Zhao, Yanmin; Ko, James

Workplace learning in the professional development of vocational education teachers

WORKPLACE LEARNING IN THE PROFESSIONAL DEVELOPMENT OF VOCATIONAL EDUCATION TEACHERS

YANMIN ZHAO,
JAMES KO

Abstract

Workplace learning is defined variously and plays a pivotal role in the enhancement of vocational education teachers' practices. Based on a comprehensive desk-based review of the related literature, this article defines and discusses the concept of workplace learning and its contribution to vocational education teachers' continuous professional development. The article demonstrates explicitly that the existing theoretical frameworks guiding workplace learning are mainly drawn from different learning theories. Among these, Illeris's (2011) learning model is found to be theoretically sound and to provide a foundation to be extended to hypothesise about the relationships of various key concepts discussed in association with the workplace learning of vocational education teachers. Three lines of arguments have been identified for providing support to Illeris' model: (1) the significance of workplace learning practices, (2) individual and social aspects of learning situations, and (3) individual and social levels of workplace learning. In addition, based on Illeris's model and related literature on teacher professional development, the article proposes a workplace learning model for vocational education teachers and evaluates its implications for vocational education teachers' professional development, work identities, and transfer of knowledge into practice in the working situation in vocational education and training.

Introduction

Many organizations are still facing challenges in promoting employees' well-being. Despite their success at making economic connections, organizations often lack adequate psychological support for their employees and fail to provide sufficient opportunities for cultural and social exchanges. To deal with these challenges, organizations need to promote new forms of collaboration among workers, provide them with professional skills and knowledge, establish their work identities, and, above all, engage them in different types of workplace learning that enhance job satisfaction (Jacobs & Park, 2009; Tynjälä, 2013). Research on *workplace learning* and *work-based learning* has become popular in the context of vocational education and training over the past two decades (Fuller & Unwin, 2011; Illeris, 2003; Schaap, Baartman, & Bruijn, 2012). The study of workplace learning has evolved over the years from exploring tacit knowledge to building up explicit knowledge in learning science. Theories on workplace learning involve not only conceptual frameworks but also practical strategies to understand possible improvements in teaching and learning for vocational education.

The literature covers the quality of workplace learning related to content, guidance, and assessment and the quality of the connections between work-based and school-based learning. The existing guidance for workplace learning emphasizes modelling and coaching in different workplaces, while guided learning strategies that are closely associated with everyday activities in the workplace are used as supplementary learning strategies through daily work practices (Billett, 2000; Mikkonen, Pylväs, Rintala, Nokelainen, & Postareff, 2017). Authors who have dealt with this issue have also discussed individual and organizational influences on guiding workplace learning, in particular individuals' willingness to engage in structured and guided workplace training. According to Billett (2001b), for example, guided learning strategies for improving workplace learning have four requirements: appropriate implementation of a workplace learning environment, suitable modification of a workplace learning curriculum for the particular enterprise, encouragement of teacher commitment and learner participation and those who guide the learning, and proper preparation of learning guides. The four requirements for guiding learning would shape workplace learning arrangements, help to refine workplaces as learning environments, and, more likely, determine the development of workplace learning, the quality of guided workplace learning, and the outcomes of workplace learning assessment.

The present article analyses the professional development of vocational teachers through workplace learning using Illeris's (2011) triangular workplace learning model. A workplace learning model is also developed by extending Illeris's workplace learning model for vocational teachers.

First, the article discusses the contextual definition of workplace learning. It is envisaged that this will facilitate the comprehension of the evolving definition of workplace learning as well as the working definition for vocational education teachers. Second, an effort is made to provide a brief analysis of Illeris' workplace learning model and its connection with various learning theories. Third, based on Illeris' model, a workplace learning model for vocational education teachers is proposed and discussed. The discussion highlights three dimensions of the model related to workplace learning identities, competence development, and the implementation of professional development for vocational education teachers in workplace learning. Our underlying goal is to conceptualize engagement in workplace learning activities that contribute to building learners' work identity and directing individuals to actively engage in workplace practices.

