

LEARNING AT WORK: TOWARDS MORE 'EXPANSIVE' OPPORTUNITIES

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Introduction

Workplaces have always been sites of learning and every workplace creates its own unique version of a learning environment. In these environments, learning takes place in a range of different ways along a continuum that stretches from formalised activity at one end (e.g. a supervisor showing an apprentice how to change the settings on a machine on the factory floor) through to a group of employees discovering the answer to a problem by informal discussion round the water cooler. This paper discusses the ways in which learning at work might be better organised and facilitated for the benefit of individuals and organisations, and as a contribution to lifelong learning.

Learning is a troublesome term. On the one hand, it is part of everyday language and accepted as a key attribute of being human. The phrase, "You learn something new every day", captures the often accidental and incidental nature of learning as part of everyday human activity. On the other hand, learning is defined by the Oxford English Dictionary as, "(possession of) knowledge got by study, especially of language or literature or history as subjects of systematic investigation" (OED, 1976:616). Here learning is portrayed as a deliberate, formalised activity, echoing the dictionary's definition of 'education' as "systematic instruction" (ibid:330). This depiction of learning as a formalised, classroom-based activity in which students/trainees interact with a teacher or trainer is particularly dominant in society (see Beckett and Hager, 2002). This partly explains why many people, including employers and policymakers, find it hard to acknowledge that meaningful learning can take place outside the classroom. This is despite the fact that most people instinctively know that they become competent in their jobs through learning as they perform those jobs (see Felstead et al, 2004), and that through this process they acquire knowledge and skills which are so entwined with the job, that they are referred to as 'tacit':

"The skilled carpenter knows just how a given variety of wood must be handled, or what type of joint will best serve his purpose at a particular edge. To say that he 'knows' these things is not to claim that he could put his knowledge into words. That is never entirely possible...The practitioner's knowledge of the medium is tacit. It is essential to skilled practice: the carpenter

uses what he knows with every stroke of his tool.” (Neisser (1983:3))

There is, therefore, a complex interconnected relationship between performing everyday work tasks, the utilisation of skill and knowledge, and learning. Throwing light on learning in the workplace requires the use of a range of methodologies, but researchers are becoming more creative and, given the increasing interest in the topic, more and more organisations are willing to provide the type of sustained access that researchers need to collect meaningful data. From our research¹, we would argue that in order to develop a better understanding of the value that any form of learning has to an organisation and to individuals, we have to understand the context in which it occurs. And it is through understanding the context that we, as researchers, can begin to formulate appropriate questions to help employees (at all levels) put into words the invisible process of learning. Framing those questions round the activity of work (as opposed to learning) leads naturally to a discussion about how skills and knowledge are acquired and shared. As Hoyrup and Elkjaer (2006:29) note, “In a workplace the most important sources of learning are the challenges of work itself, the organisation of work and the social interactions at work”.

Learning in Context

The increasing interest in the workplace as a site for learning partly reflects employers’ concerns about the added value of off-the-job training to the achievement of their business objectives, and also the realisation that it is difficult to isolate the effect of training from other organisational variables (see Tamkin, 2005, Ashton, 2004). A growing number of studies are now attempting to develop an analysis of the organisational context for such learning and how this can open up opportunities for or create barriers to learning at work. These studies draw partly on theories that highlight the socially situated nature of workplace learning (see Lave and Wenger, 1991). In other words, individuals, on their own and in co-operation with colleagues, make sense of and acquire skills and knowledge in the context in which they are practiced. They do this by starting out as peripheral members and then progressing, over time to full participants in what Lave and Wenger call ‘communities of practice’. This model is seen most clearly in traditional forms of apprenticeship. Whilst Lave and Wenger’s model has considerable limitations (see Fuller et al, 2005; Hughes et al, 2007), it is helpful in drawing our attention to the way in which learning at work takes place through and is shaped by social relations.

