of different kinds of work (Colin, 2004; Nerland & Jensen, 2006), learning through errors (Bauer & Mulder, 2007, and this volume), the active role of the learner (Billett, 2006b), their subjectivity and sense of self (Somerville & A brahamsson, 2003) and the complex entanglements between personal interests and capacities and those of the workplace (Fenwick, 2004) have arisen from quite different traditions to mainstream education. It is these perspectives that add new dimensions and scope to considerations of workplaces as learning environments.

CONCEPTUAL AND PROCEDURAL ADVANCES

The conceptual advances associated with learning through work are quite consistent with those informing the processes of learning more generally. Central amongst these are a greater emphasis on learning, instead of teaching, as is consistent with the growing acceptance of constructivism, and the acknowledgement of situational contributions, in ways analogous to social constructivism. The former indicates acceptance of an expansive and active role for learners, and positions them as being central mediators of what they experience and how and what they learn, thereby emphasising the personal epistemology of the learners. Here, central to individuals’ participation, mediation and learning are their agency, capacities, and subjectivity. These concepts are central to explaining how individuals construe and construct their knowledge. The social constructivist movement acknowledges how the tasks, activities and settings in which learners participate afford particular kinds of contributions, which in terms of workplace learning can be understood as pedagogic qualities of work settings. Both of these perspectives emphasise participation in work and learning as a dualistic conception comprising the contributions of social setting and the person. These advances are now discussed briefly in turn.
The exercise of self and agency of learners in learning through work

The need for learners to be actively engaged in the process of learning anything of personal worth or requiring effort is widely accepted within many, and probably most, contemporary theories and concepts of learning. This includes how individuals construe, construct and interact with what they experience. These processes are particularly salient to considerations of learning through work and in workplaces. In provisions for learning offered through educational institutions, the teacher has a key mediating role in assisting the learner and guiding their development. However, whilst a range of guidance is available in work settings, including close guidance by more expert others (although usually on an intermittent basis), learners will necessarily mediate much of their own learning (Fuller & Unwin, 2003). This is also likely to be essential where there is a need to integrate the contributions to that learning in both the educational and workplace setting, such as in apprenticeships and now increasingly for professional preparation and development (see Hanninen & Etelapelto in this volume). In these circumstances, it is the learners who experience both kinds of settings and engage with others in learning and exercise efforts to maximise their learning through integrating the contributions of both kinds of experiences.

So, the interests, intentions and intentionalities of learners come to the fore here and their agency will shape the potential to realise rich outcomes through their experiences (see Cavanagh this volume). Moreover, the self and subjectivities will drive their learning in setting and securing rich learning outcomes, though not just through workplace learning experiences. A key basis for ongoing learning throughout working life will likely be what motivates, directs and focuses individuals’ efforts at learning through work. For instance it seems for older workers, semi-skilled, those of colour or with a disability, personal agency will be central in managing their learning through work, as the evidence suggests these workers are those least likely to be afforded workplace support for their learning.

To this end, there needs to be a greater de-centering of the focus of learning through work from an emphasis on the physical and social contributions of the setting to accommodate the bases and means by which learners contribute to workplaces as learning environments. Helpful accounts of personal epistemologies and learner agency have been generated in recent work (Hodkinson & Hodkinson, 2004). Many of these accounts emphasise the relations and negotiations between individual workers’ and their workplaces’ (i.e. the personal and the situated) contributions to learning workplace practices, techniques, norms etc. (see Smith this volume). This can include the kinds of distinct outcomes that arise through negotiations between individuals and particular kinds of work activities (see Virtanen, Tynjala & Stenstrom this volume). Such accounts illuminate how individuals elect to respond to governmental imperatives and employer requests to learn continually throughout working life. For instance, these accounts advise governments and employers that their ambitions for citizens and employees’ lifelong workplace learning are unlikely to be realised unless more consideration is given to the needs, interests and personal trajectories of those who are being exhorted to learn for national and workplace purposes. Consequently, conceptions
of workplace learning need to include considerations of the salience of personal epistemologies and the need to develop these for learning throughout working life, and in ways consistent with accommodating individuals’ occupational trajectories. This includes the process of participating in a particular occupational practice and negotiating the process of coming to identify and belonging to a particular occupation (see Allan this volume), and processes of reflection that serve to sustain and extend professional identity (see Gartmeier, Kipfmuller, Heid & Gruber this volume). Yet, these epistemologies comprise more than personal strategies, they are central to and shaped by individuals’ subjectivities and sense of self. This means that engaging learners’ interest is a necessity and is central to efforts aligned with lifelong or work life learning.

