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2. PRACTICE-BASED EDUCATION

Theoretical Underpinnings

> The basis of knowledge creation is the dynamic relationships that arise from the interaction of people with the environment, generations with each other, and social and physical relationships. (Durie, 2004, p. 1139)

Practice-based education (PBE) is a broad term, referring in this book to tertiary education that prepares graduates for their practice occupations, and the work, roles, identities and worlds they will inhabit in these occupations. In practice as in theory, PBE operates at curriculum level and through particular teaching and learning strategies. A PBE curriculum is one that frames goals, strategies and assessment around engagement with and preparation for practice; it values both learning for and learning in practice and occupational contexts. PBE teaching and learning strategies include explicit activities, such as workplace learning placements, practical classes and simulations where students learn occupational skills and become oriented to their occupational roles, lectures where visions of their occupational contributions are presented, and assignments and online learning activities where they can work on practical problems they will encounter in their future work roles. Across these strategies lie the goals of developing the novice practitioner's professional identity and key profession-specific as well as generic capabilities needed in their future occupations, and the requirement for critique and appraisal of processes and outcomes occurring through assessment of students' learning and evaluation of programs.

Many theoretical and research publications support and address these theoretical foundations. In this chapter we focus on overlapping key theories that we have identified as most influential and valuable for PBE:

– experiential, situated and workplace learning
– social learning theory
– learning in communities of practice.

EXPERIENTIAL, SITUATED AND WORKPLACE LEARNING

A key vehicle for facilitating learning for practice is the provision of opportunities for students to learn through experience in real situations, particularly workplaces, where they encounter the realities of their future practice or occupation. There are three core ingredients to such learning:

– learning through experience

- learning that is situated – which relates to contextualising or locating that learning in real problems, real settings, real encounters with people associated with the occupational role, and real consequences for action
- learning that facilitates engagement with the occupational workplace.

Experiential Learning

Schön (1983, 1987), Kolb (1984) and Boud and Garrick (1999) have described processes by which processionals learn from practice through experiential learning and reflection. The concepts of experiential learning, reflective practice and self-assessment associated with these authors' work have been universally accepted as valid, essential ingredients of professional development and professional practice. Being able to reflect on, critically appraise and enhance your own performance and its outcomes and being able to judge when to ask for help or another opinion are important professional attributes. It is the reflection on experience and the problem solving that occurs alongside experience that creates what Cox (1988) described as "working knowledge." Working knowledge can be seen as the store of exemplars and experiences with a range of cases that practitioners draw upon to solve work problems. In practice settings, supervisors play an important role in helping novice practitioners develop these skills, not just their knowledge and technical skills.

Situated Learning

In PBE there is an expectation that learning will be *situated* in practice and that learning occurs from being part of the context and reality of practice. Learning associated with practice occurs in a context that has the potential to offer learners opportunities to participate actively in tasks and interpersonal interactions and to be supported while doing so (Lave & Wenger, 1991; Billett, 2001; Sheehan, Wilkinson, & Billett, 2005; Kemmis, 2005).

Placing a focus on situated learning and participation has implications for learners, supervisors and the practitioners who engage with learners. For students it means that practice-based learning is about engaging actively with practitioners and with the tasks and conversations of the workplace. For teachers and supervisors it means introducing students to the practice community, sharing understandings, interpreting meanings, co-learning with students and contributing to as well as identifying with the practice community. The role of the supervisor in making workplaces effective learning environments involves organising and managing learning, guiding students' development and understanding of work practices and their development of self-regulatory skills through participating in activities that help the learner progress from being a novice towards becoming an expert, as demonstrated in Lave and Wenger's (1991) work on communities of practice.

Billett (2001) highlighted the role of combinations of routine and non-routine problem solving as a learning strategy in the workplace environment and the importance of having a supervisor who provides insights into work procedures and declares any "hidden knowledge" that the student may not be able to access and

learn alone. It is important to remember that much of the knowledge that supports practice is tacit. The practice community shares the task of refining professional practice, sharing meaning and developing artefacts accessible to new generations of practitioners.

Hildreth and Kimble (2001) highlighted what they described as the "duality of knowledge" as the traditional "hard knowledge" and an emerging "soft knowledge" culture. Hard knowledge is knowledge that can be quantified and can be captured, codified and stored, whereas soft knowledge is "what people know" (which cannot be articulated, abstracted, codified, captured and stored). Soft knowledge is situated in practice and lives, develops and changes in the practice of everyday practitioners, not in text books, written guidelines or protocols.

