Guided Learning in the Workplace. In D Boud & J Garrick (eds)

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Introduction

Most adults workers would agree that we’ve learnt a lot through our experiences in the workplace. When they are asked how they have learnt in the workplace they usually say that it is “just by doing things”, “other workers”, “observing and listening to others” and “the workplace” itself (Billett, 1996). It is tempting to dismiss these kinds of comments as being naïve. Such a temptation, is never more likely than in countries where there is an emphasis on formal programs of learning within educational institutions which enjoy legitimisation through certification. Out of this situation has come associations between teaching and learning. Nether the less, most of us are not so easily fooled. We frequently have a strong sense of how we learnt how to do particular vocational tasks and from where we gained insights and understandings, and from whom. This chapter attempts to understand how learning in the workplace occurs and proposes how we should best organise learning experiences in the workplace to maximise their impact. The key premises advanced here are quite simple. Firstly, the kinds of activities that individuals engage in will determine what they learn. Secondly, the kinds of guidance they can access when engaged in that learning will determine the quality of that learning. Hence, the title for the chapter attempts to capture both the circumstance and utility of guided learning in the workplace as part of everyday productive activities.

The chapter has three aims. Firstly, it aims to advance an understanding of learning as part of everyday thinking and acting as portrayed by the comments above. Secondly, the strengths and limitations of learning in workplaces are examined to identify contributions which are both likely to be valued and those to be guarded against. Thirdly, a model of organising learning for the workplace is proposed. The arguments advanced in the chapter are as follows. It is through everyday activity in the workplace that individuals learn. Workplace contributions to learning are held to be of a different kind than those furnished by educational settings. These contributions are not necessarily better or worse, but they are different. Moreover, the particular workplace setting offers experiences and guidance which are premised on its goals and activities. Hence, workplace learning is structured by the everyday activities and goals of the workplace. Given that these activities are necessarily important to the workplace, these learning experiences and their outcomes cannot be considered to be incidental, adhoc or informal. Rather, they are authentic and rich opportunities to reinforce
and extend the individuals’ knowledge. Importantly, workplaces also provide ongoing direct and indirect guidance which can assist learning in ways that are quite different from what happens in educational settings.

In addition, workplaces offer to many workers the prospect of vocational development which would otherwise be denied. For workers in many industries, the workplace is the only place which they are likely to acquire the required knowledge because there are no available courses. Moreover, with the increased specialisation of workplace knowledge through technology or unique production requirements the enterprise may be the best (perhaps only) site to develop that specialised knowledge (Harris & Volet 1996, 1997). Furthermore, with the changes to workpractice to include less hierarchical but more complex workplace relationships and the affordance of greater discretion to workers (Berryman 1993, Rowden, 1997), the workplace provides the only possible environment which integrates authentically and provides access to the different kinds of knowledge required for workplace performance.

In order to discuss the propositions outlined above, the concept of learning as part of everyday thinking and acting is discussed first. Next, this idea is used to considering how workplaces structure activities and guidance for learners in ways that can assist their learning. This discussion is premised on studies which identify the strengths and weaknesses of learning in workplaces. Following this, a model of a workplace curriculum is proposed. This model holds moving learners from less to more accountable activities in the workplace with this movement being supported by guidance from experts, others and indirect guidance provided by other workers and the workplace itself. The close guidance by experts and others during participation in everyday workplace activities is held to reinforce the identified strengths of learning in workplaces and a means to attempt to address its weaknesses.

Learning as everyday thinking and acting
Learning is an ongoing product of everyday thinking and acting, including of course that which takes place in the workplace. Learning is not something we switch on and off. It is ongoing. This is not a new idea. Piaget’s concepts of equilibrium, accommodation and assimilation support and illuminate this view of learning. Equilibrium comprises individuals’ attempts to integrate new information with what they already know (their existing knowledge structures) (Piaget 1968). Its all about making sense of the things we encounter throughout our lives. So, for instance, when faced with a new software package we might attempt to understand how to use it by considering other software programs. In this way, the task of understanding the new knowledge or seeking equilibrium between what is known and what is
being presented is based on individuals’ existing knowledge. Assimilation and accommodation are two processes which underpin individuals search for equilibrium. Assimilation is the process of linking existing knowledge to an activity or stimuli. For example, using a set of existing work procedures to undertake a workplace task which seems to be of similar kind to those with which these procedures have been previously successful. Accommodation is the process of developing new knowledge when faced with a novel situation. So, for example, in a move to self-managed teams, individuals’ existing views about and implementation of management practices may need to be transformed and new views, goals and procedures developed for this approach to work organisation. Because assimilation is less effortful than accommodation adults prefer to engage in assimilation, rather than accommodation. This is because adults have knowledge organised in particular ways which have been purposeful in previous circumstances. Hence, adults prefer to use existing knowledge because engaging in knowledge building is demanding and challenging. Accordingly, there has to be sufficient motivation to engage in this effortful activity. This is particularly the case if the task is novel, requiring effort and potentially a reorganisation of the existing knowledge. Workplace tasks may well provide the interest and motivation to engage in what Piaget referred to as accommodation. The point here is that workplace activities routinely engage us in combinations of assimilation and accommodation.