**Pedagogic qualities of workplaces**

Beyond the personal, greater consideration needs to be given to how concepts of pedagogy, curriculum and epistemology can be used to helpfully inform processes of learning through work. Taking their pedagogic qualities as an instance, earlier, socially-orientated accounts of the contributions to learning of physical and social settings, such as communities of practice (Lave & Wenger, 1991) and activity systems (Engestrom, 1993) advanced the pedagogic qualities of workplaces in terms of shared premises for participation and learning, and social system that shape participation and learning. However, more recent accounts of the social contributions to learning through work have provided more elaborated accounts of the pedagogic qualities and potential of workplace settings (Billett, 2001). Some of these detail the pedagogic qualities of particular kinds of work and workplaces, whilst others provide more detailed considerations of the artefacts and practices in workplaces that contribute to learning. This includes the kinds and qualities of interactions, such as experience sharing (see Collin & Paloniemi this volume) and collaborations (see Hökkä, Rashu, Puttonen & Eteläpelto this volume) that lead authors to highlight the epistemic qualities of the workplace. These kinds of perspectives are helpful as they finesse and refine the contributions of earlier accounts. They also permit more comprehensive and detailed accounts of how the contributions of workplace settings can work to shape learning and how these might best be exploited to achieve particular kinds of learning outcomes.

Moreover, as considerations of workplaces as learning environments have matured, the range of procedural responses has also grown. What is distinct about these provisions is that they centre on the provision of the workplace as a source of learning experiences in their own right and not just to augment or extend learning from other sources (i.e. educational programs). These include learning from work errors - how together qualities of workplace environments and workers’ personal dispositions shape the prospect of learning purposively through workplace errors (Bauer & Mulder, 2007), learning projects (Poell, 2006), critical reflections through work experiences (van Woerkom, 2003) guided learning in the workplace (Billett, 2001), expanding learning opportunities (Fuller & Unwin, 2004), the development of a workplace curriculum (Billett, 2006a), the use of strategies to
secure access to knowledge that would otherwise remain hidden from the worker-learners (see Lewis this volume), and means through which to foster transfer (see Festner & Gruber this volume). In different ways, these kinds of approaches open up considerations for the means by which workplace pedagogies can be developed—key premises for framing workplace learning.

Yet, there are important conceptual and procedural goals still to be secured. For instance, much conceptual development is premised on learners being in socially rich circumstances that provide models, guidance, and so on. However, many workers are physically and socially isolated and therefore do not engage in or learn through these kinds of socially rich environments. Therefore, more needs to be known about learning in relatively socially impoverished environments. Contemporary and emerging occupational and workplace practice is such that workers may only be afforded access to particular kinds of workplace experiences, and possibly not those that are sufficient for the development of comprehensive workplace, let alone occupational, knowledge. So, understanding further how these kinds of knowledge can be developed is as an important goal. The need to learn symbolic forms of knowledge and those that are not opaque (Bresnahan, Brynjolsson, & Hitt, 2002; Zuboff, 1988) or easy to learn, thereby requiring intentional pedagogic practices that can make this knowledge accessible and comprehensible is another goal. Moreover, a key concern about learning through practice is that uncritically accepting practices of the past and present may not assist learning requirements for the future. Also, considering how workplace learning opportunities are asymmetrically distributed on the basis of age, gender, language and educational achievement levels, more needs to be done to improve the equity of the affordances of opportunity. Hence, there has to be a critical and questioning stance when advancing considerations of learning through work.

Frameworks supporting and extending learning through work need to constantly and critically examine (i) the kinds and processes of learning that arise through participation in work and (ii) how these forms of learning can be aligned with the array of purposes to which they are directed (e.g. rich occupational knowledge).

The contributions to this book engage with many of these ideas through their organisation into two sections that focus on the imperatives of the self and the workplace practice and are entitled: (i) learning about self and agency; and (ii) learning about work tasks. The contributions engage with and advance these key organising concepts and in ways that elaborate their significance to discussing learning through work life.

WORKPLACE AS SITES FOR LEARNING

In conclusion, ways of thinking about learning in workplaces (or pedagogies for the workplace) have commonalities with learning in other settings, albeit manifested in conceptions of epistemology, curriculum and pedagogy in ways that reflect the particular practices within comprise workplaces. These are premised on a set of practices to support learning that were in use well before those for schooling had been developed. Overall, the commonalities include considerations
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of what is provided by the setting to support learning (i.e. its affordances) and how individuals elect to engage with, participate and mediate in what is afforded them by the setting. These considerations are equally applicable for adults’ learning across a range of social institutions (e.g. universities, colleges, communities and workplaces). In curriculum terms each of these has purposes (i.e. intentions for learning), enactments (e.g. means of supporting that learning), individuals who can support learning (e.g. teachers, co-workers) and learners (e.g. students, workers) that mediate how and what they learn through what they experience in the various settings. Yet, there are some distinctions in the particular kinds of experiences that workplaces and educational institutions afford, ways in which learners identify themselves and elect to participate in learning and for what purposes. The premises for workplace curriculum and pedagogy will be founded on practices being enacted in workplaces (the provisions of goods or services) as directed towards learning occupational knowledge as per the workplace’s particular requirements. This may be distinct from the stated aim of educational institutions: intentional learning for an occupation. Also, the identity and bases for participation by workers, some of whom will be guiding the work and learning of others (e.g. more experienced workers), are likely to be distinct from those who see themselves as teachers and students in educational institutions, and feature a strongly agentic role for learners. Yet, these are largely minor distinctions, thereby holding that learning through work can be informed, legitimised and understood and appraised through orthodox curriculum concepts and pedagogic practices, and that there are also distinct features and characteristics that need to be accounted for in these frameworks.