Workplace learning

Scholars around the world define workplace learning in various ways. Generally, workplace learning is depicted as a link between work and learning in human development. From a theoretical perspective, Cairns and Malloch (2011) argued that the concept of workplace learning is related to three terms: work, place, and learning. Work is associated with what people do and the process of engaging individuals in activities to complete tasks or reach expected outcomes (Cairns & Malloch, 2011). Place, in relation to work and learning, can refer to the physical or psychological spaces where individuals work, think, and learn (Hutchison, 2004). In particular, in the context of workplace learning place covers a wide range of notions and settings including physical and spiritual locations where individuals think they can learn and where they have social interactions (Cairns & Malloch, 2011). The term *learning* broadly comprises a range of activities which can be associated with an individual's work. Integrating work, place, and learning into a single construct is not straightforward, but more complex than it seems.

As a pioneer in the study of workplace learning back in the 1990s, Stephen Billett (1994) defined workplace learning as a way of acquiring knowledge and skills in activities that are directly involved in a real task where learners are guided directly by a skilled mentor. Later, Billett (2002) further categorized workplace learning knowledge as propositional knowledge, procedural knowledge, or dispositional knowledge based on Anderson's (1982) division of conceptual knowledge and procedural knowledge. For Billett, the acquisition of conceptual knowledge must be achieved in the process of engaging in social practices and daily work, and the close interaction between individuals is a very important source of knowledge in the process of

individual learning and the construction of knowledge. In this regard, Billet's concept of workplace learning knowledge is comparable to the theory of sociocultural constructivism's emphasis on the interaction between experience and environment in the construction of knowledge.

Workplace learning is often described as informal learning due to its lack of explicit pedagogical instructions (Eraut, 2004). Billett (2002) criticized this idea, however, stating that classifying workplace learning knowledge or its learning environment as informal or unstructured is imprecise because norms, values, and practices within workplace activities can be highly structured and intentionally organized. For example, while the goals and practices of educational institutions may frame the activities in which students engage, the goals and practices of workplace learning environments also determine the nature and variety of workers' activities (Billett, 2001a, 2004). Learning is a negotiated and reciprocal process in which individuals' learning changes in different kinds of social practices. Billett concluded that learning in workplaces and the development of workplace learning need to be reconceptualized in terms of the continuity of participatory practices. In applying the concept of "communities of practice" to workplace learning, Hodkinson and Hodkinson (2004a, 2004b) reconceptualized "community of practice" to develop a wider understanding of the learning relationship between individual learners and organizational influences. In a case study exploring two teachers' workplace learning, the individual learners' dispositions were found to have a significant effect on their learning (Hodkinson & Hodkinson, 2004b).

From a more restrictive perspective, a workplace refers to a site or situation where work takes place. However, workplace learning should be understood from a broader perspective to include any site where there are opportunities to learn about doing the work and its improvement. Thus, workplace learning is not geographically bounded but located socially where learning about work takes place. For this reason, Jacobs and Park (2009) defined workplace learning as "the process used by individuals when engaged in training programs, education and development courses, or some type of experiential learning activity for the purpose of acquiring the competence necessary to meet current and future work requirements" (p. 134).

Jacob and Park's definition of workplace learning also assumes that there should be a balance between learning and work such that an organization has to provide individuals with opportunities for workplace learning in which the work-related benefits and goals are clear and understood. Hodkinson and Hodkinson's (2005) findings suggest that extensive learning environments can improve teacher learning opportunities and indicate that the likelihood of a strategy can increase these learning opportunities.

According to Barnett (1999), work has inevitably become one part of learning, and learning is accordingly also an essential part of work. That is, from an epistemological perspective knowledge is developed or learnt gradually by a worker from the work process, which is inseparable from the learning process. In highlighting the importance of vocational knowledge from a social realist perspective, Young (2008) argued that the links between tacit knowledge and knowledge from the workplace are the essential basis for vocational knowledge. Broad (2016) further suggested that vocational teachers can use their continuing professional development (CPD) activities to translate tacit vocational knowledge into classrooms, linking their learned knowledge from CPD with their pedagogy in their classrooms. Lucas, Loo, and McDonald (2005) acknowledged the difficulties of integrating subject knowledge (which is associated with vertical knowledge [in Bernstein's terms] that is not particularly related to specific contexts but to a conceptual understanding in research communities) with practical pedagogy (which is associated with horizontal knowledge that refers to the specific contexts and situations). They apply sequential and concurrent models of integrating subject knowledge and practical pedagogy to explain teacher learning and teaching experience in the teacher training program.