The term ‘informal learning’ is often used in connection with learning at work, but this has been shown to be highly problematic. Billett (2001) and Colley et al (2003) argue

¹ This paper draws particularly on previous research carried out by Fuller and Unwin (see references) and on a current project (co-directed by Felstead, Fuller and Unwin) funded by the Economic and Social Research Council under its Teaching and Learning Research Programme (RES-139-25-0110). For more details, see, www.clms.le.ac.uk/research/learningaswork.html

that distinctions between ‘formal’ and ‘informal’ or ‘non-formal’ learning are meaningless and unnecessary as all learning (regardless of where it takes place) has both formal and informal characteristics. Eraut (2000) prefers the term ‘non-formal’, as he regards the term ‘informal’ as too negative in that it appears to rate this type of learning as inferior to the formal type. Eraut (2004) agrees that all learning takes on formal and informal characteristics, but he argues that there is an important distinction to be made in terms of whether the learning that takes place is intended. He offers the following classification:

- Deliberative learning (conscious, planned, with a definite goal)
- Reactive learning (near spontaneous – varying degrees of intention – little time to think)
- Implicit learning (no intention to learn and lack of awareness that it has taken place)

This classification is helpful because we can use it to try and evaluate the extent to which an organisation might improve the quality of the learning that is taking place between its walls. To do this, however, we also need to focus on the extent to which this learning can be said to move people (and, as a consequence, the organisation) beyond the everyday processes of what the French psychologist, Piaget (1968) called ‘equilibrium’, ‘assimilation’ and ‘accommodation’. As Billett (1999) explains, individuals seek ‘equilibrium’ by trying to integrate new information with what they already know. Hence, “assimilation is the process of linking existing knowledge to an activity or stimuli”, such as following existing procedures to perform a new task which looks similar to one performed before, whilst ‘accommodation’ is the process of “developing new knowledge when faced with a novel situation” (ibid:153). Billett (ibid) stresses, however, that workers prefer assimilation to accommodation because it is less demanding. He argues, therefore, that employees need access to structured learning opportunities and to guidance from others, including experts. He is not arguing for formalised on-the-job or off-the-job training. Rather, he is arguing for some of the everyday learning in the workplace to be organised round purposeful tasks (e.g. solving a specific problem), and for this to be set within a climate of much greater openness on the part of management about why such learning is needed and the basis on which their performance is being judged.

The idea that informal learning needs to be separated out into different types is also pursued by Ellstrom (2006:44), who uses the contrasting terms “adaptive (reproductive) and developmental (creative) learning”. He argues:

“The notion of adaptive learning has a focus on a subject’s mastery of certain given tasks or situations, on the refinement of task performance or, for example, of existing routines in an organization. This is in contrast to developmental learning, where the focus is on individual/collective development, and/or on more radical transformations of the prevailing situation.”

This echoes the work of Engeström (2001) who uses the term 'horizontal interaction' to indicate how workers learn (and can create new knowledge) through the collective solving of problems. He also stresses the dynamic nature of workplace learning:

“People and organisations are all the time learning something that is not stable, not even defined or understood ahead of time. In important transformations of our personal lives and organisational practices, we must learn new forms of activity which are not yet there. They are literally learned as they are being created.”
(Engeström 2004)

We now begin to move well beyond the complacent idea that any form of informal learning at work should be valued.

For Marsick and Watkins (1990), informal learning is intentional and can include activities such as self-directed learning and coaching. They contrast this with 'incidental learning', which they define as a “by-product of some other activity such as sensing the organisational culture, or trial and error experimentation”. (ibid:8) The reference here to “sensing the organisational culture” is significant as it alerts us to what Darrah (1996) refers to as the 'hidden curriculum' of the workplace (see also Garrick, 1998). By this, Darrah means that, in order to perform their jobs, progress, and survive in the workplace, employees have to gain an understanding about the cultural norms, sources of power, accepted levels of behaviour and other invisible, but highly important, characteristics of their organisation. This learning may lead employees into practices which, in an industrial relations sense, are of benefit to them (e.g. making sure no-one works too quickly) and which might mean poor and inefficient ways of working are sustained and reproduced as workers come and go. By agreeing to acquiesce in such practices, employees acknowledge their loyalty may be more to their fellow workers than to the organisation. In this sense, there may be a number of communities within an organisation, each with its own culture and characteristics. These communities may reveal their differences through such activities as initiation and 'rites of passage' rituals, which are still found in workplaces, from manufacturing plants to hospitals and offices. Their underlying purpose is to socialise the new recruit or graduating apprentice into becoming a fully accepted member of the workplace community. As Vaught and Smith (2003) show, through their study of American coal mines, these events, which can often be degrading for the victim, also reinforce the sense of worker solidarity, particularly in occupational settings which are highly pressurised and dangerous.

