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Towards a workplace pedagogy: Guidance, participation and engagement

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This paper proposes bases for a workplace pedagogy. Planes of intentional guidance and sequenced access to workplace activities represent some key workplace pedagogic practices. Guidance by others, situations and artifacts are central to learning through work, because the knowledge to be learnt is historically, culturally and situationally constituted. However, the quality of learning through these planes of activities and guidance is ultimately premised on the workplace's participatory practices, which shape and distribute the activities and support the workplace afford workers and from which they learn. Situational and political processes underpin these workplace affordances. Yet, participatory practices are reciprocally constructed, because individuals elect how to engage in and learn from what workplaces affords them. A workplace pedagogy is founded in these co-participatory practices and needs to account for how workplaces invite access to activities and guidance and how individuals elect to participate in what the workplace affords.

A workplace pedagogy

Over the past decade or so, interest in workplaces as learning environments has intensified. Much of this interest is founded in pragmatic concerns associated with reducing the cost of vocational skill development, and enhancing its access and relevance to industry sector needs and pertinence to particular enterprise requirements (Boud & Garrick 1999). However, other — perhaps more enduring — interests are now pressing for the formulation of a workplace pedagogy directed at developing expert vocational practice through work and throughout working lives. Firstly, for many workers — indeed, for large cohorts of workers across a range of industry sectors — the workplace provides the most likely situation to initially develop vocational knowledge. For these workers, there are either no existing courses for their vocational specialisation, or those that do exist are either inaccessible or inappropriately presented to workers or both (Billett 2001a). Accordingly, the experiences and support provided by workplaces are often the primary or only

sources of individuals' initial learning of their vocational practice as well as its further and ongoing development throughout their working lives.

Secondly, workplace experiences make important contributions to learning vocational practice. Many highly prized vocational preparation programs (e.g. for the trades, law, medicine) include lengthy periods of workplace experiences (e.g. as apprentices, articulated clerks, interns). Acceptance into these vocations is not possible without lengthy periods of workplace practice supervised by more experienced coworkers. Thirdly, workplace experiences are increasingly being prized in educational programs for diverse purposes ranging from understanding the 'world of work', the development of specific vocational skills or to 'contextualise' what has been learnt in educational institutions. However, again it is the exception that workplace experiences are conceptualised as providing kinds of learning which are legitimate in their own right. Instead, they are often seen as providing experiences that augment and support what is being taught in educational institutions.

Fourthly — and perhaps most importantly — most of the ongoing development of workers' skills throughout their working lives will occur through participation in work. Vocational practice changes and the requirements for work performance transforms over time. Therefore, robust, strongly empirical and conceptual bases for how learning at work should best proceed — a pedagogy for the workplace — is now urgently warranted to inform how vocational development should proceed through working lives. This pedagogy is particularly important during a period in which many enterprises are withdrawing their responsibility for the maintenance of their workers' skill currency, viewing this as an individual obligation (Carnoy 1999). Without a clear account of how learning proceeds at work, it is difficult to appraise the consequences of this, or other issues associated with learning through work.

Therefore legitimate, worthwhile and pressing reasons exist to formulate a workplace pedagogy. The pragmatic interest by governments, industry and enterprises in workplaces as learning environments needs to be countered by a consideration of workplace pedagogic practices that aim to develop robust vocational practice in individuals. This means the development of the capacities that permit individuals to liberate their practice from the particular circumstances in which it was initially learnt in to apply it elsewhere and to new tasks. However, this is likely to be a hard-earned goal and unlikely to be achieved without intentionality in the organisation of workplace activities and support. For these reasons, understanding how individuals can best learn at work constitutes a worthwhile educational and pedagogical project (Boud & Garrick 1999).

Everyday participation in work activities has been shown to develop many of the capacities required for effective work practice (Billett 2001a). In addition, the use of intentional guided learning strategies has demonstrated a capacity to augment the contributions of these everyday experience by making accessible and developing understanding and procedures that are unlikely to be learnt alone (Billett 2000). However, while these contributions are salient, a workplace pedagogy needs to comprise more than intentional guided learning through work.

Other, and more foundational, factors need to be included. Central to these are workplace participatory practices. Opportunities to engage in work activities that are novel, thereby extending individuals' capacities, the securing appropriate guidance from experienced coworkers, and being able to access practice in prized tasks are all salient in developing, honing and extending individuals' vocational knowledge. These kinds of participation likely lead to the development of robust vocational practice. However, access to these opportunities is not always distributed evenly across workforces, as they are subject to workplace practices that reproduce inequities through contested workplace relations. These relations may seek to marginalize women, non-english speakers, migrants and others (Beirema 2001, Hull 1997; Tam 1997). Workplace cliques and affiliations serve to distribute opportunities to participate and learn ---- access guidance and prized activities. So the opportunities afforded to individuals to participate in and learn through work are shaped by workplace norms and practices and by intentions associated with learning to sustain the work practice — albeit protecting and promoting the particular interests and affiliations of groups or individuals within the workplace.