To refine this view further, recent work proposes that learning is through problem-solving (Anderson 1993, Shuell 1990). It seems this problem-solving is of two sorts; routine and non-routine, which are analogous to assimilation and accommodation, respectively. Routine problem-solving is what we do thousands of times a day (e.g., changing gears when driving, keystrokes on computers, carrying out standard workplace procedures) and these activities reinforce what we know and can do. So, more than just achieving goals in places such as workplaces, this routine problem-solving reinforces and refines our existing knowledge. Each time we change gears or conduct some other highly routinised procedure, reinforcement and refinement of those procedures occur. Non-routine problem-solving, on the other hand, develops new knowledge because in dealing with new tasks and activities individuals extend their knowledge. When faced, for example, with technological applications of work processes or movements to self-managed teams, we engage in non-routine problem-solving resulting in the construction of the new knowledge required to be successful in those activities. So when engaging in workplace tasks we are reinforcing our existing knowledge and also constructing new knowledge. In this way we learn throughout our lives by participating in everyday activities through moment-by-moment learning (Rogoff, 1990).
However, there are likely to be different outcomes from engaging in different workplace activities. Consider the difference in outcomes in learning about coal mining or farming by either working in a coal mine or a farm, or alternatively by engaging in classroom activities associated with farming or coal-mining. Equally, consider the different goal-directed activities that individuals will engage in for example, in open cut or underground coal mines or in farms with different climates, locations, soils and so on. Therefore, what we learn through this problem-solving will be very much influenced by the particular problem-solving which these circumstances present us.

Even then it would be mistaken to believe that learners construct knowledge in a uniform way. Rather than merely ‘internalising’ socially-sourced knowledge, or being ‘socialised’ as behaviouralists would have us believe, an interpretative process of knowledge construction occurs (Rogoff, 1995, Valsiner 1994). Individuals are meaning makers. This simply means the individuals’ construction of knowledge is based on their existing knowledge which includes beliefs and values. Even though there are dominant procedures or beliefs in particular workplace, it does not mean that individuals will uniformly construct knowledge associated with those beliefs and procedures. Workers exposed to, for example, unethical activity or unsafe working practice are unlikely either to develop a uniform belief about those activities or construct those views and procedures unquestioningly. For example, in using a manual to understand a piece of machinery or engaging with an acknowledged workplace expert, not only will individuals construct knowledge from these interactions, but their view about the social source (manual, workplace expert) will be transformed. Through this process, individuals may develop a greater appreciation of the potency of the expert’s insights or the manual’s utility. Alternatively, they may find the utility of one or the other lacking. So learning is an active and interpretative process based on individuals’ existing knowledge. This idea is important because belief about direct instruction and ‘training solutions’ are often based around text-based resources premised on the view that individuals will learn uniformly from these sources. Indeed, the often favoured approach to workplace learning through text-based materials has been shown to have limitations and compare unfavourably with workers’ construction of knowledge through everyday activity (Billett, 1994).

Hence, workplaces furnish experiences which are purposeful in the construction of the knowledge required for workplace performance. However, it is the type of activities individuals engage in and the guidance they experience which influences the robustness of that knowledge. The knowledge secured in workplaces is likely to be different from that constructed in the schoolroom because the knowledge constructing experiences are different.
Moreover, workplaces develop more than practical knowledge. Knowledge structures have propositional, procedural and dispositional dimensions which are not separable in this way. Propositional knowledge includes facts, propositions, assertions - inert knowledge, whereas procedures are the knowledge we use to think and act with. Dispositions comprise values, attitudes and interest (Perkins, Jay & Tishman, 1993). In different settings, it seems that knowledge is developed which has different propositional, procedural and dispositional characteristics (Billett, 1997).