The workplace as a 'learning environment'

This paper began with the assertion that each workplace can be seen as a unique learning environment, and, hence, it follows that some organisations are much more effective than others at both facilitating and capitalising on the learning they engender. The way in which organisations configure their production processes and regulate the employment relationship (see Rainbird, et al 2004) create the conditions in which learning is shaped. In addition, and importantly, individual employees (at all levels) bring their own experiences of life and learning into the workplace and thus contribute to the shaping and development of the learning environment (see Evans et al, 2006). In their study of

apprenticeship programmes in the steel and metals sector in England and Wales, Fuller and Unwin (2003 and 2004) developed a framework for analysing the differences between the types of learning environment created in their case study companies (see also Unwin and Fuller, 2003). This framework, referred to as the 'Expansive-Restrictive Continuum', identifies the characteristics which, when operating together, produced environments in which learning was more or less likely to be encouraged. Expansive characteristics included: recognition that people learn in the workplace; mechanisms to facilitate sharing of knowledge and skill; boundary crossing across job lines; commitment to passing on skills from one generation to the next; and workforce development policies for all grades.

The following example shows how one case study company made changes to the way in which work was organised in order to make better use of informal learning and, hence, shift further towards the expansive end of the continuum:

Steel 'stockholder' with some 80 employees

In order to compete, it must successfully market and sell its steel products by assuring their quality, value for money and the efficiency of the company's services. It was concerned that sales staff had developed specialist knowledge of a limited number of products, so the following changes were made:

- sales staff were required to sell *all* the company's product lines, and get to know new customers.
- desks were reconfigured in a circular seating arrangement to facilitate knowledge exchange, and problem solving

Some staff had initially felt that their specialist (expert) status would be undermined by the changes, but in practice they found that they had broadened their product knowledge, learned new practices by watching colleagues, and were much more engaged in collaborative problem-solving.

One aspect of Fuller and Unwin's project studied the reactions of older workers (40+) in two case study companies to demands for up-skilling and retraining (Fuller and Unwin, 2006). Their findings showed that older employees were generally positive about learning when it was seen to be relevant and helped them to do their jobs better or more easily. There was a significant difference, however, between the two companies in terms of how the employees viewed the relationship between learning and organisational change. In the more 'expansive' company, change was seen as:

...a continuing and integral aspect of working life, central to the company's continuing success. The notion of organisational change aligned with a coherent and consistent high involvement organisational culture, valued the contribution of individual workers and teams, alongside its emphasis on continuous performance improvements, the design and development of high quality products and high levels of cooperation between managers and workers. (ibid:265)

In the more 'restrictive' company, the need for organisational change was:

...associated with a direct and immediate threat to the survival of the company. Employees regarded the change as a direct challenge to the historical division of labour, established status arrangements, and pay differentials. (ibid:266)

The organisation and management of work is also at the heart of the approach commonly referred to as 'high performance working' (Ashton and Sung, 2002), which promotes greater employee involvement in decision-making and problem solving. From research in the engineering, finance and health sectors, Eraut et al (1999: 29) found that the role of the line manager was crucial in the sense that they have the power to create social climates that support learning (see also Purcell, 2002). In a study of car plants in Japan, Malaysia and Thailand, it was found that the use of group working, devolved employee decision making and problem solving, produced much higher levels of intellectual skills among employees in the Japanese plants (Koike, 2002). This meant that they were able to identify and rectify potential faults before they disrupted the production process. Decision-making and problem-solving skills had been raised through maximising employees' informal learning at the same time as organising work in ways that enabled employees to develop and utilise that learning. Here we see learning and work organisation in a symbiotic relationship, entwined together as in the double helix of DNA.