However, workplace affordances only represent one side of the reciprocal processes of participation and learning. Individuals' agency also mediates engagement with activities and what is learnt through participation. They might elect to engage effortfully in some components of vocational activities, while participating less effortfully (or even resentfully) in others. In all, individuals' engagement with work is held to be co-participative — an interaction between how the workplace affords participation and how individuals elect to participate in that social practice. In these ways, individuals' thinking and acting, and learning, through work is shaped by reciprocal social contributions that comprise the cognitive and social experience (Valsiner & van der Veer 2000). These include the kinds of goal-directed activities that can be accessed, the kinds of goals they are seeking (which are often constituted situationally), the culturally-derived norms and practices that shape participation in the vocation and the transforming expectations about performance, as well as the unique but socially derived personal histories of the individuals themselves that constitute the cognitive experience.

These reciprocal workplace participatory practices are central to understanding learning for and in the workplace. Accordingly, three bases for a workplace pedagogy are proposed here, comprising: (i) the intentional and indirect guidance that can be accessed as part of everyday work activities; (ii) how workplaces afford opportunities to participate in work activities and access guidance; and (iii) how individuals elect to engage subject to workplace practice, and with the work practice.

The case commences with a brief rehearsal of views about how learning through work proceeds as an inter-psychological process. This elaborates the centrality of participatory practices in considering learning through work. This theme is developed further in the next section that discusses the role of direct guidance for learning that would not otherwise be realized through individual engagement alone. However, as access to opportunities such as direct guidance are

subject to the social and political factors that comprise workplace norms and practices, bases of workplace affordances are discussed next in terms of participatory practices that reflect these interests. This is followed by an elaboration of the reciprocal nature of workplace participatory practices through a consideration of individuals' engagement in work and concludes with a consideration of how an orientation towards workplace learning might progress.

Learning through work

Investigations in a range of industry sectors (i.e. coal-mining, secondary processing, transport, clerical, distributive, service, manufacturing and the public sector) have used workers' experiences and views to identify key contributors to the learning of their vocational practice through work (Billett 2001a). These are: (i) engagement in everyday work tasks; (ii) direct or close guidance of coworkers; and (iii) indirect guidance provided by the workplace itself and others in the workplace. These workers proposed that the workplace provides authentic learning experiences that are highly applicable to the circumstances in which they are learnt. Everyday work activity can also provide combinations of new learning and practice that can assist reinforce, refine and extend what was initially learnt. However, there is no guarantee that what is learnt in one workplace at one point in time will adapt to novel workplace tasks or to other situations and circumstances.

The views of these workers are consistent with those found in both the cognitive and sociocultural constructivist literatures. These literatures hold learning to be the product of engaging in goal-directed activities (Rogoff 1990, 1995; Scribner 1984), which entails encounters with impasses or problems of different kinds (Greeno & Simon 1988, Prawat 1993), such as those encountered at work. The negotiation with and resolution of these tasks (even if it is partial) has cognitive consequences, as these activities transforms individuals' knowledge. From the cognitive view, the kind of goal-directed activities individuals engage in — for instance, whether they are routine (familiar) or non-routine (novel) activities — has consequences for what is learnt at work (Groen & Patel 1988). Frequently engaged work tasks serve to reinforce and refine, or hone further, what is already known, whereas work tasks that present as new activities with novel requirements are the source of new learning that extends what individuals already know. Therefore, depending on their novelty to individuals, workplace activities likely serve to reinforce, refine or transform individuals' existing ways of understanding and responding to workplace tasks. Hence, different kinds of learning are likely to arise from participation through work, depending on the degree and frequency of these experiences. For instance, midwives claim to develop a highly nuanced understanding of a birthing mother's progress from having engaged in hundreds of birthing situations of different kinds (Billett 1999). They contrasted their nuanced way of knowing with that of gynecologists, who only regularly engage with part of the birthing process and often only with particular kinds (difficult) cases.

This example also promotes another attribute. Workplace artifacts — such as objects, signs, tools and symbols — also provide access to the knowledge required for performance, as do other forms of visual clues and cues provided by observing coworkers (Scribner 1984; Suchman 1997). These less direct forms of social guidance provide access to sub-goals and goals for performance as well as approximations of procedures for achieving those goals, as Lave (1990) found such as through observing and interacting with other workers and the workplace. In these ways, access to goal-directed activities and guidance shaped by and linked to the requirements of particular workplaces, workplace experiences distribute opportunities for individuals' learning.

However, through the same workplace studies, workers also identified limitations associated with learning through work (see Billett 2001a). These limitations include: (i) learning that is inappropriate (e.g. dangerous, shoddy, inflexible practices), yet available and reinforced in workplaces; (ii) the contested nature of work practice inhibiting individuals' access to activities and guidance required for rich learning; (iii) difficulties in learning knowledge not readily accessible in the workplace (e.g. conceptual and symbolic knowledge); (iv) difficulties with accessing appropriate expertise and experiences required to develop vocational knowledge; and (v) the reluctance of workers to participate in learning vocational practice through their workplace experiences (Billett 2001a). Therefore, despite the significant contributions of everyday work experiences they alone may not always provide access to or develop the kinds of learning required to perform in that workplace and adapt that learning to other circumstances and situations. Hence, learning solely through participation in everyday work activities alone may not be a sufficient basis for adapting to the changing demands and requirements of work throughout working lives.

