TEACHING AND LEARNING ACROSS BOUNDARIES: WORK, CLASSROOM AND IN BETWEEN

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Typically far greater recognition and value is placed on learning through our educational institutions as compared to the rich learning opportunities and affordances for learning at and through work. Learning at and through work, offers opportunities that are holistic, meaningful, and take place within the complexity of the work environment where we use knowledge and skills in integrated ways. The classroom offers an ideal environment for exploring deeper levels of theory and practice and for reflection on praxis. The purpose of this article is to articulate the teaching and learning opportunities within the different spaces of classroom learning in educational institutions, work and the spaces in between. There is now a great deal of literature on learning at and through work. These studies have done much to develop our understanding of learning well beyond simple behaviourist or cognitivist understandings of learning. In this article we take a socio-cultural approach to explore how to leverage on different spaces.

This article draws on two research studies conducted by the Institute for Adult Learning, Singapore (IAL). One study took a semi-ethnographic approach for data collection involving four case studies. In the second study practitioner researchers conducted semi-structured interviews in three different organisations focusing on specific sets of skills and knowledge. From the findings of these different studies the authors developed a simple model to encourage focusing on classroom, work and in between spaces. Each of these spaces offers opportunities for developing and using pedagogical boundary tools (PBTs) (e.g. questioning, journals, gradual release of responsibility, projects, etc.). The article concludes with a discussion of the implications of using pedagogical boundary tools for learners, those with a teaching role, human resource personnel and employers.

Keywords: learning, work, classroom, spaces of learning, pedagogical boundary tools

INTRODUCTION

Although learning at and through work offers opportunities that are holistic, meaningful, and take place within the complexity of the work environment, where we use knowledge and skills in integrated ways we tend not to value it as highly as learning in classrooms situated in educational institutions (Bound & Lin, 2011). While the classroom offers an ideal environment for exploring deeper levels of theory and practice and for reflection on praxis, work is rich in learning affordances (Billett, 2001) and opportunities for building on learning that takes place through everyday practice. We often consider classroom and work as separate entities yet the research literature (e.g. Tynjälä, Välimaa, & Sarja, 2003) when practice elsewhere identifies the value for all stakeholders involved when there are close linkages between the educational institution and the workplace. In this article the authors focus on the learning
spaces offered through work, classrooms and the spaces in between. In particular we focus on
the tools that can be used in and across these different spaces over time and the implications
for learning.

In taking this approach there are assumptions about learning that we make. We consider
learning from a socio-cultural perspective and therefore to be far more than learning as
considered by behaviourist (a change in behaviour) or cognitivist perspectives (what takes
place in an individual’s head). Rather we take a constructivist, socio-cultural perspective, and
consider that learning results from everyday practice (Lave, 1996), is mediated by artefacts,
norms, structures and interactions (Bound, 2011) and is individual and collective (Guile &
Okumoto, 2008; Bound & Lin, 2013).

It follows from our understanding of learning that the separation of classroom learning from
work practices fails to address relations between practices. As a result we are all familiar with
responses such as, “This is not going to work in my work place”, or “My manager should be
attending this training”. Other times participants return to work from training full of
enthusiasm, but experience limitations to possible applications of their learning. The
assumption being made by those who design the learning (educators) and those who organise
for these experiences (HR personnel) is that participants will “transfer” their learning from
classroom to work. This is a myth that needs debunking, and a word we need to remove from
our lexicon when using it in relation to learning. In fact when we apply learning from one
context to another, there is a lot of learning taking place in the process, including
adjustments, rethinking and reconceptualising. We need to better understand what happens
between work and classroom.

Before an exploration of the findings of the two research projects and discussion that explores
this issue, in the next sections we explore the literature in relation to how we learn at work,
assumptions made, linking workplace and classroom learning and models of workplace
learning. The emphasis on learning at and through the spaces of work is deliberate, given our
opening statement that workplace learning is undervalued and under recognised. This brief
review of the literature is followed by an explanation of the methodology of each research
project, the findings and discussion.