Based on these conceptions and notions of knowledge, in this article the workplace learning of vocational education teachers refers to the process wherein teachers actively participate in their workplace and learning situations to advance their professional knowledge. Workplace learning includes formal training activities and informal learning activities that involve the interactions between vocational teachers and their working environment. In this working definition of vocational teachers' workplace learning, more emphasis will be given to situational learning in which learning is not just for acquiring knowledge and skills but also for developing the habits and skills of sharing knowledge in the context of vocational education and training. This emphasis on knowledge sharing is crucial for understanding workplace learning theories and models in the professional development of vocational education teachers, as discussed below.

Illeris's workplace learning model

Theoretical frameworks guiding workplace learning are often drawn from different learning theories, for example Lave and Wenger's (1991) situated learning theory, Wenger's (2000) social learning systems, Jarvis's (2011) adult learning model, and Kolb's (2014) experiential learning cycle. All of these models are constructed from social learning theory, which attempts to explain human learning behaviours in terms of continuous reciprocal interactions

between cognitive, behavioural, and environmental influences: "most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action" (Bandura, 1977, p. 192).

However, Illeris's (2005; 2011) workplace learning model (Figure 1) suggests that workplace learning at the individual level includes three main dimensions in a social learning situation. The *content dimension* consists of learners' knowledge, skills, understandings of the learning content, and attitudes toward learning. The *incentive dimension* contains learners' feelings, emotions, and motivations in the learning process. The *interaction dimension* encompasses learners' mutual communication and cooperation in the process of learning. This triangular learning model reflects deep theoretical foundations of workplace learning as the three dimensions form a learning triangle in an individual's work which is socially situated in society.
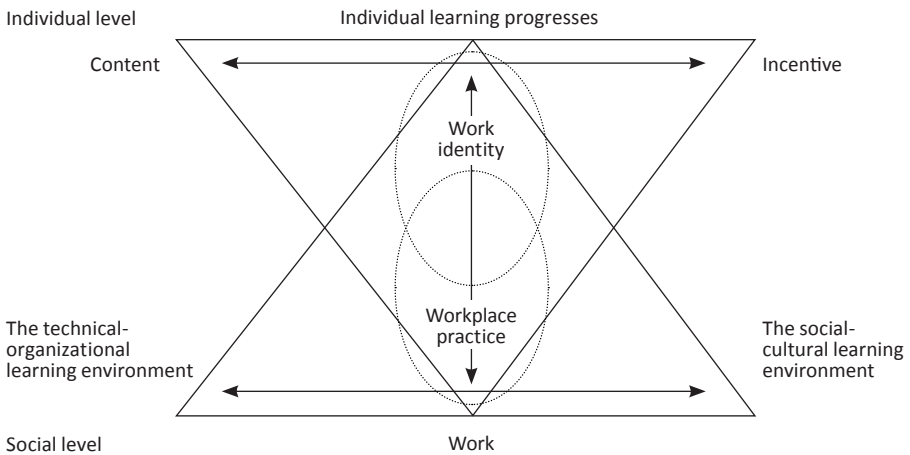

Figure 1. Learning in working life (Illeris, 2011, p. 37)

Illeris's dual layer learning model is not only concerned with the general individual level of learning, but also assumes workplace learning occurs at the individual's work, which is part of the workplace practices embedded at the social level. Learning in working life is important because it occurs within the interaction between workplace practices and learners' work identity, which is rooted in the technical-organizational learning environment

and the sociocultural learning environment (Illeris, 2011; Jorgensen & Warring, 2003). The technical-organizational learning environment is defined as the requirements imposed on employees at the workplace, such as work content, labour division, opportunities for using qualifications, and possibilities of social interactions. The sociocultural learning environment, on the other hand, is concerned with matters related to social groups and processes in the workplace, such as traditions, norms, and values embedded in the working and cultural communities (Illeris, 2005, 2009). Learning is significantly influenced by the contexts and learning settings in which it occurs, so contexts and settings are, by default, socially and culturally constructed. Therefore, there are two paths for workplace learning. The first path focuses on learners' individual learning processes. For Lave and Wenger (1991) and Wenger (2000), the workplace is a focal point of situated learning where both the individual's work and learning process are part of workplace learning. The second path highlights the workplace as a learning environment embedded in a technical-organizational learning environment and a sociocultural environment. For some theorists, the technical-organizational environment of workplace learning is essentially part of the sociocultural environment that contains all the artefacts of human culture because the sociocultural context is conceptually broader than the organization (e.g. Tynjälä, 2013). Therefore, understanding the significance of cultural influence in the physical environment requires knowledge of space and time and possible interpretations of a range of different learning settings (Eraut, 2004).