In order to consider how to enhance workplace learning experiences and address some of these limitations, it is necessary to elaborate upon the mediating roles of more experienced coworkers who have already learnt the knowledge required for performance at work. These roles comprise pedagogic practices including avoiding or mitigating against learning dangerous or inappropriate practices, facilitating access to work activities and guidance, assisting in accessing knowledge that is hidden or inaccessible, making 'hard-to-learn' knowledge accessible, and the securing of effortful engagement by learners. These contributions are discussed below, as guided learning at work.

Guided learning at work

Coworkers' pedagogic practices can influence the quality of learning experiences. Principally, these practices are of two kinds: (i) the direct interpersonal guidance in assisting less experienced workers to access and develop capacities that they would not secure through discovery learning alone; and (ii) managing and guiding access to workplace experiences. To elaborate, the knowledge required for vocational practice does not emanate from within the individual. Instead, it is socially constituted and refined over time. Therefore, inter-psychological processes (Vygotsky 1978) — those between the individual and social sources — are essential to

individuals' development of vocational knowledge, as these interactions provide access to knowledge that has social geneses. Direct guidance by experienced coworkers and indirect support and guidance from workplace artifacts and other workers aid access to socially derived knowledge and assist in the development of the intra-psychological (within the individual) attributes required for workplace performance. The transfer from the social to the individual often requires the mediation of social partners who have already appropriated that knowledge. Direct guidance is most salient when it makes knowledge accessible to learners that would otherwise remain inaccessible. Learning this knowledge alone may be too difficult (e.g. the knowledge is hidden) or inappropriate (e.g. imprudent shortcuts might be learnt).

It is possible to identify key roles through which more expert others can guide the learning of individuals in the workplace. More experienced co-workers can be instrumental in assisting learners' development through managing the pace and the sequencing of activities for learners. Usually, some sequencing activities exists in workplaces that represents a pathway of experiences along which individuals progress towards fuller participation in the work practice. This pathway is analogous to what Lave (1990) refers to as the 'learning curriculum' premised on access to tasks of increasing criticality and accountability. That is, sequenced access to activities that moves from those where imperfect performance has negligible consequences through to activities that have high levels of criticality and where mistakes carry significant consequences. For instance, hairdressing apprentices initially engage in tasks associated with keeping salons clean and tidy and getting drinks for clients, before engaging in more accountable tasks such as washing and removing chemical treatments from hair, and then later the shaping, cutting, and colouring of hair. The development of procedures required for autonomous practice — without the need of conscious thought — such as cutting hair, colouring, selecting hair treatments, may also require access to guided practice. This guidance includes being sensitive to learners' readiness to progress to more accountable tasks and being realistic about expectations of learners. For instance, learning initially might focus on the development of specific procedures (e.g. wiring a power point), with the performance requirements being linked to current and tangible goals (e.g. flow of electricity), before moving on to consider a wiring scheme for an entire building. This development includes the learning of heuristics (e.g. tricks of the trade) that assist with easy performance with workplace tasks. Together, these contributions can illuminate a pathway of activities (the workplace learning curriculum) that leads to full participation in and competence with hard-to-learn tasks that require direct guidance to be learnt. It is these kinds of pedagogic practices that can augment the contributions of everyday work activities and inhibit some of the limitations of learning through work identified earlier.

From these considerations, workplace pedagogic practices comprising three interdependent planes of guided engagement with work activities are proposed as bases to assist the development of a robust vocational practice – a practice that can respond to the transforming

requirements of work places (see Figure 1). These planes are: (i) everyday participation at work; (ii) guided learning for work; and (iii) guided learning for transfer.

The first plane comprises the organising of access to and the guidance and monitoring of engagement in work activities of increasing accountability, as well as access to the direct and indirect guidance that workplaces provide freely through everyday work activities. Access to the knowledge to be learnt is also provided through observing and listening, and understanding the goals required for work performance.

FIGURE 1 ABOUT HERE

The second plane comprises direct guidance in the form of intentional learning strategies (e.g. modelling, coaching, questioning, analogies, diagrams) directed towards developing the values, procedures and understandings that would not be learnt through experience or discovery alone. These strategies aim to develop both specific and strategic procedures (e.g. through the use of modelling, coaching and questioning), and to make accessible and develop workplace concepts through direct interaction and shared engagement between more and less experienced coworkers (e.g. through the use of questioning, diagrams, analogies, explanations). Also embedded within workplace practices and concepts are the dispositions (i.e. values, attitudes and norms) that underpin the work practice of the particular workplace and apply more widely to the vocational practice. For instance, these might comprise the requirement for degrees of precision, hygienic practice and what this means in different food production or service provisions; the requirement for workplace consultation, etc. Vocational practices require the enactment of particular values — for example, doctors being discreet, pilots being careful, nurses caring, teachers exhibiting fairness. As their purposes may be opaque, the promotion of these values and making their salience accessible may require guidance by more expert coworkers. Guided participation at work may enhance the prospect for learning effective vocational practice including its application to other related vocational tasks and new circumstances as the requirement for work change. These strategies and interactions have been shown to assist in the development of these attributes (Billett 2000, 2001a).