**Workplaces as sites for learning**

The activities individuals engage in the workplace will likely influence what knowledge they construct. The particular set of experiences which individuals engage are structured by the workplace’s norms and values. These include the types of activities workplaces engage in (“what we do here is…”) and also how they are undertaken (“how we do things here is”…). The knowledge goes beyond narrow definitions of vocational activities to include the power relationships and divisions of labour. So there is a ‘hidden curriculum’ in workplaces just as there are in educational institutions. That is, unintended learning might result from such engagement. Some these unintended outcomes are not desirable. Short-cuts, inappropriate behaviour, the reinforcement of restrictive practice such as non-inclusive behaviour, and problems associated with the development of understanding have been identified as problems associated with workplace learning (Billett 1996, Harris et al, 1996).

Consequently, it is necessary to discuss views about both the positive and negative aspects of workplace learning experiences. In keeping with what was foreshadowed earlier, the basis for fashioning such a delineation is whether these factors inhibit or assist in development of the knowledge required for workplace performance. In the cognitive literature this attribute is referred to as expertise, with a hallmark of expertise being whether individuals can address significant non-routine problems in the workplace. Consequently, the delineation is how factors influencing these experiences permit or inhibit individuals from developing expertise.

The knowledge required for expertise is most likely acquired through a combination of engagement in work tasks of increasing accountability, the close guidance of other workers and experts, and the more indirect ongoing guidance provided by the setting. This combination appears to basis for the development of robust (transferable) knowledge in the workplace (Billett, 1996). It is not difficult to illustrate the potency of workplace activities in developing and reinforcing knowledge. What happens in workplace learning is analogous to the aims of immersion programs for second language development. It has been recognised
that a few interludes a week are inadequate for school students to develop their Japanese, Chinese or French. Consequently, students are immersed in the second language with it being used as a vehicle to teach other subject matter (e.g., geography, maths, history). Analogously, the immersion in everyday workplace activities provides opportunities to develop models for performance through observation, to generate tentative solutions to workplace tasks and then seek to secure those solutions directly or indirectly guided by others. As individuals use the procedures they are tested and modified and reinforced by success with workplace tasks. This ongoing immersion in workplace activities engages workers in both routine and non-routine problem-solving leading to the development of the knowledge which permits expert performance in that particular workplace. This activity results in knowledge being constructed and organised in ways that are purposeful in securing workplace goals, and its transfer to other similar situations and circumstances as Tennant has argued elsewhere in this book.

Both direct and indirect guidance enrich this engagement in workplace activities. Direct guidance by experts and other workers is reported as guiding learners’ choice of solutions to tasks, and in securing goals and permitting them to successfully engage in increasingly mature approximations of tasks (Billett 1994; Harris et al 1996a). That is, they provide models, clues and cues to aid and refine performance with workplace tasks (e.g. how a task is done, to what degree and standard). Equally, the provision of joint problem-solving by experts and others provides staged access to increasingly accountable activities (Billett 1996; Harris et al 1996a). This guidance is grounded in the Vygotskian concept of the Zone of Proximal Development (ZPD), in which it is held that task accomplishment, is likely to be far greater when assisted by another, than by individuals’ solitary experience and discovery alone (Vygotsky 1978). For example, to ease the difficulty of a task a more experienced colleague might provide suggestions to guide success (“if it won’t print check the default setting”) - because the learners might be unaware of such settings. Alone, through discovery, the learner might never secure that knowledge and experience needless frustration. Experts and other workers can provide access to knowledge as they engage in joint problem-solving with the learner. For example, in one secondary processing plant (Billett 1994), production staff worked alongside overseas experts during the commissioning phase. In doing so, the workers engaged in a range of activities to set up the plant. Engagement in these joint problem-solving tasks with the overseas experts is held as permitting these workers to take responsibility for the plant's operation when the experts had left. This responsibility included addressing ongoing production problems and refinements to plant operation. Access to guided experiences is particularly important when the knowledge for performance is not accessible, it is hidden, albeit by ‘blackbox technology’ or that it remains unavailable to the learners (e.g., stress factors in construction, bacteria in food preparation). However, the quality of interaction between
expert and learners is very important. The learners have to do the thinking. If the expert merely
tells rather than models, questions and demonstrates, the outcomes might be quite weak (Harris et
al, 1996a) because the learner has not engaged in the thinking and acting required to construct and
reinforce the knowledge.