A workplace learning model for vocational education teachers

Illeris's (2011) learning model is a synthesis of learning theories that has strong implications for the development of a workplace learning model for vocational education teachers. It deserves further attention as it is appropriate for understanding vocational teachers' workplace learning and professional development. For vocational teachers, more CPD is needed to strengthen their competence in their dual profession (Andersson & Köpsén, 2015). Examples of CPD for vocational teachers include that related to teaching and competence-based learning (Lloyd & Payne, 2012) and that to raise the quality of vocational teaching (Wheelahan & Moodie, 2011). For building a workplace learning model for vocational education teachers, Illeris' learning model provides a theoretically sound foundation which can be modified and extended to hypothesize about the workplace learning of vocational education teachers with various key concepts as depicted in Figure 2.
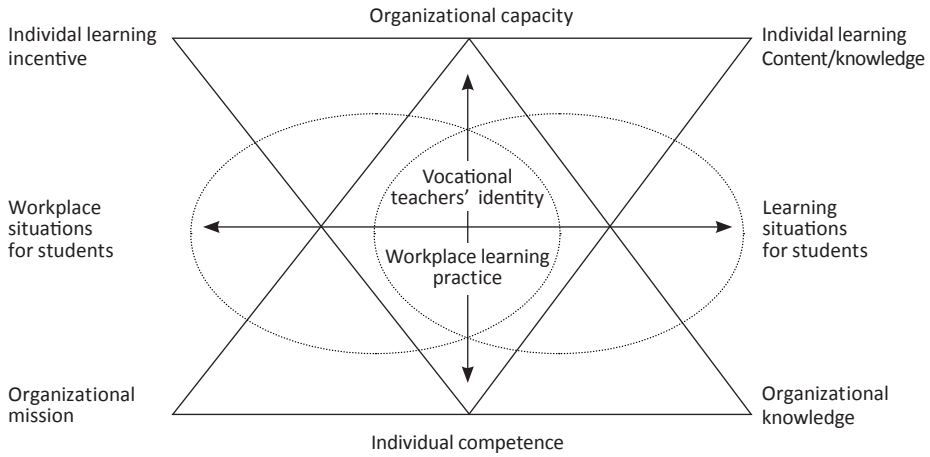
YANMIN ZHAO, JAMES KO

Figure 2. Model of workplace learning of vocational education teachers

In Figure 2, the workplace learning for vocational education teachers takes place in the interaction between teachers' identity and learning practices. As shown in the central focus area of the model in Figure 1, the learner's identity forms the core of workplace learning because learning is a dynamic psychological process that involves an individual's work life that defines the learner's work identity. Moreover, workplace learning exists in the interaction between workplace practices and changes in work identity, and this interaction also indicates the learners' work competence development manifested in the acquisitions of certain technical skills in the technical-organizational and sociocultural learning environment.

Second, just as Illeris's model in Figure 1 indicates that learning in work life can be explored from individual and social perspectives, our workplace learning model for vocational education teachers also assumes individual and organizational aspects to learning. Similarly, work and learning situations are two different forms of expression in the vocational teachers' learning situations. Therefore, the model in Figure 2 specifies that individual teacher learning occurs in an overlapped condition between an individual learning situation and an organization or workplace situation, depicted as two triangles specifying the three dimensions of each learning situation. The specific learning situation and context not only stimulate the occurrence of learning but also affect learning performance. The individual learning situation involves the *individual learning incentive, individual competence,* and *individual learning content/knowledge*, representing the immediate situation where vocational

teachers can enhance their competence through CPD when they have a will to learn. The workplace situation, which usually manifests in cultural forms and social interactions, indicates the situation where the teachers driven by the *organizational mission* can strengthen *organizational capacity* by increasing *organizational knowledge* from their CPD.

Third, workplace learning also coexists at both individual and social levels. As Illeris (2005; 2011) has suggested, because learning is contextual and happens in the context of social interaction, human interaction becomes an integral part of learning through interactions with other learners. Regardless of the level of occurrence, vocational education teachers are at the central focus of this learning model as the agents of learning.