So, in all, understanding and elaborating learning through work can be founded on the dualities of what the workplace affords to those employed within them and how those individuals elect to engage with what is afforded them. Learning through practice, through errors and by processes of observation and imitation, practice and the direct guidance of experienced co-workers all stand as key elements of that framework. Also, the kinds of work practices, and personal values and bases of identity shape these dualities and the relations between them. In addition, the purposes of learning and the desired outcomes of that learning also stand as important foundations for making judgements about the value of that learning ad how it might best be enhanced. These enhancements may well be realised through work activities or require particular and targeted intervention as perhaps increasingly components of work-related knowledge become inaccessible and need to be made explicit. The contributions of the sections here do much to advance these key concerns.

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EMERGING PERSPECTIVES ON WORKPLACE LEARNING


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SECTION A: LEARNING ABOUT THE SELF AND AGENCY
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2: FIELD-SPECIFIC EDUCATIONAL PRACTICES AS A SOURCE FOR STUDENTS’ VOCATIONAL IDENTITY FORMATION

ABSTRACT

Although work-related identity research has undergone considerable expansion in recent years, vocational identity among students remains a neglected area. However, initial vocational education plays a crucial role in the process of lifelong learning. Accordingly, this chapter discusses students’ vocational identity formation during their vocational education and training. As recent findings on vocational or professional identity emphasise its context-based or sociocultural construction, we examined students’ vocational identity formation in two different fields: 1) technology and transport, and 2) social services and health care. Our quantitative data indicate that while students’ vocational identity formation begins during vocational education and training, there are differences between students in different fields. On the basis of our qualitative data it seems that students’ vocational identity is heavily constructed in line with the education practices of their own specific fields. Thus, experiences during vocational education, even before individuals enter the workforce, play an important role in the formation of vocational identity.

VOCATIONAL LEARNING AND DEVELOPMENT

Although identity research has experienced a renaissance (Sfard & Prusak, 2005), particularly in the area of work-related identity (see e.g. Billett, Fenwick, & Somerville, 2006; Kirpal, 2004; Rhodes & Scheeres, 2004), little research on vocational identity has been conducted among vocational students. However, vocational education and training (VET) can be understood as one of the first steps in the process of lifelong learning (e.g. Mitterdorff, 2006; Tennant & Y ates, 2005), and students’ vocational identity formation as an initial or novice phase in their future vocational identity as employees. Recent studies have also indicated that vocational identity construction should be examined in the context where it occurs (e.g. Billett, 2006; Billett & Somerville, 2004; Kirpal, 2004). Therefore, this chapter examines students’ vocational identity formation through work-related educational practices in two vocational fields; technology and transport, and social services and health care.

The reason why we focus on the examination of work-related educational practices, in particular, relates to our earlier findings on students’ workplace
learning (Tynjälä & Virtanen, 2005; Virtanen & Tynjälä, 2008). We studied students’ workplace learning in different vocational fields and found surprising variety between students in different fields, particularly technology and transport on the other hand and social services and health care on the other. For example, the students in social services and health care gave higher assessments than the students in technology and transport of the knowledge and skills they acquired during their workplace learning periods (Tynjälä & Virtanen, 2005). Differences were also found in how students experienced guidance in these two fields: the students in social services and health care reported receiving more different forms of guidance during their workplace learning periods than the students in technology and transport (Virtanen & Tynjälä, 2008). However, the social services and health care students also reported lack of guidance in their workplace learning periods more often than the technology and transport students. One explanation for these conflicting results is that more emphasis is put on learning critical reflection in the field of social services and health care, with the result that students in this field have grown to be more critical than their counterparts in the field of technology and transport (Virtanen & Tynjälä, 2008). Thus, our earlier findings suggest that students of social services and health care have more supportive and expansive practices of learning and vocational development than students of technology and transport. In other words, different vocational fields seem to offer their students different learning environments and also settings for their learning and vocational development. Therefore, it is important to examine more closely the educational practices and settings related to students’ experiences of learning and vocational development in different fields, so as to illuminate the possible causes of these differences (see Rogoff, 1991).

In the study reported here, we examined vocational development among students from two different fields with the help of the concept of vocational identity. We utilised the concept of vocational identity to capture the students’ conception of themselves as representatives of their vocational field (Eteläpelto, 2007; Eteläpelto & Vähäsantanen, 2006). The descriptions of students’ vocational identity were obtained through questionnaire statements which reflected their identification with their own field, students’ assessments of their own vocational strengths and weaknesses as well as their perceived needs for development in the future. The students’ reflections on their vocational identity formation were also collected by means of interviews concerning educational practices in the two vocational fields.