Traditional Workplace Learning

Traditionally, workplace learning was associated with guilds. Apprentices were taught by experienced guild members (perhaps, masters). Looking back at this learning approach we see strengths and weaknesses:

– The master/teacher might have been a highly skilled practitioner but not a good teacher.
– The apprentice might have been seen as just a worker rather than a learner.
– The apprentice's tasks would arise from and be limited to the tasks at hand, perhaps not allowing for a comprehensive study of the range of skills and knowledge needed for the practice/craft.
– Differences might exist in the extent to which the rationales and practice knowledge of the master, particularly tacit knowledge, were taught alongside the practical skills.
– Novices focus on the skills inherent in the task rather than learning transferable skills or skills for unpredictable future tasks or problems.

Collins, Brown, and Newman (1989) distinguished between traditional and cognitive apprenticeships. Adopting a cognitive apprenticeship approach, it has been argued, addresses a number of the deficits of the traditional apprenticeship approach. In particular, making the teacher's own reasoning transparent has been shown to be a powerful predictor of learner satisfaction (Smith, Varkey, Evans, & Reilly, 2004). Thinking aloud needs to be a disciplined and deliberate strategy (Ericsson, 2004; Reilly, 2007); it helps novices to apply practice algorithms and guidelines, and assists with the struggle of evidence-based practice and the amalgamation of new knowledge into practice.

Expert practitioners can listen while novices share their thoughts and reasoning, in order to identify strengths and limitations in the novices' reasoning. Cognitive apprenticeships address the thinking as well as the visible skills linked to practice. Novices are exposed to the whole of their occupational roles, not just the task at hand, and the teacher aims to present a wide range of tasks and to encourage students to reflect on and articulate elements that are common across tasks. The goal is to help novices generalise skills, learn when a skill is applicable, and transfer the skill

in novel situations. To translate the model of traditional apprenticeship to cognitive apprenticeship, teachers need to identify the task processes and make them visible to students, situate abstract tasks in authentic contexts, and utilise diverse situations while articulating the common aspects of the task so that students can transfer their learning and deal with the uncertainties of practice.

Contemporary Workplace Learning

Workplaces offer learning outcomes that cannot be obtained in formal components of curricula (Billet, 1994; Evans, 1994; Boud & Garrick, 1999; Candy & Mathews, 1999). In his work on workplace learning, Billett (2001, 2002) emphasised the significance of participation in such learning and suggests that the process of construction of vocational knowledge depends on interaction with the work environment. He maintained that expertise and domains of knowledge are not abstract or universal but are influenced by the circumstances of their deployment. For example, he pointed to the different requirements of medical practice in a small hospital in the country town, a provincial centre, and major teaching hospital in a metropolitan capital. Then there are differences in general practice across communities, with different profiles of age, wealth, and wellbeing.

The performance expectations are shaped by the requirements of the particular work practice, and novices need to develop capacities to meet those requirements. Moreover, because much of the knowledge and capabilities that need to be learned are situated in workplace settings, these settings provide learners with the opportunities and support to participate actively in tasks and experiences that will enable them to develop the required abilities.

The workplace environment plays a key role in aiding novices' development. This can best occur when the workplace can invite the novice to participate, interact and learn as part of everyday professional practice. The affordances or invitational qualities of the professional practice are likely to be most welcome when the learner is unconfident, shy or lacking in social ease. Conversely, workplace environments that are not inviting or of low affordance can exacerbate a learner's low level of confidence and social ease. Learners benefit from being accepted by a work team and being able to participate fully in it, even beyond the benefits of positive working relationships and effective work performance. Such participation promotes initial and ongoing development of individual capabilities through learning with experienced practitioners.

A key outcome of individuals working and communicating together is the development of intersubjectivity or shared understanding (Rogoff, 1990). Intersubjectivity allows activities to occur without the need for constant negotiation, which can be reserved for dealing with new or novel tasks and problems. Intersubjectivity is a learned outcome that arises through interaction with social partners. This shared understanding develops from opportunities for individuals to articulate what they mean, compare that meaning with others, refine and further their understanding through these interactions, and also collaboratively

engage in workplace tasks in which they jointly deploy knowledge and witness, monitor and evaluate their performance.