Finally, Figure 2 has an additional middle or classroom layer. This is intended to capture the fact that the conditions of vocational teachers' competence development are different from those of other types of teachers due to the nature of vocational teaching as a dual professional (Andersson & Köpsén, 2015). On the one hand, just as other teachers, their professional development aims to improve their knowledge and skills by affecting their attitudes and beliefs towards teaching and learning (Desimone, 2009). Teachers apply new knowledge and skills obtained in their professional development to their work situations to improve their pedagogy (Wang, 2014). However, vocational education teachers are also expected to participate in effective professional development with a strong content focus and active learning to prepare students for their future workplaces in the classroom. For this reason, vocational teachers have to connect workplace situations with classroom learning situations for their students. Students in vocational education have to acquire knowledge for a practical purpose. Therefore, this workplace learning model emphasizes the middle part of the individual teacher's professional development including work identities and learning practice on the path of vocational teachers' professional development to encourage active workplace learning.

After analyzing our expanding model of workplace learning model for vocational education teachers, we will examine some empirical evidence on the workplace learning, work identities, and competence development of vocational education teachers through professional development with respect to our conceptual framework.

Workplace learning for the professional development of vocational education teachers

As for the specificities of the professional development of vocational teachers, many researchers have focused on CPD that enables them to update and upgrade their professional skills. In their comparison of the CPD practices in such countries as England and Norway, Lloyd and Payne (2012) found that vocational teachers have more opportunities to improve vocational practices by sharing ideas in CPD activities. CPD for vocational teachers not only provides them with a space to reflect on issues more systematically in a structured course but also helps them to integrate subject knowledge and practical pedagogy even when the subject knowledge is not particularly connected to the CPD. Researchers such as Lucas, Loo, and McDonald (2005) also saw some challenges in integrating subject knowledge with "how to teach" in teachers' training and learning. In distinction to general teachers' professional development, vocational teachers need to keep up to date with the trade which is the area they are teaching in order to transfer vocational knowledge from the specific occupation to classroom use and maintain and develop vocational education teachers' pedagogy and professional skills in the CPD (Broad, 2016; Lloyd & Payne, 2012).

Optimizing the design of workplace learning activities and certifying innovative workplace learning organizations can promote vocational teachers' professional development in workplace learning. Meanwhile, to meet the requirements of professional development, Peng (2014) showed that vocational education teachers took part in formal teacher training programs to achieve learning objectives at different stages of professional development (novice teachers, competent teachers, backbone teachers, and expert teachers). However, when vocational education teachers acquire actual knowledge through practical work, their professional growth from this form of informal learning is often difficult to document or observe (Li, Ji, & Li, 2010). Workplace learning for vocational teachers takes place both formally and informally through building learning organizations, professional learning communities, and virtual teaching and learning platforms.

Therefore, Illeris's model helps to deepen knowledge of the professional development of vocational education teachers and conceptualize the benefits of vocational teachers' participation in learning in both the community of practice and the institutional environment. Case study evidence shows that learning at work emphasizes various learning patterns and different forms of participation in both industrial societies and school-based learning communities (Fuller, Hodkinson, Hodkinson, & Unwin, 2005). The application of Illeris's model to the professional development of vocational educational teachers can draw on these teachers' learning processes with its distinction between the individual and social levels in CPD.

Work identities on the path of vocational teachers' professional development

The professional identities of vocational teachers are usually formed through participating in the workplace of their vocational specialism. The development of teacher identity is a dynamic process which involves the interaction of multiple parts including prior professional work experience, teacher education experience, current teaching practice, and teaching career plans (Olsen, 2008). This articles only focuses on the formation of work identities of vocational education teachers in their workplace learning along with their professional development. For vocational teachers, their vocational identity is related to the specific vocational field, which requires that these teachers actively participate in a work-related community of practice so as to benefit from a high-quality professional identity in their CPD (Andersson & Köpsén, 2015). Tynjälä (2013) reviewed a large amount of literature on workplace learning and concluded that the formation of work identities is related to learners' active engagement in any learning environment. Meanwhile, workplaces also provide guidance and support for individuals to understand the idea of workplace learning and engage in core activities (Billett, 2002, 2004). However, it is worthwhile to emphasise the significance of the individual's agency while discussing the formation of the identity of vocational teachers in their workplace learning. As Vähäsantanen and Billett (2008) argued, "the construction of professional identity, therefore, can be seen as an ongoing process in which individuals are active agents" (p. 3). Thus, individual teachers' agency in the workplace is more likely to shape their vocational and occupational identities through the teaching and professional practices in the workplaces. In relation to the model of Illeris' learning dimension triangles, vocational teacher's identity formation occurs as a result of—and likewise impacts upon—the change and continuity of its learning environments. Individual vocational teachers negotiate their agency and modify their work identity formation. In other words, how vocational teachers perceive their professional identity echoes how these teachers exercise their agency. Therefore, vocational teachers not only use their skills and knowledge in their workplace learning but also identify themselves with the kind of work which they are doing.