From investigations of workplace learning, it is evident that indirect guidance available in the
workplace is an important source of knowledge. In these studies, “observing and listening to other
workers’ is consistently reported to assist learners with the conceptualisation and approximations
of workplace tasks (Billett 1996). A unique and potentially potent contribution of workplaces is
the authenticity of indirect forms of guidance. For example, a warehouse worker commented
on the library of resources provided by her workplace by the various arrangements for
packing pallets (Billett 1994). In sum, everyday work experiences immerse individuals in
thinking and acting, and hence learning. These activities’ contribution is augmented by both direct
and indirect guidance. In combination, these social sources transform and reinforce the
individuals knowledge.

However, the same investigations revealed some shortcomings of learning in workplaces. These
need to be addressed, in approaches to organising a workplace curriculum. In the next section, the
direct guidance by other workers and experts is proposed to overcome many of these
shortcomings. Consequently, the quality of guided learning is likely to be quite instrumental in
maximising the potential of workplaces as learning environments.

Role of guidance in workplace learning
The potency of workplace learning is premised on access to guided workplaces experiences.
Therefore, if learners are denied guided access to both routine and non-routine activities, weak
learning outcomes may result. For example, doing the same routine tasks repeatedly over time is
likely to provide less rich learning experiences than combinations of new and routine tasks over
the same period. Conversely, if learners are asked to complete tasks outside of what they can
achieve without guidance, this could lead to confusion and reluctance to engage further. For
instance, workers with a low level of skillfulness in a particular area may find it difficult to do
what others can with ease. This is because they lack the prior knowledge which permits others to
complete the tasks. It is therefore necessary to provide guidance to structure workplace
experiences to take the learner from engaging in activities that are increasingly accountable
(Harris et al, 1996a) yet in ways that are within their ZPD. This concern is the foundation of the
“learning curriculum” which is advanced below.
The goal for workplace learning is securing those forms of knowledge which permit workplace performance - non-routine problem-solving. This includes values which are likely to encourage participation and acceptance of other workers’ views and contributions, regardless of ethnic or gender differences. The particular values embedded in workplaces determine the types of knowledge that are constructed, what is prized and what is to be de-emphasised (Harris & Volet 1996, 1997). Individuals may well secure quite inappropriate forms of knowledge through workplace experiences particularly, if knowledge, including attitudes and values, are accessed and rewarded in the workplace (e.g., “this is not work for women”). Bad safety habits are also being learnt through workplace learning (Harris et al, 1996b). Such outcomes may not be inevitable, because as proposed above, the construction of knowledge is not socialisation or internalisation. This means individuals interpretatively construct concepts and practice. Nevertheless, the dominant values of the workplace are likely to be influential, because relationships are rarely based on equal standing and novices well feel the need to comply. It is also that reported by Harris et al (1996a) that there is sometimes confusion about what is the ‘right way’ of doing something. These concerns again emphasise the direct guidance of experts and other workers in order to manage the goals for and appropriate workplace procedures. More than participation, structured guidance is required to address the shortcomings of what is essentially the ‘hidden curriculum’ that learning which is not intended and may be undesirable.

A particular problem identified for workplace learning is to secure the understanding required for non-routine work activities (Billett 1994). Gott (1995) also doubts the ability of current approaches to apprenticeship learning to secure the conceptual knowledge associated with ‘high tech’ tasks. Such concerns need to be addressed because, as Berryman (1993) and Gott (1995) report, the increasing complexity of work activities is making the knowledge required for many workplace tasks more difficult to access. This means the very knowledge required for workplace performance is becoming more complex and less easy to learn. Berryman (1993) holds that conceptual knowledge is increasingly being required for workplace performance. However, much of that knowledge is hidden. Being hidden means it is not observable and is therefore more difficult to learn. The use of instructional interventions such as questioning dialogues, analogies and diagrams as part of everyday work activity can be used to address this problem (Billett & Rose 1996). Instructional strategies such as these can be used as part of everyday work practice to engage learners and attempt to make accessible what is hidden or simply unavailable.