The third plane of guidance focuses on extending the adaptability of individuals' knowledge to other situations and circumstances. This adaptability is aimed to be achieved through specific strategies (e.g. questioning dialogues and group discussion) to assist individuals to appraise the scope and limits of their knowledge and evaluate the prospects of its transfer to novel tasks and new circumstances. These strategies purposefully incorporate projective practices — attempts to consider how individuals' current knowledge can be extended to use in other situations and circumstances. In the cognitive literature, this adaptability of learning is referred to as *transfer*. However, the cognitive view of transfer refers to the reapplication of knowledge within a domain based on a unitary view of the domain as something to be learnt uniformly by individuals. The sociocultural practice view incorporates the idea of domains being shaped by the

social practices where the knowledge is deployed and learnt (Scribner 1984; Cole 1998). Importantly, this adds a social dimension to the development of adaptable use of learnt knowledge and accepts that both cognitive (individual) and social experiences shape cognition (Meade 1913; Valsiner & van de Veer 2000). In doing so, this perspective de-emphasises a reliance upon the individual as a skillful thinker (e.g. Glaser 1990), like a frog leaping from lily-pad to lily-pad to catch the fly, as Lave (1991) — an anthropologist — describes the management of transfer and acknowledges that particular social practices have diverse bases and forms in different contexts. There are different bases for what constitutes expert vocational practice in different situations where the practice is being enacted, as well as over time (Engestrom & Middleton 1996; Billett 2001c). How the knowledge of hairdressers, cooks, builders etc is required to be deployed varies across hairdressing salons, restaurants and building sites because the requirements for what constitutes performance and the bases by which those judgments are different. Moreover, the application of previously learnt knowledge can be obscured by practices that might mask commonalities. For example, how food service or cooking is practised in different kinds of eating-places and in different cuisines may well mask invariance that will assist the broad application of knowledge. More experienced coworkers can illuminate similarities in goals and practices (e.g. inquiring about clients' needs and providing available food in a timely fashion and with a presentation that reflects the restaurant's character) in what might seem quite different practices. In these ways, learners can be guided to see both variance and invariance across workplaces where the same vocation is practised.

These three planes of workplace pedagogic practices should not be seen as distinct and separable. They are to be enacted synchronously, albeit in a balanced way, as part of everyday work activities (as indicated in Figure 1). Together, these planes of guidance constitute workplace pedagogic practices that can promote the learning through work. As such they comprise elements of a workplace pedagogy.

Workplace affordances

However, despite the significant contributions of the pedagogic practices comprising guided participation (Rogoff 1995), there are other and more foundational and pervasive workplace participatory practices. These practices influence individuals' learning in the workplace, including how they — or cohorts of individuals — by shaping their participation in work. Workplaces afford learning through participation in work activities, direct guidance (e.g. interactions with coworkers) and indirect guidance (e.g. observing and listening in the workplace). How the workplace provides and supports — affords — these activities, and offers guidance, shapes both the unintentional (e.g. everyday contributions of work activities) and intentional learning activities (e.g. direct guidance by experienced coworkers). That is, the workplace shapes learning through the kinds of access provided for learners to engage in particular kinds of activities and the direct and indirect guidance that individuals are able to access.

However, these affordances are not distributed equally across the workplace, which has direct consequences for individuals' learning. For instance, workers restricted to routine work (familiar tasks) may never learn a wider range or diverse procedures because they are inhibited from participating in new tasks. Similarly, the availability and quality of access to direct guidance will also determine the learning of knowledge that is not easily learnt alone. In these ways, opportunities afforded by the workplace and coworkers' willingness to provide this guidance are also key pedagogic practices. Those individuals afforded rich access and guidance likely achieve quite different (i.e. potentially better) outcomes than those unable to secure this level of support. Although those denied rich support can still learn through activities and indirect guidance, including interactions with and observation of other workers, artifacts and the physical environment, these outcomes may not be wholly adequate. True, the apprentices in Lave's (1990) study learnt the concepts and procedures required for tailoring with little or no direct guidance. However, the requirements of much contemporary work are perhaps less easily accessed in they are in tailoring, where they are largely observable. The increasing need to learn the symbolic knowledge required by technology (Martin & Scribner 1991), the opaque quality of work processes obscured by technology (Barley & Orr 1997) and remote processes (Zuboff 1988), and complex relations between coworkers (e.g. Bernhardt 1999) place a greater emphasis on gaining access to understandings and procedures that may not be learnt through discovery alone. This heightens the need for the workplace to be invitational in providing access to hard-to-learn knowledge. Yet workplace affordances are constituted and distributed by workplace hierarchies (Danford 1998), work practices (Darrah 1996), historical development, group affiliations (Billett 1995), personal relations, workplace cliques and cultural practices (Hull 1997). So potent political (Solomon 1999) and power relations (Fenwick 2001) are played out in the workplace, which shape participation, and therefore learning. Women, for instance, often find workplaces uninviting for their participation and development (Bierma 2001).