Accordingly, vocational practices for teachers are more prone to being a strong source of interest that is embedded in professional identity (Billett, 2000). A workplace learning framework emphasises the nature of workplace learning describing how learning takes place at work and how the sociocultural environment impacts learning at work (Illeris, 2005, 2011; Tynjälä, 2013). From a sociocultural perspective, Köpsén (2014) conducted a study of 22 Swedish vocational teachers focusing on how these teachers perceived their vocational teacher identity and found that vocational teachers had a close

relationship with vocational students and tended to encourage their students to engage in social activities in order to guide students into their future working lives. Professional identities are negotiated through participating in work and different personal strategies such as ongoing professional development and active participation are closely associated with the teachers' personal concerns, which are also bound up with their individual resources that can be adopted to understand how identities change through changing work practices (Vähäsantanen & Billett, 2008). Thus, reflecting on the learning model, vocational teachers with robust professional development strategies are motivated to remain committed to the teaching work and continue their teaching profession at the same organization. Meanwhile, vocational teachers are also motivated to take on challenging tasks with appropriate training and support in their workplace learning and use professional development as a learning tool to achieve a better teaching career.

Competence development in the context of vocational education

In relation to the workplace learning of vocational teachers' competence development, it is also important to discuss the three learning dimensions that constitute the learning triangle. In the content dimension, learners' skills and knowledge are about what they learn in dealing with life in workplaces (Illeris, 2011). The incentive dimension covers the mental energy and motivational forces that are required in learning engagement. Therefore, the content and incentive learning dimensions are integrated through the interactive process between individual learning and the social learning environment. On the other hand, the new skills and knowledge that have been learnt may influence emotional and motivational patterns. Therefore, the content dimension may change the patterns of the incentive dimension that are concerned with mental energy mobilization. The interaction dimension promotes individuals' engagement in social contexts, that is, individuals' ability, skills, and knowledge that are applied within various forms of social interaction (Illeris, 2003, 2005, 2011).

Regarding vocational teachers' individual workplace learning, the transfer of professional competence is affected by workplace learning environments. Individual, organizational, and workplace factors have an impact on the process of learning transfer within workplace contexts (Davids, Bossche, Gijbels, & Garrido, 2016). The characteristics of workplace learning for vocational teachers are broad and diverse. Increasingly, more requirements have been imposed on vocational education teachers because of the rapid economic and social developments stimulated by globalization and technology; vocational teachers have had to fine-tune the training objectives,

training methods, training mode, and evaluation methods to maintain the effectiveness of vocational education (Li, Ji, & Li, 2010; Yu, 2015). In practical learning practices, vocational teachers in their workplaces are required to learn the theoretical knowledge of different professions, business production technology, and management (Wang & Deng, 2013). In learning situations, as shown in Figure 2, vocational education teachers also need to acquire classroom teaching skills, understand vocational teaching methods, obtain practical guidance, and learn from colleagues, enterprise engineers, and technicians to improve their own professional skills.

Furthermore, vocational teachers' workplace learning is collaborative and interactive. Diversified teaching models in vocational education such as enterprise–school cooperation, work-integrated learning, and replacement internships have changed students' ways of learning, living spaces, and interpersonal communication, which compels school education to be more open and diversified. Therefore, workplace learning for vocational teachers also requires collaboration with enterprises to learn business management and the practical skills of guiding students to promote development at schools and enterprises and encourage mutual cooperation between teachers and students (Peng, 2014; Wang, 2014; Wang & Deng, 2013).