Next, we describe the new work-related learning systems in Finnish VET, as it is through these systems we consider students’ vocational identity formation in the two different fields. In our theoretical review we also discuss some of the constraints and challenges to the construction of vocational identity among students. Before the results section we describe the data and analytical methods used. Finally, we summarise our results and discuss how students’ vocational identity is formed through the educational practices of their specific fields.
FIELD-SPECIFIC EDUCATIONAL PRACTICES

NEW WORK-RELATED LEARNING SYSTEMS IN FINNISH VET: WORKPLACE LEARNING AND VOCATIONAL SKILLS DEMONSTRATIONS

Changes in working life and in concepts of learning and qualifications have influenced the development of formal vocational education in many countries (e.g., Streumer & Kho, 2006). For example, Finnish VET was hugely transformed at the turn of the millennium. Because of these reforms, some parts of the curriculum are implemented in the workplace, and students’ learning at work is guided by a workplace trainer. This new system is called workplace learning. In 2006, a new system, vocational skills demonstrations (VSD), was incorporated into all vocational qualifications. In this reform, students now need to demonstrate in practice how well they have achieved the objectives of their vocational studies and acquired the vocational skills required by the labour market (Vocational education and training in Finland 2007). Students’ self-assessment is emphasised both in the assessment of workplace learning and in vocational skills demonstrations. Thus, already during their vocational education Finnish vocational students have to demonstrate their vocational skills and knowledge at work. The assessment of these attainments include students exercising the ability to autonomously assess and make visible their vocational strengths and weaknesses, in other words, show awareness of their own vocational identity and qualifications (e.g., Eteläpelto & Vähäsantanen, 2006; see also Cohen-Scali, 2003; Côté, 1996). The Finnish National Board of Education has issued various guidelines and recommendations for organising workplace learning and vocational skills demonstrations (e.g., Vocational education and training in Finland 2007). We shall now describe workplace learning and vocational skills demonstrations as ideal cases.

Vocational qualifications take three years of full-time study, and all qualifications include at least 20 weeks of workplace learning. Usually, workplace learning is divided into two or more periods. In the early stage of their studies, workplace learning periods are often short, while later, when students have more skills and knowledge, workplace learning can be extended and become more specific. Students’ learning at work is a component of formal vocational education and, thus, clearly goal-oriented; the aims for each workplace learning period are derived from the curriculum, they are written up and all the parties involved in workplace learning (i.e., student, teacher and workplace trainer) should be aware of them. Students’ learning at work is guided by teachers, and, in particular, is assisted by workplace trainers, usually undertaking this role in addition to their usual duties. These trainers support the students at the workplace, give feedback and try to ensure that students’ goals are reached during the workplace learning period. Students’ success in workplace learning is assessed in a three-way partnership comprising student, teacher and workplace trainer.

Vocational skill demonstrations (VSD) are working situations or working processes which are designed, implemented and assessed by the education provider in cooperation with representatives of working life. Skills demonstrations run throughout the entire period of education and training. The aim is to arrange VSD in authentic working-life situations, but they may also be carried out in vocational schools. Before a vocational skills demonstration the student, a representative from...
working life and a teacher agree in a written plan what the working task(s) or the situation is in which the student has to show his/her skills and what the objects of and criteria for assessment are. This makes it clear for the student what skills and knowledge will be assessed and what criteria will be used. VSD are followed by assessment discussion in which the student, a teacher and a representative from working life take part. In particular, the teacher has to ensure that the assessment is enacted according to the assessment criteria. The assessment discussion is usually started with the student’s self-assessment where they evaluate their skills and knowledge against the aims and assessment criteria. The aim of the discussion is to develop the student’s self-assessment skills. After the student’s self-assessment, a representative from working life presents his/her views of the student’s skills and knowledge. The teachers give their assessments last. The purpose of this procedure is to ensure that views of the representative of working life and the teacher do not direct the self-assessment of the student, nor the views of the teacher direct the views of the representative from working life. (Stenström, Laine, & Kurvonen, 2006; Vocational education and training in Finland, 2007.)

CONSTRAINTS AND CHALLENGES ON CONSTRUCTION OF VOCATIONAL IDENTITY AMONG STUDENTS

Although vocational education has been seen to be an essential source for the development of vocational identity of students (e.g Mulder, Kahmann, Laubenbacher, & Messmann, 2006), little research on identity has been conducted among vocational students, and it has not been possible to examine it from the same perspectives as the development of employees’ vocational identity. Studies carried out among students and young people have focused more on their career identities, such as the career identity of students in the initial stage of education and their occupational commitment (see e.g. Meijers, 1998; Mitterdorff, 2006). In the present study, the students were at the final stage in their vocational education, and might be expected to already have some degree of commitment to their own vocational field.

Identity, including professional or vocational identity, has been seen to be constructed as both social and personal, and different identity theories variously emphasise these aspects of identity (see e.g. Archer, 2000; Eteläpelto & Vähäsantanen, 2006; M ead, 1934). Although recent research has showed that the construction of employees’ vocational identity has become more and more individual (see e.g. Eteläpelto, 2007; Kirpal, Brown, & Dí, 2007), we suggest that the social aspects of the formation of vocational identity are more in the forefront among students. For example, according to Harré (1983), the social construction of identity (‘social identity projects’), in which the individual tries to achieve a certain bonding with the tradition, values, beliefs and practices of a community, happens before the personal construction of identity (‘personal identity projects’). The individual’s own unique relationship to the community and the achieved stamp in the community may not be shaped until after his or her adoption of the culture of the community (Harré, 1983). In this way vocational students would probably tend
to identify with the staff in their workplace, with their own vocational fields and so on, rather than try to create their own individual vocational identity (see Collin, Paloniemi, Virtanen, & Eteläpelto, 2007).