So beyond or even instead of judgments of individuals' competence, opportunities for participation are distributed on a diverse range of socially derived bases. These include workplace and other affiliations, individuals' acceptability, willingness of more experienced workers and the status and bases of individuals' or cohorts of individuals' employment. Take employment bases first. Contingent workers (i.e. those who are part-time and contractual) are particularly susceptible to securing only limited workplace affordances (Grubb 1996; Hull 1997). Part-time contractual and home-based workers are often rendered peripheral by their mode of participation at work and may have difficulty maintaining their competence in the constantly transforming requirements for work practice (Noon & Blyton 1997). These workers may struggle to be kept informed and to be granted opportunities to expand their role and access support. Part-time women workers have particular difficulty in maintaining their skills currency and are frustrated in realising career aspirations (1997). Nevertheless, concerns about restrictions on participation are not restricted to part-time workers. The acknowledgment of performance, support and intentional opportunities for

learning is directed towards high-status workers (Darrah 1996). Those whose role is less valued in the workplace, or whose status is low, may be overlooked — even when they perform demanding and essential work tasks.

Demarcations of workplace tasks can also influence participation at work. For example, the industrial affiliations of coal workers determined which workers were granted access to prized workplace tasks (Billett 1995). The influence of personal affiliations is also pervasive. These affiliations may determine how information is shared, and with whom, how work is distributed and how individuals' efforts are acknowledged and judged. This kind of workplace contestation seems to be an enduring feature of work practice. It is likely to exist between 'newcomers' or 'old-timers' (Lave & Wenger 1991) (as concerns about displacement are manifested with the arrival of newcomers); between full or part-time workers (Bernhardt 1999) (as concerns with workloads, displacement and the quality of work tasks become salient); and between workers with different roles and standing in the workplace (Darrah 1996; Hull 1997). Tensions also occur among institutionalised arrangements such as those representing workers, supervisors or management (Danford 1998). In these ways, the invitational qualities of workplaces — what the workplace affords individuals — are far from being benign. They shape how opportunities to engage in activities and guidance are made accessible to and distributed in workplaces.

The prospects for the adoption and implementation of the guided approach to learning described above are premised on the invitational qualities or workplace affordances (Billett 2001b; Billett & Boud 2001). As noted, each workplace is likely to have a particular pathway of activities and goals that are a product of its unique activity system. These pathways may not be commonly thought of as structuring the workplace curriculum and learning experiences, if assumptions of school-based pedagogies are adopted. However, these pathways are a central to a workplace pedagogy founded on activities and guidance. This structuring reflects the needs for continuity of practice, including the contestation between the competing interests of cohorts of workers in the workplace (e.g. full-time and part-time workers). In these ways, the kinds of activities and guidance afforded learners by the workplace, and the power and political relations that shape these affordances (e.g. Solomon 1999, Fenwick 2001), comprise key pedagogical foundations.

In sum, how the workplace invites and structures individuals' participation in work shapes the kind and quality of their learning. This is likely to be particularly true where the knowledge to be learnt requires the close guidance of coworkers in order to access and understand it. So participation in workplace activities and access to guidance is contested and distributed asymmetrically premised on workplace affiliations, fear of displacement, status of employment and acceptability of individuals or groups of workers, as well as perceptions of personal competence. In these ways, workplace norms shape participatory practices and, in doing so, mediate individuals' learning of the vocational practice as it is constituted in the particular workplace. These bases represent key pedagogic practices.

However, participation and learning are reciprocal processes. It is therefore also necessary to consider the relationship that exists between what workplaces afford and individual's interpretation of and interest in engaging in what is afforded them. The next section discusses this reciprocal dimension of learning through work.

Engagement with the workplace activities and guidance

Despite the strong contributions provided by workplaces, individuals' participation in and learning from workplace experiences are not wholly situationally determined. Individuals' agency also influences how they elect to participate in work activities, as well as interpret and respond to the affordances of the workplace. Learning new knowledge (i.e. values, understandings and procedures) is effortful and interpretative, and not constructed uniformly. Therefore, how individuals engage in work activities and interpret the worth of that participation will also influence the quality and nature of their learning (i.e. how they engage with, construct and organise the knowledge that is afforded). Workplace affordances are not constructed objectively. The offer of guidance by more expert coworkers might be construed by individuals as being welcomed and supportive guidance or as an affront to their competence. The best efforts of a workplace mentor and a structured induction program were rejected by a new employee who believed his own competence to be greater than his mentor's and his own practices superior to those of the workplace (Billett 2000). To take another example, coal miners perceived offers of additional safety-training as the mine site management's attempt to delegate the responsibility for mine safety to the miners. Consequently, they engaged reluctantly and sceptically with this workplace training (Billett 1995).

The concept of individuals exercising their agency through their engagement in social practice is consonant with the reciprocal process of learning socially constituted knowledge. Individuals' agency — how they exercise autonomy in thinking and acting is likely shaped by their personal histories or ontogenies (Cole 1998; Scribner 1985). These histories result in particular ways of knowing and responding to the social experiences in which they engage (Billett 1997). The interdependence between the cognitive and social experiences is well acknowledged in the learning of socially derived knowledge (e.g. Meade 1913; Valsiner 1994) and in sociologically derived theories where the relationship between agency and structure is well elaborated. Giddens' (1984) theory of structuration proposes relations between social structure and human agency and Davies (2000) accentuates the contested character of that relationship. From an anthropological perspective, Lave and Wenger propose, "a theory of social practice emphasizes the relational interdependency of agent and world, activity, meaning, cognition, learning, and knowing (1991:50). Valsiner (1994) refers to the degree of relatedness between the individual's interests and values and those of the social practice. The greater this relatedness, the greater the likelihood of full-bodied and committed participation and the appropriation of the social experience, rather than its rejection or at best superficial compliance, as in mastery (Wertsch 1998). Of course,

discord between the individual and the social practice can also lead to rich learning arising from dissonance rather than relatedness. Such learning can lead to a rejection or dis-identification with the practice that was supposed to be learnt (e.g. Hodges 1998). Moreover, as noted, individuals participate simultaneously in a range of social practices. The effort and attention directed to each practice is unlikely to be uniform, with individuals' interests and priorities mediating their participation in work. For instance, workers engaged in one set of workplace training, may be uninterested in another, if it falls outside their vocational interest or immediate career path.