In addition, workplace learning for vocational teachers is situational and practical because the nature of vocational education is technically oriented education that requires vocational teachers to be "double-qualified" teachers, which means that teachers possess both practical and academic abilities in teaching and learning (Yu, 2015). Vocational teachers achieve this qualification through the practice of their work in workplace learning, and their learning is largely based on solving problems inherent in vocational education, such as student management, curriculum development, internship, and other practical issues, in order to improve their teaching skills and teaching quality. Vocational teachers can also develop their practical knowledge and skills by participating in business training in enterprises and experiencing the process of production management in their workplace learning situations.

Conclusion

In this article, a proposal has been presented for the potential of an effective workplace learning environment in order to understand vocational education teachers' learning in their professional development. In addition, a summary has been provided of the key definitions of workplace learning along with its changing contexts and the new directions of emerging theories of workplace learning. Illeris's (2011) dual triangle workplace learning model has been expanded, analyzed, and evaluated, in particular regarding its

implications for vocational education teachers' transfer of work identities and their practices in working situations in vocational education and training. After reflections on Illeris's workplace learning model and related literature on learning theories, a specific workplace learning model for vocational education teachers in the condition of the characteristics of their working and learning situations has been proposed. The proposed model for the workplace learning of vocational education teachers highlights the interactions of vocational education teachers' work identities with individual and organizational learning situations and their competence development through integrating workplace practices in work situations. In summary, the article explored the professional development of vocational education teachers through the dynamics of their workplace learning. The proposed model provides a theoretical framework for empirical studies to examine the professional learning of teachers through the interactions between teacher identity and work practices and the experiences related to various learning dimensions of the workplace learning triangles in different environments.

References

Anderson, J. R. (1982). Acquisition of cognitive skill. *Psychological Review, 89*(4), 369–406.

Andersson, P., & Köpsén, S. (2015). Continuing professional development of vocational teachers: Participation in a Swedish national initiative. *Empirical Research in Vocational Education and Training, 7*(1), 1–20.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Barnett, R. (1999). Learning to work and working to learn. In D. Boud & J. Garrick (Eds.), *Understanding Learning at Work* (pp. 29–44). London: Routledge.

Billett, S. (1994). Situated learning: A workplace experience. *Australian Journal of Adult and Community Education, 34*(2), 112–130.

Billett, S. (2000). Guided learning at work. *Journal of Workplace Learning, 12*(7), 272–285.

Billett, S. (2001a). Knowing in practice: Re-conceptualising vocational expertise. *Learning and Instruction, 11*(6), 431–452.

Billett, S. (2001b). *Learning in the workplace: Strategies for effective practice.* Sydney: Allen & Unwin.

Billett, S. (2002). Critiquing workplace learning discourses: Participation and continuity at work. *Studies in the Education of Adults, 34*(1), 56–67.

Billett, S. (2004). Workplace participatory practices: Conceptualising workplaces as learning environments. *Journal of Workplace Learning, 16*(6), 312–324.

Broad, J. H. (2016). Vocational knowledge in motion: Rethinking vocational knowledge through vocational teachers' professional development. *Journal of Vocational Education & Training, 68*(2), 143–160.

Cairns, L., & Malloch, M. (2011). Learning in the workplaces: Communities of practice and beyond. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 73–85). London: Sage.

Davids, A. I. R., Bossche, P. V., Gijbels, D., & Garrido, M. F. (2016). The impact of individual, educational, and workplace factors on the transfer of school-based learning into the workplace. *Vocations and Learning, 10*(3), 275–306.

Desimone, L. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181–199.

Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Education, 26*(2), 73–247.

Fuller, A., Hodkinson, H., Hodkinson, P., & Unwin, L. (2005). Learning as peripheral participation in communities of practice: A reassessment of key concepts in workplace learning. *British Educational Research Journal, 31*(1), 49–68.

Fuller, A., & Unwin, L. (2011). Workplace learning and the organization. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 46–59). London: Sage.

Hodkinson, H., & Hodkinson, P. (2004a). Rethinking the concept of community of practice in relation to schoolteachers' workplace learning. *International Journal of Training and Development, 8*(1), 21–31.

Hodkinson, P., & Hodkinson, H. (2004b). The significance of individuals' dispositions in workplace learning: A case study of two teachers. *Journal of Education and Work, 17*(2), 167–182.

Hodkinson, H., & Hodkinson, P. (2005). Improving schoolteachers' workplace learning. *Research Papers in Education, 20*(2), 109–131.

Hutchison, D. (2004). *A natural history of place in education*. New York and London: Teacher College Press.