HOW DO WE LEARN?

In a workplace, there are many “teachers”, including people and things: co-workers, peers,
managers, supervisors, the tools we use, the stories we hear, events, and the structures we
work within, to name a few. Learning in the workplace involves the use of objects and events
(Resnick, 1987) and so is embedded not only in work activities but in social relations and of
course it necessarily requires a sense of agency on the part of individuals (Billett, 2002).

Learning can be a by-product of work processes and includes participation in group
processes, working alongside others, consultation, tackling challenging tasks or roles,
problem-solving, trying things out, consolidating, extending and refining skills, and working
with clients (Eraut, 2011). In addition to these forms of participation and engagement which
themselves can be used as pedagogical tools, Billett (2001) notes that workplace pedagogies
include affordances for learning such as team meetings, internal communication systems,
time allocation for group learning, opportunities to solve problems, acquiring systemic
knowledge of the workplace, shared responsibility for learning and achieving organisational
goals, timely access to assistance from others and making appropriate use of assessment. Other strategies suggested by Billet include getting learners to think for themselves, the mentor encouraging the learner to reflect on their work practices, encouraging the learner to locate a variety of information sources (physical and in people), guided support, sharing how to problem-solve collaboratively and providing one-on-one instruction. Sandberg (2000) adds that deliberately setting challenges is important for developing competence.

‘Just doing the work’ is more complex than it sounds. Billett (2002) explains that in a ‘real’ environment, workers are required to undertake ‘goal-directed’ activities that require problem-solving. That is, workers have to consider new and effective ways of naming and addressing the problem, and then through practice, improve, and modify their approach. By doing the work, concepts can be richly associated with the activity, “thereby assisting the purposeful organisation of their knowledge” (ibid., p. 75). The more complex the tasks, processes, and systems within which the work is done, the more necessary it is to access a wide variety of tasks, experiences, and levels of responsibility in the workplace. This is because as complexity increases, what is required is greater than any individual can manage (Weick, 2001). Thus, practice and experience are necessary and valued aspects of workplace learning (Paloniemi, 2006; Billett, 2001).

There are challenges, such as gaining access to experts and activities in the workplace, the difficulties of learning conceptual knowledge through everyday work experiences if there is limited access to more ‘expert’ peers and ‘teachers’. The effectiveness of workplace learning is dependent on the culture and structure of the work and workplace being supportive of and requiring learning and development. Another dynamic of workplace learning is the motivation and learning history of the individual. Vaughan (2008, p. 33) notes that a “learning career” is developed over time and changes as experiences of learning and experiences of oneself as a learner, changes. Factors such as self-confidence, literacy and language barriers, sense of agency, knowledge and skill in learning to learn in different ways and environments, are part of the mix of learning in any setting.

ASSUMPTIONS ABOUT KNOWLEDGE

Boud and Garrick (1999) suggest that conceptions of workplace learning are flawed by a logic based on polarities about what is and what is not knowledge, and by what counts and does not count as learning. The ways in which we conceptualise knowledge influences the way we understand and name learning (Bound & Lin, 2010) and this informs our actions and practices. In educational institutional classrooms theoretical knowledge is valued over practical knowledge; in the workplace, practical knowledge is likely to be valued over theoretical knowledge. Guile and Griffith (2001) argue that educational institutions have long designed curricula that reflects a privileging of systemic or ‘vertical’ knowledge through formal learning of knowledge categorised into separate disciplines, whereas workplaces offer opportunities for the development of horizontal knowledge. The kind of knowledge which vocational and professional education programmes claim to provide is described by Eraut (2004, p. 205) as theoretical knowledge of concepts; methodological and procedural knowledge; practical skills and techniques; generic skills; and general knowledge about the occupation, its structure, modes of working, and cultural values. This categorisation portrays knowledge as static and in separate baskets, supporting a predominantly ‘banking’ (Friere, 1972) or acquisition (Sfard, 1998) approach to teaching as compared to a participative
approach (Sfard, 1998) using multiple strategies. However, Bereiter’s (2002) categorisation of knowledge suggests that knowledge is dynamic, fluid, and that much of what we ‘know’ comes with experience and learning in multiple ways and places. He categorises knowledge as statable knowledge: similar to declarative knowledge; implicit understanding: tacit knowledge acquired through experience; episodic knowledge: knowledge that comes from experience of previous cases and applied to reasoning and decisions; impressionistic knowledge: feelings and impressions expressed in intuitions; skill: similar to procedural knowledge but inclusive of the cognitive components of skill and skill that comes with practice; and regulative knowledge: knowledge about one’s own ways of doing and thinking, strengths and weaknesses as well as the principles and ideals of the profession.