Thus, the construction of personal (vocational) identity requires time and the possibility to commit to the work community. In the Finnish workplace learning system, students are members of their workplaces for just a short period, from a couple of weeks to couple of months, and after while they return to their vocational schools. They do not even aspire to be a full member of work community because their learning at work does not offer the kind of continuity which seems to promote employees' learning at work (Billett, 2004). Hence, the Finnish VET system with its school-based and work-related learning components sets up certain limits and constraints on the construction of students' vocational identity. However, students can influence their own vocational identity development. For example, asking 'stupid' questions and forming relationships with other members of workplace can foster vocational identity development (Blåka & Filstad, 2007). Similarly, the general atmosphere and practices of the workplace, whether they are expansive or restrictive for learning (see Fuller & Unwin, 2004), can affect the vocational identity development of students. A positive, expansive work community or learning environment supports the learning of all its members while the restrictive community limits opportunities for learning and development (Fuller & Unwin, 2004; see also Collin, Paloniemi, Virtanen, & Eteläpelto, 2007; Cohen-Scali, 2003; Evans, Kersch, & Sakamoto, 2004; Tynjälä, 2008).

PURPOSE OF THE STUDY
The purpose of this study is to examine students' vocational identity formation through the educational practices in two vocational fields. More specifically, we address the following research questions: 1) What features of students' vocational identity development can be identified during VET-related workplace learning? Are there differences between different fields of study in students' experiences of vocational identity formation? 2) What differences are there among vocational fields in educational practices and the settings where their respective students form their vocational identity?

DATA
In this study we used data from two different research projects, one of which was gathered by questionnaires and the other by interviews. With the questionnaire data, we examined the differences between the two fields of VET in certain aspects of students' perceived identity formation during their workplace learning, whereas with the interview data we probed deeper into the processes of identity formation in order to illuminate the differences in educational practices between the two fields. The questionnaire data were collected in Central Finland in spring 2004. The students were final-year students from six fields of VET, but for the present study we utilised data from the two biggest vocational fields, those of technology
and transport, and social services and health care. These two vocational fields comprised 1125 students, of whom 661 students (59%) answered the Internet questionnaires. The average age of the students was 20 years, and 45 percent of them were female and 55 percent male. The interview data were collected in spring 2005 as a part of the EU Leonardo da Vinci project in which practical skills in VET were assessed (see e.g. Stenström, Laine & Kurvonen, 2006). For this study, six Finnish students were interviewed. The students were drawn from vocational schools piloting the new vocational skills demonstration system. All six students were also final-year students; two of them were males from the field of technology and transport, and four of them were females from the field of social services and health care.

METHODS

Students’ vocational identity development was examined by a battery of questions comprising 13 statements. They sought to capture students’ experiences of vocational development at the moment of answering as well as their perceived needs for development in the future. The respondents assessed every statement on a scale of 1-4 (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree). On the basis of the results of the factor analysis four aggregate scales were formed. The content of the aggregate scales is described in the results section. The statistical significance of the differences between means in the aggregate scales were tested with t-test (independent samples t-test).

Interview data were analysed by means of content analysis. The analysis was carried out by using abductive inference (see e.g. Krippendorff, 2004) where the units of analysis were extracted from the interview data but theory was instrumental in the progress of the analysis. Expressions which described the settings of the students’ vocational identity formation during vocational skills demonstrations were extracted from transcribed interviews. The expressions in question could be a clause, part of clause or a combination of several clauses (see e.g. Graneheim & Lundman, 2004). The expressions (altogether 249) were removed from their contexts (transcribed interviews) and were each categorised by their content into one of 22 subcategories. These subcategories were then condensed into six main categories. On the basis of these main categories, two stories of the realisation of vocational skills demonstrations were derived. The stories were then compared with each other and differences between two vocational fields were identified (Table 3).

RESULTS

Students’ vocational identity formation in the fields of technology and transport, and social services and health care

On the basis of the factor analysis, we formed four aggregate scales describing students’ vocational identity formation during their workplace learning periods: 1)
critical reflection, 2) developmental orientation, 3) strengthening of vocational identity, and 4) negative attitude towards work (Table 1).

Table 1. Results of the factor analysis: the aggregate scales describing the students’ vocational identity formation during their workplace learning periods (n = 656).

<table>
<thead>
<tr>
<th>Aggregate scales</th>
<th>Cronbach’s alpha</th>
<th>Items</th>
<th>Correlation of the item with the aggregate scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical reflection</td>
<td>0.66</td>
<td>I know what my strengths and weakness are.</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I realised that there are other ways to learn than those at school.</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The workplace taught me to think critically.</td>
<td>0.45</td>
</tr>
<tr>
<td>Developmental orientation</td>
<td>0.59</td>
<td>I got ideas about how to develop my work.</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I understand that I must follow developments in my own field.</td>
<td>0.42</td>
</tr>
<tr>
<td>Strengthening of vocational identity</td>
<td>0.64</td>
<td>During the workplace learning periods I had a feeling that I was realising my dream.</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I am beginning to feel that I am a member of my occupational group.</td>
<td>0.48</td>
</tr>
<tr>
<td>Negative attitude towards work</td>
<td>0.61</td>
<td>I was not particularly interested in my work.</td>
<td>0.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The workplace learning periods have made me wonder whether I am in the right field after all.</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I think that it is possible to work only for the pay.</td>
<td>0.32</td>
</tr>
</tbody>
</table>