Evidence from case study research

In a study commissioned by the Department of Trade and Industry (DTI), we were able to explore the relationship between informal learning, the way in which work is organised, and performance in four case study settings in England (see Fuller et al, 2003 for full details). Each of the case study organisations also sits within a particular sectoral and regulatory environment, and all are subject to a wide variety of external and internal pressures. The following vignettes reveal the diversity of approaches taken by the organisations and, hence, clearly illustrate the point that each will create a different type of learning environment. The vignettes also reveal the very different definitions of 'performance' that exist within and across organisations, again arising out of the particular organisational contexts.

Case Study One: The Hairdressing Salon

This small, single owner hairdressing salon, in a market town in the East Midlands, has 8 staff and an annual turnover of £200,000, of which 10-15% is net profit reinvested into the business every year. The owner belongs to an elite club of hair designers of which there are about 500 members in the UK. Annual membership of the club (which has just celebrated its 25 year anniversary) costs several thousand pounds per year. As a result of adopting the club's sales techniques, the salon's annual turnover of products has increased by 500%. The motivation to learn in the salon is stimulated by the desire to earn money and to ensure that the salon achieves maximum capacity. If stylists can continually reach their targets, they will be promoted every three months and could end up as a profit sharing partner in the business. This competitive approach did not appear to undermine team-based approaches to learning. Staff described how they learn, informally, from each other in the salon through observation and through discussing the

best techniques in relation to each other's clients. They also coach each other to improve their skills and learn by reading trade magazines.

Case Study Two: The Accountancy Practice

This small accountancy practice, in the South of England, employs 3 partners and 11 other staff. There is strong recognition of the central role learning plays in the success of the organisation, individual performance and the pursuit of professional qualifications. A key driver is the fulfilment of continuous professional development obligations laid down by the profession's governing body. The commercial reality of running a small organisation means that partners develop a range of generic skills in addition to their professional accountancy expertise. These generic skills tend to be developed 'informally' through experience and interactions between peers, whilst the professional skills (for all the accountancy staff) are developed through a combination of formal study and learning in the workplace. Formal and informal learning are regarded as being inter-related. The creation and use of artefacts (e.g. documents) is an integral part of the work activity. They are used to evaluate individual performance, for self-evaluation, and to provide the basis for discussions on how individual and organisational improvements can be achieved.

Case Study Three: The NHS Primary Care Trust

The National Health Service (NHS) is the largest organisation in Europe, employing around one million people in England. There are 303 Primary Care Trusts (PCT) in England responsible for the provision of health services to their populations, including: General Practitioners (GP); hospitals; dentists; mental health care; walk-in centres; NHS Direct; patient transport; population screening; pharmacies; and opticians. They are also responsible for integrating health and social care at local level. Each PCT is different in terms of its style and culture, but they are all governed by the same 130 national performance measures (e.g. that patients will see a doctor within 48 hours). This case study covers two neighbouring PCTs, in the North West of England. Meeting nationally set performance measures is leading to senior managers becoming distanced from the everyday work of their service and, hence, losing sight of the important role which informal learning plays in the workplace. Whilst it might be possible to 'measure' the effectiveness of some of that informal learning, much occurs through collegial activity that cannot be defined in performance measurement terms. The shift to requiring nurses to take on more of the tasks traditionally assigned to doctors is leading to a form of specialisation which restricts the informal flow of skills and knowledge from nurse to doctor. The emphasis on formal education and training in the NHS discriminates against informal learning despite the fact that much of that learning is extremely valuable to the delivery of effective medicine. The interviewees said the NHS needed to follow the example of private sector organisations and develop vehicles for rewarding employees' good practice in the workplace.