Guidance in the workplace is therefore a key factor for the development of robust knowledge and a means to inhibiting the shortcomings of workplace learning. The direct guidance of experts is likely to be an important factor in workplace learning, therefore limits to guidance may diminish.
the quality of outcomes. In studies of workplace learning, those working alone or in remote locations emphasised the importance of gaining access to relevant expertise (Billett, 1994). However, the workplace learner determines who is a credible source of knowledge (Volkoff, 1996). Therefore, appointed mentors and trainers might not seen as credible by the learners. Also, if the expert merely tells, rather than models and demonstrates, the outcomes might be quite weak (Harris et al, 1996a) as the learners will not be engaged in the problem-solving activity of thinking and acting. A lack of available expertise is also a problem that will likely have a negative impact upon workplace learning.

Ideally, the knowledge secured through workplace learning will be more or less transferable to other circumstances (new tasks) and across settings in which the same vocational practice is conducted. In these ways, workplaces provide rich environments for the construction of the knowledge required for expertise. So a potentially important role for experts in the workplace is to maximise the prospect for transfer. This prospect is most likely to be realised if the learners have a rich base of knowledge in a particular context, with links and abstractions being made to other situations. For example, questions such as “however, if this factor were to be different what would you do? are likely to be important to disembed knowledge from a particular application thereby maximising its transfer to another. This matter is discussed in greater depth by Tennant in his chapter.

However, organisational factors which may inhibit the important role of guided learning in workplaces. Firstly, not all other workers or experts may be willing to share their knowledge, particularly if they are concerned about displacement by those whom they have guided and supported (Lave & Wenger 1991). Workers may be reluctant to show another how to do a particular task, if they believe it is against their own interest. Secondly, they may fear challenges to their status (Moore 1986). Experts who are not rewarded or fear displacement may be unwilling to provide guidance and access to tasks if their own standing is threatened. It is within these concerns that a key limitation of workplace learning can be found. In Japanese corporations supervisors pass on their knowledge to subordinates, confident of not being displaced by their subordinates because promotion is based on seniority (Dore & Sako, 1989). In the workplace learning studies mentioned above, it was evident that the sharing of knowledge within organisations varied. Those organisations in which workers enjoyed broader discretionary roles and had limited barriers to work practice seemed to offer more open learning environments. It was in these environments also where there seemed to be less concerns with the sharing of knowledge. Lynch (1993) argues that this complex of factors marks one of the differences in the relationship between individuals participating in educational
institutions and workers learning in the workplace. According to Lynch (1993) the two workplace agents, the company and the individuals, have different goals, access to resources and preferences which means that the nature of what is going to be offered may be less negotiable than in educational environments. That is, what experiences the company is willing to make available are associated with its strategic or even short term goals. (e.g, time and resources).

Given the unequal weighting in this relationship it is not possible to be confident that individuals’ interests will be always be considered. Significantly, current work in human resource development is suggesting that enterprises and their workers have never needed each other more than they do now. A key factor in the long term survival and development of enterprises has been shown to be associated with the levels of enterprise-specific skills and individual workers’ engagement with the enterprise (Rowden, 1995 1997). Moreover, Sefton (1993) has demonstrated the high degree of satisfaction and levels of participation realised when workers are given a say in training arrangements within the workplace.

This suggests that approaches to workplace curriculum need to address both the requirements of the productive activities of the workplace, the involvement of individuals within the workplace as well as those factors associated with participation and guidance which have been outlined above. In the next and final section, a model of workplace curriculum is proposed which seeks to take account of both the organisational and pedagogical requirements of learning in the workplace which leads to the development of expertise or full participation in the workplace.

**Workplace curriculum**

The organisation of the workplace curriculum needs to be linked to: (i) movement from less accountable tasks to full participation in workplace activities; (ii) access to the product (goals) of workplace activities; (iii) direct guidance from more expert others; and (iv) indirect guidance provided by other workers and the physical environment of the workplace (see Figure 1). These elements are now detailed.

*Movement towards full participation in workplace activities*

It is necessary to identify a pathway of workplace tasks learners need to access and become successful as they move towards expertise. Delineating this learning pathway involves determining how best learners can move from the work activities undertaken by novices to those of experts. This pathway is founded on the principle of movement from peripheral activities to full participation in work activities - that is, from those activities which are less accountable and complex, to those which are usually more complex and may carry greater accountability (see
Lave & Wenger, 1991). The development and sequencing of this pathway should accommodate two general requirements. The first is to sequence workplace activities of increasing complexity and accountability. This permits the learner to participate in and secure knowledge incrementally while undertaking more accountable tasks and securing more accountable goals. Secondly, the pathway has to afford the opportunity for learners to access the procedures and processes, and importantly the products, of workplace activities. Opportunities need to be furnished for learners to access and understand the products of their work activities. This access enables the development of understanding about the goals for and standards of those completed tasks.