In sum, relations between individuals' interests and the values of the work practice are a central mediating factor in determining their engagement in work practice, and the kinds of learning that arise. In this way, individuals' engagement and learning is interpretative, critical and reciprocal.

Towards a workplace pedagogy

It has been proposed that the reciprocal participatory practices in the workplace constitute the foundations for a workplace pedagogy. These foundations shape the prospects for the kinds of learning provided by everyday workplace activity as well as those through intentional pedagogic practices, such as guided learning at work, as individual. Premised on reciprocity between what the workplace affords and how individuals engage in the workplace are three key interdependent elements of a workplace pedagogy. The first is the intentional structuring of participation in activities and the provision of guided participation to supplement the contributions provided freely through engagement in everyday work activities. The second is to acknowledge the consequences of different kinds of workplace affordances. How individuals are permitted to participate in workplace activities, the kind of activities they are able to participate in and the support they are afforded are central to the quality of their learning. The third element emphasises the role of individuals' agency in shaping how they engage in workplace activities and what they learn through their participation. Effortful and full-bodied engagement by individuals is likely to be required in order to develop the robust vocational practices and concepts rather than situationally specific knowledge. The basis of this engagement is located in relations between the workplace's invitational qualities and individuals' interest as shaped by their personal, albeit socially derived, history.

However, having discussed the processes of learning and the vocational goals, there remains legitimate and largely unresolved concerns about the worth of and the process of what is learnt through work. This learning is sometimes assumed to be concrete (Marsick & Watkins 1990) and procedural rather than conceptual (Ericsson & Lehmann 1996). It is perhaps too easy to categorise and dismiss workplace learning as being technicist or reproductive, on what are claimed as objective bases intents and goals. Given the basis of critical engagement that individuals employ when participating in social practice and in the construction of knowledge, such easy critiques need to be carefully re-appraised. Also, for many, the exercise of their paid

vocation has purposes that go beyond just securing remuneration. It also embodies the fulfillment of important personal goals (Noon & Blyton 1997) and subjectivities (Somerville & Bernoth 2001). From a Deweyian perspective (1916), individuals' engagement in their vocational practice offers the prospect for achieving important personal goals. These criticisms can also be tempered in part by pointing to similar concerns about learning in educational institutions, which is subject to the same criticism – that it does not readily adapt to other situations. However, this merely reinforces the weakness of learning derived in single social practices (e.g. Scribner 1984; Rogoff & Gauvain 1984). It also seems that while both procedural and conceptual kinds of learning can be learnt through workplace experiences, the development of some kinds of conceptual and symbolic knowledge, are only likely to be learnt through interventions directed to this end (Billett 2001a). This is, however, no easy goal to achieve in workplace settings. Gaining on-going commitment to workplace interventions may ultimately be an insurmountable barrier. Moreover, the focus of workplace activities is production or services. Therefore, the kinds of support needed for guided learning can be difficult to secure.

Nevertheless, the goal for and processes of learning through work remain contentious. A key goal for a workplace pedagogy is to develop robust vocational knowledge. This has been justified in terms of its utility for individuals and their advancement, and in terms of the workplace and its continuity. Many will suggest this outcome is still being too narrow and failing to address concerns that may not be readily supported in workplaces (e.g. concerns for environment, social justice, aesthetics). In terms of broader goals for learning, concerns arise that critical insights and goals beyond the vocational practice itself, such as social inclusiveness and strategic concerns for the environment, community and professionalism of practice, may not be learnt in workplaces (Fenwick 2001). Consequently, there may be a continuing inclination to label workplace learning as technicist, despite the emancipatory potential it has for individuals and evidence of contestation in workplaces that identifies and responds to exploitative and discriminatory practices. Workplaces continue to reproduce inequities (Bierma 2001, Fenwick 2001, Solomon 1999) as they afford experiences that are shaped by power and political interests and forces. It is the enactment of these interests that shape the kind of experiences that individuals are afforded.

In conclusion, considerations of a workplace pedagogy cannot be restricted to intentional participatory practices enacted in the workplace. It also has to account for how cultural, social and situational factors interact with the individuals' interests, preferences and capacities. Reciprocity among these factors shape workplace participatory practices. Together, understanding more about the relations among these factors may edge us closer to developing a clear pedagogy for the workplace.