Illeris, K. (2003). Workplace learning and learning theory. *Journal of Workplace Learning, 15*(4), 167–178.

Illeris, K. (2005). A model for learning in working life. *Journal of Workplace Learning, 8*(16), 431–441.

Illeris, K. (2009). A comprehensive understanding of human learning. In K. Illeris (Ed.), *Contemporary theories of learning: Learning theorists... in their own words* (pp. 7–20). London: Routledge.

Illeris, K. (2011). Workplaces and learning. In M. Malloch, L. Cairns, K. Evans, & B. N. O'Connor (Eds.), *The Sage handbook of workplace learning* (pp. 32–45). London: Sage.

Jacobs, R. L., & Park, Y. (2009). A proposed conceptual framework of workplace learning: Implications for theory development and research in human development. *Human Resource Development Review, 8*(2), 133–150.

Jarvis, P. (2011). *Adult learning in the social context*. New York: Routledge.

Jorgensen, C. H., & Warring, N. (2003). Learning in the workplace: The interplay between learning environments and biographical learning trajectories. In C. H. Jorgensen & N. Warring (Eds.), *Adult education and the labour market VII B* (pp. 9–33). Copenhagen: Roskilde University Press.

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. New Jersey: FT Press.

Köpsén, S. (2014). How vocational teachers describe their vocational teacher identity. *Journal of Vocational Education & Training, 66*(2), 194–211.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Li, L., Ji, G., & Li, G. (2010). Analyses vocational education teachers' career planning and professional development. *Education Exploration, 8*(2), 103–104.

Lloyd, C., & Payne, J. (2012). Raising the quality of vocational teachers: Continuing professional development in England, Wales and Norway. *Research Papers in Education, 27*(1), 1–18.

Lucas, N., Loo, S., & McDonald, J. (2005). Combining 'subject knowledge' with 'how to teach': An exploratory study of new initial teacher education for teachers of adult literacy, numeracy and English for speakers of other languages. *International Journal of Lifelong Education, 24*(4), 337–350.

Mikkonen, S., Pylväs, L., Rintala, H., Nokelainen, P., & Postareff, L. (2017). Guiding workplace learning in vocational education and training: A literature review. *Empirical Research in Vocational Education and Training, 9*(1), 1–22.

Olsen, B. (2008). How reasons for entry into the profession illuminate teacher identity development. *Teacher Education Quarterly, 35*(3), 23–40.

Peng, M. C. (2014). Analyzing the professional development of vocational education teachers from workplace learning perspective. *Journal of Changchun Education Institute, 30*(23), 119–120.

Schaap, H., Baartman, L., & Bruijn, E. (2012). Students' learning processes during school-based learning and workplace learning in vocational education: A review. *Vocations and Learning, 5*(2), 99–117.

Tynjälä, P. (2013). Toward a 3-P model of workplace learning: A literature review. *Vocations and learning, 6*(1), 11–36.

Vähäsantanen, K., & Billett, S. (2008). Negotiating professional identity: Vocational teachers' personal strategies in a reform context. In S. Billett, C. Harteis, & A. Eteläpelto (Eds.), *Emerging perspectives of workplace learning* (pp. 35–49). Rotterdam: Sense Publishers.

Wang, W. M. (2014). Literature overview on connotation of TVET teachers' professional development. *Journal of Wuhan Polytechnic, 13*(4), 9–13.

Wang, Q., & Deng, Y. X. (2013). Workplace learning theory in the use of teachers' professional development. *Teaching and Management,* (6), 36–38.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization, 7*(2), 225–246.

Wheelahan, L., & Moodie, G. (2011). *The quality of teaching in VET: Final report and recommendations.* Canberra: Australian College of Educators.

Young, M. F. D. (2008). *Bringing knowledge back in: From social constructivism to social realism in the sociology of education.* Abingdon: Routledge.

Yu, Q. (2015). Improvement of teacher qualification for secondary vocational education teachers of general courses. *Teacher Education Research, 27*(3), 25–30.

Corresponding authors

Yanmin Zhao
Department of Educational Leadership and Management, The Education University of Hong Kong, Hong Kong, China
E-mail: zhaoy@eduhk.hk

James Ko
Department of Education Policy and Leadership, The Education University of Hong Kong, Hong Kong, China
E-mail: jamesko@eduhk.hk