The procedure of identifying the learning pathway might be as simple as determining the sequence in which experts had acquired their skills and comparing this with the experiences of recent trainees. This sequence can be refined and ratified by workplace experts in the development of a pathway of learning tasks. Once identified, the pathway can be used to manage the sequencing of tasks which novices will have to access in their own journey towards expertise.

By establishing a pathway of activities of increasing accountability the learners are engaged in more demanding tasks and goals incrementally in the movement from peripheral to full participation in the workplace or expertise. The pathway is not required to be a fixed sequence of activities to be undertaken in a step-by-step fashion. Rather, groupings of activities which can be accessed and undertaken by learners as the opportunities arise in everyday work practice. Movement through the pathway is premised on the novice’s ability to successfully complete the tasks without the direct guidance of experts and others. The ability to independently and successfully complete the task suggests a readiness to move on to the next task.

Access to the product (goals) of workplace activities

The pathway has also to afford learners the opportunity to access both the product and the process of the workplace activities. This means opportunities for learners to access and understand the outcomes of their work activities. This access permits the development of understanding about what their activities are contributing towards and set standards associated with those activities. For example, as part of their training, warehouse workers at one site were taken in a delivery truck to supermarkets to see the goods they had packed onto pallets being delivered (Billett 1993). This experience allowed these workers to appreciate the importance of care and thoroughness in packing the pallets to withstand the rigours of long road journeys and the importance of arriving in a presentable condition. Making the goal accessible provides important goals for vocational practice, which become goals for learners. Hence, ideas about the basis for performance are
accessed. Equally, workers could be provided with access to the outcomes of their activities or those they are to learn about in other ways such as visits to different work areas.

Direct guidance from more expert others
The investigations into workplace learning and theoretical ideas referred to above emphasised the importance of learners’ interaction with expert others in the development of skilful knowledge. Those fellow workers who were acknowledged by others as being experts were seen as credible sources of knowledge. As noted above, there would be no guarantee that someone titled ‘the trainer’ or nominated workplace mentor would be granted this status by workplace learners. The workplace expert’s guided learning role may include establishing and monitoring the learner on the pathway of tasks, providing direct guidance in the form of questioning, direct instruction and making knowledge accessible. In addition, the expert models and coaches workplace procedures and then monitors the progress of the learner. The key principle in this joint learning activity is to press the learners into doing the thinking and acting, as it is through that ongoing problem-solving activity that they will construct knowledge. However, judicious use of direct instruction will always be necessary, particularly when the learners do not possess the knowledge by which they can engage in purposeful problem-solving.

Indirect guidance provided by others and the physical environment
It seems that the on-going everyday vocational activity engages workplace participants in both routine and non-routine problem-solving is the basis for the development of vocational knowledge. This experience is essential for the development of robust vocational knowledge. Indirect guidance is part of this experience which includes learners listening to and observing other workers. Models of practice, and standards by which learners can measure their progress against, are provided by this indirect form of guidance (Lave, 1990). Equally, the structuring of experience by the workplace and the cues and clues provided in the physical environment provide another form of indirect guidance. This form of guidance is often provided gratuitously by the workplace. Its role in assisting with the structuring of workers’ knowledge should not be underestimated as it immerses ongoing thinking and acting in a particular situation from which they construct knowledge.

So in sum, it has been advanced in this chapter that learning is a product of engaging in everyday activity. As such workplaces furnishes activities which provide learners with combinations of problem-solving experiences which assist them extend and reinforce their knowledge. Workplaces may provide aids to learning in the form of the physical environment, other worker and experts who can model activities and provide guidance. However, to overcome some of the
inherent weaknesses of workplaces as learning environments, guidance by experts and others is necessary to limit the learning of inappropriate knowledge, to make accessible what is hidden, to sequence activities which avoid placing the learner outside what they can learn without the assistance of another and also to provide ongoing joint problem-solving which takes the learner from being a peripheral to full participant. So, in order the realise the full potential of workplaces as learning environments, experiences have to be structured and guidance provided in ways that provides access, presses the learner into problem-solving (thinking and acting) and collaborative and guided approach to learning. The model of a workplace curriculum advanced here aims to secure this goal.

References
Harris L & Volet S, 1997, 'Developing a learning culture in the workplace’, Murdoch University, Western Australia.