The first aggregate scale, critical reflection, focuses on changes in students’ thinking during their workplace learning periods. The scale consisted of three items: “I know what my strengths and weakness are”, “I realised that there are other ways to learn than those at school”, and “The workplace taught me to think critically”. The second aggregate scale, developmental orientation, consisted of two items: “I got ideas about how to develop my work”, and “I understand that I must follow developments in my own field”. The third aggregate scale, strengthening of vocational identity, consisted of two items: “During the workplace learning periods I had a feeling that I was realising my dream” and “I am beginning to feel that I am a member of my occupational group”. The fourth
aggregate scale consisted of three items describing negative attitude towards work: “I was not particularly interested in my work”, “The workplace learning periods have made me wonder whether I am in the right field after all”, and “I think that it is possible to work only for the pay”. Table 1 presents the above-mentioned aggregate scales. Cronbach’s alpha for every aggregate scale was at least .60 (in one case, .59) which in general is the lowest acceptable value for forming a reliable aggregate scale. Only variables that showed a correlation of at least .30 with the aggregate scale were accepted.

According to the results, the positive features of vocational identity (critical reflection, developmental orientation, and strengthening of vocational identity) showed moderately high values (means between 2.68-3.06, max. 4) among the students (Table 2). (A mean value over two means that most respondents agreed with the statements.) The highest mean value was for critical reflection (3.06, max. 4). Thus, the students felt that they had developed the ability to consider things more critically during their workplace learning periods. An almost equally high mean value (2.99) was for developmental orientation, which suggests that the students felt that they had a good understanding of what aspects of their knowledge and skills they would have to develop in the future. The mean value for strengthening of vocational identity was also quite high (2.68). In other words, the students reported that they had become more aware of themselves as representatives of their particular occupational group. It was rather surprising that the aggregate scale ‘negative attitude towards work’ also showed a high mean value (2.02). It can be explained by the fact that this battery of questions included a statement measuring an external motive for work (“I think that it is possible to work only for the pay”) with which the students highly agreed.

Table 2. Mean values and standard deviations of the aggregate scales describing the students’ vocational identity during their workplace learning periods in two vocational fields (min 1, max 4)

<table>
<thead>
<tr>
<th>Aggregate scales of students’ vocational identity</th>
<th>All students n = 656 Mean value (SD)</th>
<th>Students of technology and transport n = 428 Mean value (SD)</th>
<th>Students of social services and health care n = 228 Mean value (SD)</th>
<th>Sig. between different fields (t-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical reflection</td>
<td>3.06 (.53)</td>
<td>2.95 (.51)</td>
<td>3.26 (.51)</td>
<td>.000</td>
</tr>
<tr>
<td>Developmental orientation</td>
<td>2.99 (.61)</td>
<td>2.89 (.59)</td>
<td>3.18 (.59)</td>
<td>.000</td>
</tr>
<tr>
<td>Strengthening of vocational identity</td>
<td>2.68 (.71)</td>
<td>2.59 (.69)</td>
<td>2.85 (.72)</td>
<td>.000</td>
</tr>
<tr>
<td>Negative attitude towards work</td>
<td>2.02 (.70)</td>
<td>2.17 (.68)</td>
<td>1.74 (.65)</td>
<td>.000</td>
</tr>
</tbody>
</table>
Highly significant differences emerged between the two different vocational fields in the mean values for the aggregate scales, which described students’ vocational identity (Table 2). The students from the field of social services and health care scored higher in all the factors related to positive components of vocational identity than the students from the field of technology and transport. Similarly, the students of social services and health care had a lower negative attitude towards work than the students of technology and transport.

**Differences in educational practices between the two vocational fields**

On the basis of the analysis of the interviews, six main categories were formed describing the realisation of vocational skills demonstrations (VSD): 1) preparing for VSD, 2) conducting VSD, 3) assessment of VSD, 4) VSD as meaningful for students’ learning and vocational development, 5) effects of VSD on students, and 6) needs for development of VSD. Categories 1-3 include students’ descriptions of the planning and realisation of VSD, that is, they describe the chronology of the VSD and their answers from the students’ perspective. The fourth category portrays the meaningfulness of VSD for the students’ learning and vocational development, and the fifth category describes the effects of VSD on the motivation and emotions, such as strain or stress, of students. The sixth category refers to the students’ ideas for the development of VSD. On the basis of these main categories two stories about how VSD was realised were written from the perspective of students in the two different fields. The comparison based on the analysis of the stories between the two different fields is summarised in Table 3. Along with the comparison it is attempted to bring into view the different structures by which education is organised in these two vocational fields as these in turn can facilitate students’ learning and vocational identity formation.