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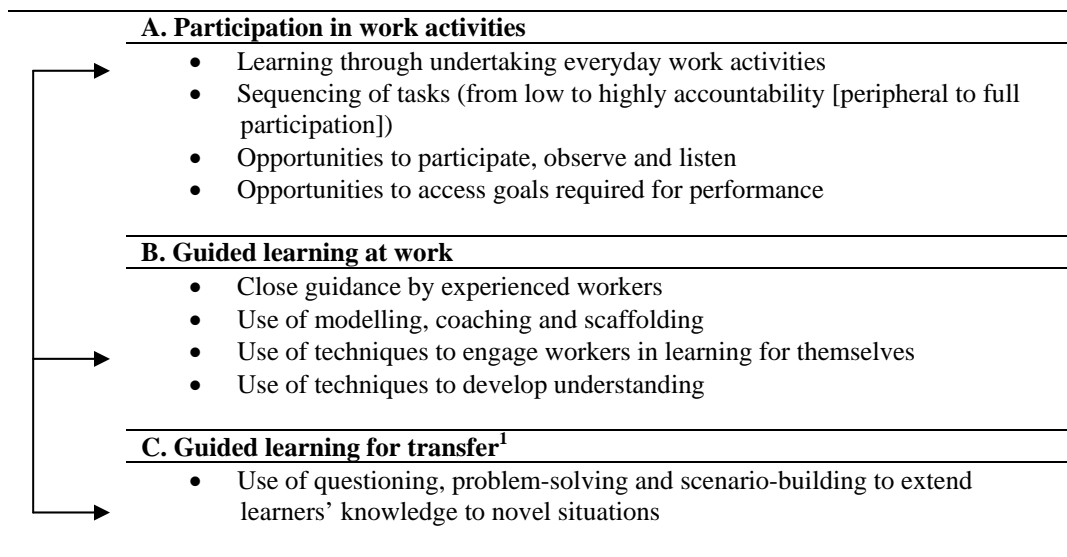
References

- Barley, S. R., & Orr, J. E. (1997). Introduction: The Neglected Workforce. In S. R. Barley & J. E. Orr (Eds.) *Between Craft and Science: Technical work in U.S. settings* (pp. 1-19). Ithaca NY: Cornell University Press.
- Bernhardt, A. (1999). *The Future of Low-Wage Jobs: Case Studies in the Retail Industry*. Institute for Education and the Economy Working paper No 10. New York: Columbia University.
- Bierema, L.L. (2001). Women, Work, and Learning. In T Fenwick (Ed.) *Sociocultural perspectives on learning through work* San Francisco: Jossey Bass/Wiley.
- Billett, S. (2001a). *Learning at Work: Strategies for Effective Practice*. Sydney: Allen & Unwin.
- Billett S (2001b) Coparticipation at Work: Affordance and Engagement. In T. Fenwick (Ed.) *Sociocultural Perspectives on Learning through Work*. San Francisco: Jossey Bass/Wiley.
- Billett, S. (2001c). Knowing in Practice: Re-conceptualising Vocational Expertise. *Learning and Instruction*, 11 (6) 431–452.
- Billett, S. (2000). Guided Learning at Work. *Journal of Workplace Learning*, 12 (7) pp 272-285.
- Billett, S. (1999). Experts' ways of knowing. *Australian Vocational Education Review*, 6 (2) pp. 25-36.
- Billett, S. (1997). Dispositions, Vocational Knowledge and Development: Sources and Consequences. *Australian and New Zealand Journal of Vocational Education Research*, 5 (1) 1-26.
- Billett, S. (1995). *Skill formation in three central Queensland coal mines: Reflections on implementation and prospects for the future*. Brisbane, Australia: Griffith University, Centre for Research into Employment and Work.
- Billett, S. & Boud, D. (2001). Participation in and Guided Engagement at Work: Workplace Pedagogic Practices. Paper presented at Researching Work and Learning, 2nd International Conference, Calgary, Alberta, 26–28 July.
- Boud, D. & Garrick, J. (eds) (1999). *Understanding Learning at Work*. London: Routledge.
- Carnoy, M. (1999). The great work dilemma. In J. Ahier & G. Esland (Eds.) *Education, Training and the Future of Work 1* (pp. 62-75). London: Routledge.
- Cole, M. (1998). Can Cultural Psychology Help Us Think about Diversity? *Mind, Culture and Activity*, 5 (4) 291–304.
- Danford, A. (1998). Teamworking and Labour Regulation in the Autocomponents Industry. *Work, Employment and Society*, 12 (3) 409–31.
- Darrah, C. N. (1996). *Learning and Work: An Exploration in Industrial Ethnography*. New York: Garland Publishing.
- Davies, B. (2000). *A Body of Writing 1990-1999*. Walnut Creek CA, Altamira Press.
- Dewey, J. (1916). *Democracy and Education*. New York: The Free Press-McMillan.
- Engestrom, Y. & Middleton, D. (1996). Introduction: Studying Work as Mindful Practice. In Y. Engestrom & D. Middleton (Eds.), *Cognition and Communication at Work* (pp. 1-15). Cambridge, UK: Cambridge University Press.
- Ericsson, K. A., & Lehmann A. C. (1996). Expert and Exceptional Performance: Evidence of Maximal Adaptation to Task Constraints. *Annual Review of Psychology*, 47, 273–305.
- Fenwick, T. (2001). Tides of Change: New Times and Questions in Workplace Learning, In T. Fenwick (ed.) *Sociocultural perspectives on learning through work*. San Francisco: Jossey Bass/Wiley.
- Giddens, A. (1984). *The constitution of society: outline of the theory of structuration*, Polity Press, Berkeley: University of California Press.
- Glaser, R. (1990). Reemergence of learning theory within instructional research. *American Psychologist*, 45 (1) 29-39.
- Greeno, J. G., & Simon, H. A. (1988). Problem Solving and Reasoning. In R. C. Aitkinson, R. J. Hormiston, G. Findeyez & R. D. Yulle (Eds.), *Steven's Handbook of Experimental Psychology and Education, Vol 2*. New York: Wiley.
- Groen, G. J., & Patel, P. (1988). The Relationship between Comprehension and Reasoning in Medical Expertise. In M. T. H. Chi, R. Glaser & R. Farr, *The Nature of Expertise*. New York: Erlbaum.