Intersubjectivity is an outcome of learning that is held to be the product of inter-psychological processes that operate between individuals and social sources of knowledge. The process is important because the knowledge required for effective vocational practice, such as that of doctors, nurses, chefs, and lawyers, does not simply spring from within individuals. Instead, such knowledge is developed and refined over time as practice is intersubjectively developed and refined. Because knowledge of the field has its origins in practices that have evolved over time through the work and reflections of practitioners, particularly expert and wise practitioners, there is a need to engage with these people to learn this knowledge.

Textbooks provide one means of securing declarative and propositional knowledge. Yet the procedures that expert practitioners often use can be especially difficult to write down and capture in text. Even the knowledge that can be written in textbooks may need to be made more explicit or easier to understand by an experienced practitioner to assist novices' learning.

Billett (2001) has recognised that workplace learning is facilitated by being able to access experts, being able to engage in practice and working collaboratively with more experienced peers, and being guided to engage in activities that extend the novice's knowledge. However, due to varied access to and engagement in workplaces, opportunities to enjoy this support in workplaces are not evenly distributed. This may be particularly true for part-time workers (Bernhardt, 1999), and for workers from non-mainstream language and cultural backgrounds (Hull, 1997) working in English-speaking settings. Personal factors such as differences in communication style and personality can also influence learning. There is a reciprocity to participation (Billett, 2001, 2002): the workplace can vary in how much it invites the practitioner to participate, and people can differ in how, and how much, they elect to engage with peers and more experienced co-workers.

SOCIAL LEARNING THEORY

Social learning theorists adopt the position that the learner is an active participant moving into a social learning environment that requires active engagement in the community of the workplace, where the structure of the activity as a whole forms the framework for learning. This is unlike the experience of many learners within the "traditional academy," of being subjected to a largely transmission-based pedagogy reduced to topics and sub-tasks, presented as objectives and tests, with the learner as a relatively passive/compliant participant. It is argued that models of learning that take into account how learning occurs in dynamic and complex team-based work environments and systems involving learning with more experienced practitioners provide a best-fit theoretical framework for practice-based learning.

Approaches to Social Learning

Psychological approaches to social learning propose that the attributes, values and attitudes of the individual continually interact with that individual's behaviour. The individual and the environment continually interact (Bandura, 1977). Psychological theories attribute to individuals several inherent capabilities that underlie learning and psychological functioning. These include:

– Symbolic capability – the ability to memorise information and events.
– Forethought capability – the ability to formulate images of desirable future events and to use them as motivators.
– Vicarious capability – the ability to learn through observation of the actions of others and the consequences of these actions.
– Self-reflective capability – the ability to reflect evaluatively and analyse one's actions.
– Self-regulatory capability – the ability to set standards for behaviour and goals and to direct energies to those goals.

Eraut (2000) argued that knowledge can be conceptualised as a social rather than an individual attribute. His argument draws on the concept of distributed cognition (which involves individuals distributing their knowledge into the environment and depending on or utilising the knowledge of others to act effectively) and the idea that learning is embedded in a set of social relations and may be socially rather than individually constructed. This approach draws on Vygotskian developmental theories.

Activity theorists (e.g. Engestrom, 1987) have focused on bridging the gap between performance of a desired skill and the developmental level of the learner, and provide an account of learning and development as a mediated process. Such theory builds on the work of Vygotsky (1934) who argued that learning does not occur in isolation; rather that it takes place through interaction with the social environment. Vygotsky theorised that social, cultural and historic forces shape individual development. Individuals are active agents in their own development but they do not act in settings entirely of their own choosing, and are influenced by the social context and its impact on knowledge interpretation.

Bakhtin (1990), took a slightly different perspective, suggesting that people need each other not to accomplish tasks but because the other, the outsider, provides the external dialogue. In a study in medicine, Sheehan et al. (2005) highlighted the role of participation in junior doctors' learning. The importance of dialogue with an experienced other emerged as an important factor in developing clinical reasoning skills, in learning to think and problem solve like a practitioner, and in assisting novices to enter the professional culture of medicine. Wells (1999) provided an example of the participation model in action by describing dancing as a cultural activity. A novice joins an ongoing community when beginning dance. Guided by the music and movement of others, the novice slowly picks up steps. Here too the structure of the whole activity forms the learning framework.