Understanding knowledge as dynamic and fluid provides space for recognising that as we move across and into different contexts, we make constant adjustments, rethink and reconsider, reflect and adjust. A static understanding of knowledge assumes knowledge is ‘transferable’, despite there being little evidence of this (Eraut, 2004). Multiple dimensions across mental, material, social and cultural planes (Evans, 2009, p. 98) are involved when applying what was learnt in one context to another context. Eraut (2002, p. 69) describes the process as including the recognition of what prior knowledge is relevant to the current situation; transforming that prior knowledge so it fits the situation; then integrating the new assembly of knowledge and skills to create an understanding of the new situation and respond with appropriate action. This process of recontextualisation (Evans, 2009) requires time, support, and considerable new learning often posing considerable challenges.

Recontextualisation processes, a flexible and dynamic understanding of knowledge require different practices from educators in educational institutions and of workplace trainers / educators, discussed in the following section in relation to curriculum.

LINKING WORKPLACE AND INSTITUTIONAL CLASSROOM LEARNING

Time and opportunities built into the design of programmes or noted in an over-arching curriculum documentation where learners practise in different settings with different kinds of authentic problems is required to develop expertise. This is why Billett (2003) asks that curriculum ensures adaptability through multiple experiences of different instances of the practice in order to understand the diversity of the vocational practice. A sense of progression appropriate for the learners, consistent messages across the programme over time, the linking of modules or units, building in cognitive challenge and complexity with each round (Schwartz, 2006) are basic curriculum design principles that are appropriate for work and educational institutions.

Issues with facilitating and connecting practical and theoretical learning include ensuring that trainees are given opportunities to engage in work tasks and interact with knowledgeable others, recognising that learning processes at work are different from the ones trainees may have been used to at school and training centres (Guile & Griffiths, 2001) such as learning on the fly and through collaboration and observation. A study of interns involved in programmes with relatively intensive workplace learning found that the dialectic between workplace and classroom experiences “can produce a powerful educational dynamic” (Bailey, Hughes, & Moore, 2004, p. 169). These authors propose that the goal of adopting a workplace learning programme in combination with classroom learning can include cognitive growth, building
practical skills and knowledge of careers, personal and social development, and opportunities for reflection.

Reflection is intrinsic to learning and requires time and space, but reflection is not solely an individual cognitive process, rather it requires dialogue with others. This process can also evolve into conscious enquiry, which includes behaviours such as being able to ask relevant questions, sharing observations, seeking alternative perspectives, challenging, and seeking clarification through working with others (Owen, 2001). These are aspects of an inquiry approach; dialogical inquiry (Bound, 2010; Palincsar, 2005) that results in the co-construction of knowledge.

Different places and spaces of learning take on different thought patterns and ways of being, and we often accept these without thinking about them. As such, educators need to find ways of making these explicit and cross-fertilise concepts and experiences. Their role therefore is not to impart information but to initiate critical and reflective discourse where students learn to imagine and think of other possibilities. For this to take place, classroom trainers and workplace supervisors and trainers need to have a shared understanding of how trainees are progressing through their learning journeys. This would place them in better positions to identify and leverage teachable moments that constantly relate to and build on previous moments, regardless of whether they were constructed in class, at work or the space in between.