- Grubb, W. N. (1996). *Working in the Middle: Strengthening Education and Training for the Mid-skilled Labor Force*. San Francisco: Jossey Bass.
- Hodges, D. C. (1998). Participation as Dis-identification with/in a Community of Practice. *Mind, Culture and Activity*, 5 (4) 272–90.
- Hull, G. (1997). Introduction. In G. Hull (ed.), *Changing Work, Changing Workers: Critical Perspectives on Language, Literacy and Skills* (pp.3-39). New York: CUNY Press.
- Lave, J. (1991). Situated Learning in Communities of Practice. In L. B. Resnick, J. M. Levine & S. D. Teasley (Eds.) *Perspectives on Socially Shared Cognition*. Washington DC: American Psychological Association.
- Lave, J. (1990). The culture of acquisition and the practice of understanding. In J. W. Stigler, R. A. Shweder & G. Herdt (Eds.) *Cultural psychology* (pp. 259-86). Cambridge. U.K: Cambridge University Press.
- Lave, J. & Wenger, E. (1991). *Situated Learning — Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press.
- Marsick, V. J., & Watkins, K. (1990). *Informal and Incidental Learning in the Workplace*. London: Routledge.
- Martin, L. M. W., & Scribner, S. (1991). Laboratory for Cognitive Studies of Work: A Case Study of the Intellectual Implications of a New Technology. *Teachers College Record*, 92 (4) 582–602.
- Meade, G. H. (1913). The Social Self. *Journal of Philosophy, Psychology, and Scientific Method*, 10, 374–80.
- Prawat, R. S. (1993). The Value of Ideas: Problems versus Possibilities in Learning. *Educational Researcher*, 22 (6) 5–16.
- Noon, M. & Blyton, P. (1997). *The Realities of Work*, Basingstoke, Hants: Macmillan.
- Rogoff, B. (1995). Observing Sociocultural Activities on Three Planes: Participatory Appropriation, Guided Appropriation and Apprenticeship. In J V Wertsch, P Del Rio & A Alvarez (eds), *Sociocultural Studies of the Mind* (pp. 139-164). Cambridge, UK: Cambridge University Press.
- Rogoff, B. (1990). *Apprenticeship in Thinking — Cognitive Development in Social Context*. New York: Oxford University Press.
- Rogoff, B., & Gauvain, M. (1984). The Cognitive Consequences of Specific Experiences — Weaving versus Schooling among the Navajo. *Journal of Cross-Cultural Psychology*, 15 (4) 453–75.
- Scribner, S. (1985). Vygotsky's Use of History. In J. V. Wertsch (Ed.), *Culture, Communication and Cognition: Vygotskian Perspectives* (pp. 119-145). Cambridge, UK: Cambridge University Press
- Scribner, S. (1984). Studying Working Intelligence. In B Rogoff & J Lave (Eds.) *Everyday Cognition: Its Development in Social Context* (pp.9-40). Cambridge, Mass.: Harvard University Press.
- Solomon, N. (1999). Culture and difference in workplace learning. in D Boud & D. J. Garrick, (Eds.) *Understanding Learning at Work* (pp. 119-131). London: Routledge.
- Somerville, M., & Bernoth, M. (2001). Safe Bodies: Solving a Dilemma in Workplace. *Knowledge Demands for the New Economy 2* (pp. 253-260). 9th Annual International Conference on Post-compulsory Education and Training. Brisbane: Centre for Learning and Work Research.
- Suchman, L. (1997). Centers of Coordination: A Case and Some Themes. In L. B. Resnick, C. Pontecorvo & R. Saljo (eds), *Discourse, Tools and Reasoning: Essays on Situated Cognition* (pp. 41-62). Berlin: Springer.
- Tam, M. (1997). *Part-time Employment: A Bridge or a Trap?* Brookfield: Aldershot.
- Valsiner, J. (1994). Bi-directional cultural transmission and constructive sociogenesis. In W. de Graaf and R. Maier (Eds.) *Sociogenesis Re-examined* (pp. 101-134). New York: Springer.
- Valsiner, J., & van der Veer, R. (2000). *The Social Mind: The Construction of an Idea*. Cambridge: Cambridge University Press.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, Mass: Harvard University Press.
- Wertsch, J. V. (1998). *Mind as Action*. New York: Oxford University Press.

Zuboff, S. (1988). *In the Age of the Smart machine: The Future of Work and Power*. New York: Basic Books.

Figure 1: Three planes of workplace pedagogic practices



Note: 1 transferable outcomes will also be developed on the other planes.