Matusov (1998) also positioned himself within a participation model, along with Rogoff (1990) and Lave and Wenger (1991), offering an alternative to an internalistic model (i.e. one that an individually personally/internally constructs). Matusov (1998, p. 326) argued that internalisation and participation models are different world views:

> The internalization model of cultural development emphasizes transformation of social functions into individual skills … The participation model considers individual cultural development as a validated process of transformation of individual participation in a socio-cultural activity. Transformation of participation involves assuming changed responsibility for the activity, redefining membership in a community of practice, and changing the socio-cultural practice itself.

Table 2.1 is adapted from Matusov (1998). The table is included not to attempt to discuss or to resolve the different theoretical positions presented, but rather to represent internalisation and participation as two models in productive tension. Both world views can inform mentorship/supervision practice and workplace learning; they are seen as complementary not competing. This table identifies both the differences and the shared principles (e.g. the value of reflection, tolerance for ambiguity, the central role of problem solving and professional reasoning, the organisation of tacit knowledge, and knowledge transferability) in participation models so that these factors can inform participatory learning.

As an example of individualistic learning, when Schön (1983) described a process of reflection by which professionals learn from practice, he was describing a largely personal or individualistic process – something that was happening within an individual. Schön (1983, 1987) studied the way various professionals made decisions and found similarities between diverse groups such as nursing, architecture and the law. He concluded that in complex activities, practitioners did not apply rules directly from the textbooks. Instead, they linked existing knowledge from their reading with practical knowledge from their experience and thereby created their own rules for decision making. These rules were rarely written down, but were accepted as an inherent part of becoming a professional.

Experienced professionals experiment in their practice; try out new ways of doing things, take notice of the outcomes and then modify their practice as a result. Schön (1983, 1987) coined the term *reflective practice* for this process and identified two forms of reflection, *reflection in action* and *reflection on action*. Reflection in action is noticing what is happening when it happens; it demands active observation, looking for significance, and making a mental note of the details. Reflection on action takes place after the event and involves reviewing the events that occurred in order to develop a deeper understanding of them.

Table 2.1. Internalisation and participation models of learning

	Internalisation/Individual	Participation/Interactive
Social and psychological planes	– The social and psychological are seen as separate – The social experience and interaction with others is recognised as influential – Reflection on practice is the vehicle for internalisation	– The social and psychological are mutually constitutive and inseparable – Transformation occurs through participation in the professional environment – Reflection in and during practice mediates the process – Reflection is informed by others, socially derived
Joint and solo activities	– Joint and solo activities are separate, with solo activities being seen as psychologically and developmentally more advanced – Personal competence is independent and independent practice is more advanced than collaborative practice	– Mutually constitute each other – Solo activities occur in the context of sociocultural workplace activity rather than as a context-free mental function – Emphasise interprofessional and professional competency – Outcomes are co-produced with others and are enhanced
Transfer and continuity	– Skills and function exist outside activities and are therefore transferable from one activity to another	– Skills and functions are embedded in practice tasks and activities – Meaning is distributed across time, space and participants – it is interpreted and renegotiated with every team and client encounter
Course of development	– Objectivity is defined by the sociocultural nature of the profession as a community – Personal development is influenced by society and internal reflections but remains the responsibility of the individual	– Individual creativity and values shape the process of professional development and contribute to defining direction – Decisions are made within a community or team and knowledge is co-produced with and by team members
Assessment of progress	– Progress is assessed by comparison of skills and functions before, during and after an intervention – Mastery and appropriation of skills are the markers of success – Knowledge is assessed as private capital – accumulation	– Assessment is based on the monitoring of the processes of change and level of participation – Individual tests are construed as joint activities with supervisors in the context of the workplace activities and are linked to holistic outcomes – Moving to expert status within a community through participation is the marker of success

Adapted from Matusov (1998, pp. 229-230)

Daley (2001) investigated how knowledge becomes meaningful in professional practice across four professions. The findings indicated that professionals make meaning by moving back and forth between continuing professional education programs and their professional practice. "This study suggests that the process of

knowledge becoming meaningful for professional practice is tied tightly to the nature of professional work" (p. 52).

More recently, authors such as Kemmis (2005) have described learning as a more social process. "The ideas and understandings that give form and content to our reflection are socially given: they come from a socially constructed world of meanings and significances" (p. 143). Within this conceptual framework, action, which follows reflection, has its meaning in a social world as others understand us through our actions and conversations.