The shaping of a curriculum, the use of specific pedagogies and learning strategies are informed by the intent of these activities. Useful frameworks for considering overall intent can be found in different models of workplace learning and of work experience.

**MODELS OF WORKPLACE LEARNING AND WORK EXPERIENCE**

Two models have been selected for discussion from different perspectives, one from the perspective of workplace learning and the other from the perspective of an educational institution. Workplace learning models are designated by Bailey et al. (2004) as the functionalist model and the reflective or critical approach. The functionalist model sees the core purpose of workplace learning as preparing students for certain functions in the economy by giving students the requisite skills, knowledge and attitudes required. It assumes that the social relations are given and stable, the required skills can be identified, and proper teaching methods will prepare the learners for the work role. The reflective or critical model regards the structures and practices of the workplace as socially constructed, as potentially flawed and open to questioning and critique. Therefore, the goal is not only to prepare students for work but also to create potential for the students to understand and reflect on the existing alternatives, imagined alternatives and become active participants in the construction of their workplace and society (Bailey et al., 2004, p. 198).

From an educational institution perspective Guile and Griffiths (2001) write about work experience designed into educational institution’s programs. These authors identify five models of work experience:
1. Traditional: the purpose is to launch students into the world of work. It assumes learners are empty containers in which social interaction at work can be poured into.

2. Experiential: putting in place partnerships between the educational institution and the firms, negotiating clear objectives, using pedagogic practices such as debriefing after the work-experience.

3. Generic: planning a work experience placement and managing and evaluating the learning through the use of statements about 'learning outcomes'. This approach requires learners to develop their own learning outcomes for the work experience.

4. Work process: the focus is on learning about work process knowledge and develop ability to move across and engage with different contexts.

5. Connective: requires curriculum that calls for learners to relate different forms of learning in context and to conceptualise their experiences in different ways. The role of the teacher is one where they pose problems to encourage learners to "analyse their experiences and arrive at a critical understanding of their reality" (Guile & Griffiths, 2001, p. 125).

Each of these models requires different roles for students and trainers, and has different purposes and understandings of work and theory, and of the mediation of context. Guile and Griffith’s focus is on work experience as a learning and development opportunity, not solely as learning about work. They recommend the connective model as it manages to combine elements of all the models. This model requires a curriculum that takes a developmental perspective in encouraging learners to make links between work experience, contexts and different practices and knowledge.

**METHODOLOGY**

We draw on two research studies conducted by the Institute for Adult Learning, Singapore (IAL). The Bound and Lin (2011) study investigated Workforce Skills Qualifications (WSQ) programs that included some form of workplace learning with the purpose of understanding learning processes, barriers and constraints to workplace learning and how to support workplace learning. The researchers took a semi-ethnographic approach collecting data by interviewing trainees (n=10) and their supervisors (n=8), analysing the training and development documentation in each workplace and observing trainees as they engaged in their daily work. This study involved four case studies: a food and beverage (F&B) site, a hotel, aircraft maintenance and a nursing home for the elderly. Data collection for each case study took place between 6-12 weeks. For this article we draw on data from the hotel and trainee nursing aides in the nursing home for the elderly. For further details of the methodology and the full case studies see Bound and Lin (2011). The purpose of the second study was to uncover existing workplace learning methods used by the workers in relation to their own past work experiences, current work environment, and the alignment between their own and their organisational goals. In this study, 10 practitioner researchers conducted semi-structured interviews of 14 staff from 3 organisations, focusing on specific sets of skills and knowledge required for them to gain and be competent in their respective job roles, their career aspirations and how the organisation’s role in them, as well as uncovering enablers or barriers to their learning at the workplace. This study covered a voluntary welfare organisation, a small department in a government agency, and a local SME firm. In this article, we draw on two of these cases.
FINDINGS