**Table 3. The realisation of vocational skills demonstrations (VSD), as assessed by students from two different vocational fields**

<table>
<thead>
<tr>
<th>PROCESS OF VSD</th>
<th>TECHNOLOGY AND SOCIAL SERVICES AND HEALTH CARE</th>
</tr>
</thead>
</table>
| Preparing for VSD | - no written plan for VSD  
- practice for VSD under the vocational school teacher  
- written plan for VSD, teacher and workplace trainer accept it before VSD  
- practice for VSD under workplace trainer in the workplace |
| Conducting VSD | - carried out mainly at the vocational school  
- more than 10 VSD during education  
- duration from a few minutes to a few hours  
- carried out mainly in working life at the end of workplace learning periods  
- duration 2-5 working days |
| Assessment of VSD | - scale of assessment 1-5  
- scale of assessment 1-5 |
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- teacher accepts VSD (in vocational schools and working life)
- assessment criteria unclear to students
- assessment discussion: teacher told student how VSD went
- student’s self-assessment: sometimes, but its role not very important

- workplace trainer accepts VSD (in working life)
- assessment criteria clear to students
- assessment discussion: together with student and workplace trainer (sometimes teacher)
- student’s self-assessment: always, its role very important (for example, assessment discussion begins with student’s self-assessment)

VSD as learning and vocational development
- passing VSD signals that student succeeded in a small component of vocational skills

VSD as learning and vocational development
- passing VSD does not guarantee that student really succeeded in task/skill; rather VSD is an opportunity for student to get feedback about her own vocational development

Advantages and disadvantages of VSD
- some students are nervous about VSD
- students think that passing of VSD has positive influence on employment

Advantages and disadvantages of VSD
- students are not nervous about VSD, which is carried out in familiar place (at the end of workplace learning period)
- students do not think that passing VSD has positive influence on employment (workplace learning period more important)

Advantages and disadvantages of VSD
- VSD slightly increases study motivation of student
- passing VSD with good grade increases self-confidence of student

Development needs of VSD
- VSD work well in this way (at school, assessed by teacher)

Development needs of VSD
- VSD work well in this way (at the end of workplace learning period, assessed by workplace trainer)
- uniform duration for all VSD
- uniform education for all VSD assessors

According to our interviews, the planning and realisation of VSD were very different in the two fields. The technology and transport students carried out up to 10 VSD during their education. In fact, students did not even know how many VSD they would have to carry out altogether. They practiced for VSD under the teacher at school, it was a quite small aspect of their course and lasted from only a few minutes to a couple of hours, and it was also arranged by the teacher. Students reported that the assessment was rather unexpected as the student and teacher did not discuss the VSD assessment criteria beforehand. Students claimed that their self-assessment had only minor influence on their assessment because the teachers
assessed VSD and only they really knew how successful it was. In contrast, the social service and health care students knew in advance when they had to carry out VSD because it was a predetermined part of certain study modules. Students had only 3-4 VSD during their education. Students planned carefully their VSD and wrote their plans up. While making their written plans, students also acquainted themselves with the assessment criteria. The teachers and the workplace trainers accepted the student’s plan before beginning a VSD. Vocational skills demonstrations were carried out at the end of the workplace learning period in working life. Consequently, students had the possibility to practice for them during their workplace learning. The workplace trainer who guided the student during her workplace learning also accepted the VSD. Duration of a vocational skills demonstration was 2-5 working days. Assessment discussion of VSD began with the student’s self-assessment. At first, the students reported finding self-assessment to be rather challenging, but it was useful because they really had to make explicit, to express aloud what they thought their own strengths and weaknesses were. The nature of assessment was reflective and nothing unexpected arose.

Students’ attitude towards VSD as a situation for learning and vocational development was different across the two fields. The technology and transport students considered VSD as an examination or test, which went as well as their grade showed. After passing a VSD, the students reported believing that they were really able to manage the work task or working situation in question and could move on to learning another work task/working situation. For the social services and health care students a vocational skills demonstration was a learning situation. Even if they passed it, the students did not claim that it proved that they managed the task in question perfectly, but that they managed it to the level required of students. Above all, vocational skills demonstrations were regarded by the students as a learning event from which they could get feedback about their future vocational skills and knowledge for their future vocational development.

Growth of study motivation and self-confidence and also positive effect on employment were all reported as advantages of vocational skills demonstrations. The technology and transport students thought that the VSD system was a good reform because they felt that at last someone was interested in the outcomes of work, to the extend of grading them. For these students, assessment of workplace learning was not as rigorous as the assessment of VSD. According to the students, completion of vocational skills demonstration could influence their employment chances, since not all students were doing them yet (this was a piloting phase of VSD). Students claimed that those who have taken their vocational education seriously before VSD were not particularly worried about it, whereas those who had neglected their vocational studies were nervous about their VSD because they had gaps in their vocational skills and knowledge. The social services and health care students reported that completion of vocational skills demonstration slightly increased their study motivation. They did not hold that passing VSD would influence their employment chances very much because it was standard component of their qualification. (VSD had been piloted for longer in social services and
Instead, passing it stimulated self-confidence in students. The reason was that when students carried out their VSD they felt for the first time that they were "on their own", using their concrete skills and knowledge in an authentic working situation. They did not usually feel worried about them.

The social services and health care students suggested some improvements in this new system. They wished for more standardisation in how VSD were realised, including similar duration of VSD in different workplaces and equal abilities of workplace trainers to assess them. Students from both fields thought that their own field's VSD practice was workable and did not need to be redrawn.