Wenger (1998) outlined a theory of social learning that takes participation as the basis of learning and requires active involvement in the practices of the social community. In this model, there is a process of change that occurs as the individual becomes more and more involved in the community, a change that Swanwick (2005) described as being "more about being than doing, and this progression may be enhanced by creating a favourable working environment" (p. 862). A description of Lave and Wenger's (1991) concept of community of practice follows, as we believe it offers a useful framework within which to describe learning that is situated in practice and the development of professional identity.

LEARNING THROUGH COMMUNITIES OF PRACTICE

While studying apprenticeships as a learning model, Jean Lave and Etienne Wenger (1991) identified a *community of practice* (CoP) as a concept for understanding how people learn in a social environment. They observed Yucatec midwives, tailors, quartermasters, butchers and recovering alcoholics, and traced the progression of the individual practitioner from newcomer to full member of the community. They noted that very little observable teaching occurred and that the foremost process was learning. Many of the exchanges of practical information and problem solving occurred during informal gatherings where tradesmen exchanged stories and novices could consult with experts in a non-threatening environment. Through this process, gaps in knowledge were identified, solutions proposed, tested by individuals and fed back to the group. These informal communications were the way knowledge was shared and created.

Wenger (1998) later described three interrelated dimensions of a CoP, namely mutual engagement (leading to shared understanding and meaning), joint enterprise (engagement and working toward a shared goal), and a shared repertoire (common jargon and resources). Since 1991 several definitions for a CoP have been offered. Wenger and Snyder (2000) defined a CoP as "groups of people informally bound together by shared expertise and passion for a joint enterprise" (p. 139). Mutual engagement is interaction with one another, not just in the course of doing work but to clarify that work, to define how it is done and even to change how it is done. In a joint enterprise, members of a CoP work together to accomplish something on an ongoing basis; they share work and they see clearly the larger purpose of that work. A shared repertoire is described as members having not just work on tasks in common but also sharing methods, tools, techniques and even language, stories and behaviour patterns.

The CoP idea is a way of conceptualising how practitioners can share and gain situational knowledge. By sharing stories and experiences (mutual engagement) practitioners can reflect and receive feedback (shared repertoire) from other members of the group on a shared passion or subject (joint enterprise). This sharing leads to new ways of doing and so creates a cyclical learning pattern that is driven by practitioners themselves. Wenger (1998) theorised that meaning is continually negotiated and renegotiated through the processes of participation and reification, which is derived from the active experience of ongoing practice and the use and development of shared artefacts. He argued that negotiation of meaning is historical and context-specific. The community may contact other professionals and seek expert guidance or access new material, but it is their need to solve a problem that drives learning and they use new information to negotiate their community meaning.

Lave and Wenger (1991) argued that learning and professional identity development begin by practising legitimately on the periphery of a community and then moving toward full participation through negotiating one's place in the community. In this process newcomers learn the practice of the community from its established members, by being situated in it. This is not the same as the concept of acculturation or socialisation; it is "a more encompassing process of being an active participant in the practices of social communities and constructing identity in relation to these communities" (Wenger, 1998, p. 4). In this process newcomers learn not only the practice of the community but also what it means to be a member of that community, through interaction with and observation of established members of the community and the border communities associated with it.

There are a number of limitations to the Wenger's concept and it has drawn its share of criticism. One such criticisms is that does not address issues of conflict and unequal power relationships that can occur in clinical workplace contexts (Cox, 2005). Lave and Wenger's original study (1991) acknowledges intergenerational conflict, yet it does not explain the other power relationships and influences within the community such as between established members or with border communities. In his 1998 work (when the focus was on identity) Wenger stressed the importance of trajectories travelled by members as they move from the periphery of a community to full memberships and the dilemmas that multi-membership and boundaries between communities creates for members, but power was not a central concern. Other criticisms concern lack of clarity and problematic use of the terms "community" and "practice."

CONCLUSION

It is important to note that adopting a social learning approach does not necessitate a withdrawal from current practices that facilitate individual learning. Instead, a social learning approach complements and supports those practices. As Bleakley (2006) noted, "the family of learning theories is based on how individual learners need to be supplemented to inform safe practice in dynamic and often high-risk contexts such as teamwork" (p. 156).

Similarly, Eraut (2002) and Fuller, Hodkinson, Hodkinson, and Unwin (2005) have commented that although participation in a CoP is a good way to learn, it is not the only way. They stress that formal education and teaching in the workplace should not be overlooked. Certainly, procedural skills and the need for individuals to demonstrate competence are likely to remain important aspects of practice-based learning for new practitioners.

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