Our data revealed two strong examples approximating the reflective model; from the practitioner researcher study and the trainee chefs case (Bound & Lin, 2011). In our first example, practitioner researchers studied a voluntary welfare organisation (VWO), to examine how staff gain competence in their respective job roles. New officers alternated regularly between formal classroom training that focuses on real workplace cases and actual work on the ground itself over the course of a year, supported amply by informal monthly one-to-one dialogue sessions with their supervisor, real-time observations of how their more experienced peers handle difficult cases and access to a community of colleagues through mobile chat groups and channels. The nature of the work itself dictates that every case is different which often requires officers to reflect and reprocess on the go. Hence the formal training sessions and dialogue sessions with the supervisor become a structured platform to consolidate these reflections, resulting in steady acquisition of expertise in a relatively short span of time.

Bound and Lin (2011) found in the case of mature aged trainee chefs in a high end Singaporean hotel, the trainees experienced a sense of trust. They were given tasks that challenged them but they were supported. They were asked to contribute to menus, and to information sessions. When one trainee was filleting fish as shown by his superior, he noted that school taught him basic skills. However at work he learnt enhanced techniques that wasted less fish. Activities are captured in a log book signed by supervisors and the educational institution ‘teachers’. Trainees take notes, photos of processes and products, to help them remember and provide artefacts, along with the log books for reflection, deeper understanding and skill development. Trainees moved between kitchens every three months and rapidly learn how to learn in each of these new environments by learning to ask the ‘right’ questions, to observe layout and organisation of the kitchen. Supervisors spoke of the high performance levels of these trainees.

The above examples contrasted sharply with the trainee nursing aides who were not given challenges. They did not experience a sense of trust and value in their workplace. There was no requirement for log books or similar artefacts, as it was a train and place programme with no continuous movement between school and work – unlike the trainee chefs. Trainees also found considerable differences between what they were taught in the educational institution and work practices. For example, they were taught to lift patients using two people, whereas in the nursing home patients were dragged, not lifted, by one person. The trainees pointed this out but were told to do what was normal practice at that workplace. This lack of support contributed to one of the trainees leaving and the other looking for alternatives - a loss to an industry employing high levels of foreign labour and seeking to hire and develop Singaporeans. This case highlights the need for intentional planning and the need for supportive cultures of learning on the part of the organisation and the educational institution.

In the local construction equipment company, from the practitioner researcher study, workers typically do not have access to any formal training outside the company, so any on-site learning takes place with the immediate supervisor as the conduit, in the form of on-the-job instruction, daily toolbox meetings and monthly safety meetings. What was revealing however was how informal learning featured prominently for these workers after working hours in the dormitory. Over the daily evening ritual of preparing and cooking dinner, these workers would recapitulate the events of the day, sharing issues they face and how they (or
DISCUSSION: WORK, CLASSROOM AND THE SPACES IN BETWEEN

In sharing our different projects, we asked what is it about classroom learning and workplace learning that can enable further development of learners and learning? The examples of reflection and the concept of recontextualisation point to there being quite a lot of learning happening in the ‘in between’ of work and classroom. In addition a number of researchers have used the concept of boundaries in this field (see, for example, Guile & Griffiths, 2001; Mulcahy, 2011). We thus conceptualised the three ‘spaces’ of work, classroom and the ‘in between’ as illustrated in Figure 1.

There are multiple spaces within each space, each with their own artefacts (sometimes shared), expectations, discourses, cultures, structures and purposes. Mulcahy reminds us to keep an open mind and not impose thinking and practices from one ‘space’ to another.