CONCLUSIONS AND DISCUSSION

In this chapter we examined final-year students' vocational identity formation through work-related practices in two vocational fields: technology and transport, and social services and health care. According to this study, the formation of vocational identity seemed to begin among students during their vocational education and training (VET). In particular, of the components of vocational identity, critical reflection (i.e. the student's ability to assess her/his own present skills and knowledge) and developmental orientation were the strongest. However, highly significant differences between the two fields of study emerged in all the components of vocational identity. All the positive components of vocational identity (i.e. critical reflection, developmental orientation and strengthening of vocational identity) scored higher among the social services and health care students than technology and transport students. In contrast, the negative component of vocational identity, negative attitude towards work, was higher among the technology and transport students than social services and health care students. With the insights gained from the interviews, we suggest that different educational practices and structures of these two vocational fields create different possibilities for the formation of vocational identity among their students. The educational practices in the field of social services and health care were found to be reflective and to underline development, whereas in the field of technology and transport they were appeared to be unsystematic, fragmentary and teacher-led. On the basis of these findings, we conclude that students' vocational identity seems to be constructed in accordance with the educational practices and structures of their particular fields.

The assessment discussion in vocational skills demonstrations (VSD) is one practice which makes visible different educational practices and settings, and which also promotes the formation of vocational identity. In social services and health care, the nature of the assessment discussion was reflective, and transparent, and it emphasised the self-assessment of students. In the assessment discussion at the end of the workplace learning period nothing of any note arose regarding students’ skills and knowledge. The assessment practices emphasised students' active participation: the post-VSD assessment discussion began with the student's self-assessment, where she had to assess her own strengths and weaknesses in the
VSD. In contrast, in the field of technology and transport, VSD assessment was largely teacher-led, the student’s role was rather passive, and sometimes the student was surprised to find out what the teacher had noted in the assessment. Thus, assessment practice in the social services and health care field included features which are essential in the development and formation of vocational identity. For example, the identification and making visible of students’ own strengths and weaknesses have been seen as essential for the individual’s awareness of her or his own vocational identity (see e.g. Cohen-Scali, 2003; Côté, 1996; Eteläpelto & Vähäsantanen, 2006). In the social services and health care fields, students were encouraged during the VSD process – from planning onwards – to be active, which is also a factor that strengthens vocational identity in the novice (Blåka & Filstad, 2007).

VSD also appeared to constitute a different site of learning for the students in the two different fields. In social service and health care, VSD was above all a place of learning and vocational development. The successful completion of VSD did not mean for a student that she managed the required skills and knowledge perfectly, but that she managed them as a student. In particular, students respected the feedback from their VSD and its importance as a promoter of their own vocational development. In contrast, for the technology and transport students VSD was an achievement, passing which meant that they had successfully managed that component and could move on the next component of the qualification. For the students, VSD performance was simply the grade given. In sum, VSD seemed to be one unattached achievement among others for these students, whereas VSD was a learning situation that promoted and complemented the student’s vocational development for the social services and health care students.

Our earlier findings suggested that the practices of the field of social service and health care also seem to foster students’ workplace learning (Tynjälä & Virtanen, 2005). In the present study, we found that the supportive and fostering features of learning emphasised in recent learning theories (see e.g. Evans, Kersch, & Sakamoto, 2004; Fuller & Unwin, 2004; Guile & Griffiths, 2001; Tynjälä, 2008) were present in the field of social services and health care. Because the results of students’ vocational identity formation and learning at work ran parallel, we suggest that perhaps the elements which support and foster both vocational identity construction, and learning skills and knowledge are very much the same.

When the practices and structures of the field of social services and health care are considered more closely, it is apparent that the recent reforms in VET, for example, the system of vocational skills demonstrations, are being realised according to requirements set by the National Board of Education. In fact, in planning VSD – as in planning VET as a whole – the field of social services and health care seemed to be very systematic, and showed a continuous readiness further develop the education (see also Stenström, Laine, & Kurvonen, 2006). In the field of technology and transport this was not the case. In this field, VSD seemed to be – at least in this pilot phase – a detached part of the education. Therefore, the planning of education also seemed to be rather fragmentary and
organised from a short-run perspective in this particular field. The conclusion we draw is that implementing the VSD and workplace learning systems in the field of technology and transport will need more time. Some of the practices noted in the field of social services and health care could usefully be adopted in achieving this end.

It is also important to note in this study that we examined vocational identities from the viewpoint of education rather than from the viewpoint of working life. For example, it is possible that the vocational identity of the technology and transport students appeared weaker than that of the students in social services and health care because the former identified more with working life than school. It would, therefore, be useful to find out what the possibilities and constraints on vocational identity formation are from the perspective of working life in both fields. Are these practices related to the two fields in the same way as they are from the perspective of education? It should be noted that while many recent studies on employees’ workplace learning or vocational/professional identity have used data on a single employee group (the numbers have often also been rather small), the research results have been generalised across the whole research domain. Our study, reported here, indicates that there is a strong case for studying differences between employees in different fields.

ACKNOWLEDGEMENT

The research presented in this chapter was partly supported by a grant from the Academy of Finland (Project no. 111184).

NOTES

i In the field of technology and transport 20 percent of the respondents were women, while in social services and health care 95 percent were women.

ii Due to limitations of space, only the comparison between the two different fields, and not the stories themselves, is reported in this chapter.

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