They are performative practices that require a constant weaving to and fro between, rather than an integration of, their categories and locations. Thinking ‘betweenness’ in education, occupying the space where what is other is also within, helps us refuse singular models, models which are based on one type of educational practice as the norm by which all others are judged. (Mulcahy, 2011, p.215).
It is important to recognise different approaches and performative practices as they mediate the way tools are used. It also serves as a reminder that different contexts or ‘spaces’ have different performative practices. As Mulchay reminds us, as practitioners we need to weave these practices across and through the different ‘spaces’. Pedagogical boundary tools provide the means for this weaving. PBTs are essentially learning and / or assessment activities (inclusive of making use of online/mobile platforms) designed to facilitate and leverage on being in different spaces and crossing the boundaries between an educational institution and work over time, and vice versa in order to leverage across the different environments. Examples of PBTs used in the case studies discussed above and in Bound and Lin (2011) include dialogue, observations, note taking, taking photos, projects, whether initiated through work and / or part of class requirements, reflective journals, log books, portfolios and much more. Dialogue for example, was common across all our examples, but used differently in each case. Dialogue is a fundamental PBT for learning which when used in the frame of dialogical inquiry (Bound, 2010; Palincsar, 2005) enables the co-construction of knowledge (Wells, 2002).

Our findings illustrate the use of PBTs resulting in a richness of practice where different knowledge and skills are used in integrated ways. In the case of the nursing aide trainees, the lack of PBTs and resultant lack of development opportunities inherent in the structure and culture of the workplace. PBTs are not used singularly but in combination with each other. For example, log books are useful for capturing the nature of activities, time spent and the quality of the outcome. However by themselves log books are limited as a PBT and support a functionalist approach (Bailey et al., 2004) or traditional model of work experience (Guile & Griffiths, 2001). Accompanied by additional tools such as opportunities for sharing and reflecting through dialogue; jointly developing a meaningful categorisation of activities, experiences, outcomes; writing, creating metaphors through collage, creating a wiki, a blog and so on, tools such as the log book become a vehicle or means for enacting the developmental approach (Bailey et al., 2004) as in the case of the trainee chefs or the experiential model of work experience (Guile & Griffiths, 2001). The implications for learning and development are evident in the trainee chef’s development of meta-cognitive skills (e.g. learning to ask the right questions as they move from one context to another) and their note taking and photos to aid retention. In the VWO, learning was reflective, enabled by PBTs woven through the different spaces of learning such as structured and unstructured dialogue, observations and networking with peers. Palinscar (2005) highlights the importance of these tools within the zone of proximal development (ZPD) where more expert others (supervisors, peers, trainers, etc.) stretch the capability of the learners while supporting them. Construction company workers and their supervisors were learning through a ZPD within a community of practice as they dialogueled in the ‘in-between’ space about the day, naming and solving problems. The tools used and how they are used will depend on the purpose and desired outcomes. What is important is to be clear about the intent and desired outcomes for the learners.

CONCLUSION

The implications of considering the different spaces and leveraging learning opportunities afforded by each space are considerable. By being aware that there is not just the classroom or the workplace, but there is the classroom, the workplace and the space in between,
educators, and HR practitioners are enabled to deliberately consider the possibilities for learning and development in all of these spaces.

We need to think beyond classroom as the place of learning, particularly of learning theoretical knowledge; rather it is a matter of weaving practices in, across and through the different spaces. The nature of the space, the activity and the intent and purposes of the learning and development will mediate what PBTs are most effective, the combinations of PBTS used and the ways in which they might be used.

The role of the educator is to ‘know’ the workplace(s) and design learning so that it weaves through all three spaces, recognising that development of competence and that moving towards competence and developing expertise takes time. The space in between is one where participants naturally reflect and reprocess, so the educator’s role is to design artefacts and processes that enhance and build on what already takes place, not only in this space but also in the workplace and in the classroom. HR personnel should be cognizant of these processes in their arrangements with educational institutions, enter into dialogue about their desired outcomes and provide support for learners and for those supporting them to enhance affordances for learning. We suggest that actively using these different learning spaces and designing appropriate PBTs enables people to not only think bigger, but be bigger, to move beyond where they are now as part of a process of constantly becoming over time.

REFERENCES


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