Case Study Four: The Car Dealership

This case study is of a car showroom, which forms part of a two-site car dealership employing 120 people in the outskirts of a city in the East Midlands. The site we studied is the larger of the two and employs 75 people. Both sites offer customers sales, service

and parts facilities. The turnover of the business is in excess of £30 million a year. The volume of car sales, trade-in prices and selling prices are crucial aspects of a showroom's activities. The size of the monthly salary of sales staff is determined by the number of cars they sell and the profit margins secured on each sale. Selling cars is important to the organisation as most cars carry a profit, but selling is also important as a means of 'growing the car park' for the servicing and repair business, as this is the more lucrative end of the business, and maintaining and promoting the dealership's presence in the area. Sales staff can consult product knowledge related to new cars in manuals and brochures held in the Sales Manager's office and also available on-line. Sales staff also have to keep up-to-date with changes in the used car market and are very aware that customers can also gain this knowledge through brochures, on-line information and performance reviews in consumer magazines and television programmes. Making initial contact with customers is crucial since once their details (known as the 'qualification') have been taken, a customer becomes attached to a sales executive throughout the selling process. Sales staff compete with each other to attract customers and they jealously guard the tactics they develop from others in the 'team'. For example, one of the sales executives we interviewed discovered several good vantage points in the showroom from which he could monitor, unknown cars coming onto 'the territory' without his colleagues noticing. He also used other tactics to 'look busy' on the used car forecourt in order to make himself the first member of the sales staff which customers came into contact with as they looked round the cars on sale. Sales staff reported that they had never had any formal sales training and had learnt to do their job better through self-reflection especially when a sale was lost. Many of the opportunities to learn from one another in the showroom appear to be severely curtailed by the commission-based payment system used in the car showroom. This appears to be typical of the industry as a whole. As one interviewee said, "it's a dog eat dog industry". The Sales Manager does, however, facilitate some informal learning by giving sales staff access to his knowledge of trade-in prices and discounts and, hence to the way he makes decisions.

These case studies illuminate the different ways in which links can be made between informal learning at work and business performance. In the hairdressing salon, for example, learning is structured at the individual level through the technical requirements of the job, the culture of sharing knowledge, skills and information in the salon, and the rewarding of skill acquisition through the career and salary arrangements. Stylists are promoted as they become more productive. At the organisational level, learning is structured through the owner's use of benchmarking. The owner clearly uses learning as a strategy to increase productivity, not least because it keeps the salon at the top of the market and enables it to charge higher prices.

In the accountancy practice, the level of and approach to learning were largely driven by the externally imposed technical and regulatory requirements of the profession. The imperatives of running a small business ensured that other learning took place (e.g. entrepreneurial skills, customer care) and more attention was being given to structuring this learning because of its centrality to productivity and overall business performance. A key way of ensuring that both types of learning were maximised was through the expansion of job roles to expose staff to more learning opportunities. Profits in the

practice were shared amongst the partners and this provided an incentive for collective problem-solving and sharing of expertise. In this way, the accountancy practice was similar to the hairdressing salon in that collective endeavour was encouraged and seen as the route to organisational success.

In the case of the car dealership, the pay structure was the most important factor in shaping the learning process. Individual sales executives had their rate of pay determined by the numbers of cars they sold and so learning had become a very individualistic process. There was no incentive to share skills and knowledge as the emphasis was on the individual rather than collegiality. Unlike the accountancy practice, sales executives did not personally benefit from collective learning and increased organisational performance. Instead, the route to increasing worker productivity was through strengthening the link between individual performance and pay. The industry is therefore typified by high labour turnover as those who cannot quickly make the grade are replaced by those whose individual selling style is more productive both for them and in turn the dealership. In the NHS case study, the culture appears to privilege formal learning and the attainment of qualifications and, as a result, opportunities to create or recognise links between workplace learning and performance are diminished. In addition, the move to greater specialisation of job roles was reducing the amount of informal contact between experienced and less experienced staff and so closing down opportunities for sharing skills and knowledge as a part of the daily routine.

Concluding Remarks

Some organisations are much closer to what we have called an 'expansive' approach to harnessing the potential of workplace learning, whereas others create much more restrictive environments. Those organisations that rely completely on the assumption that the learning that takes place as part of everyday workplace activity may be in danger of reproducing inefficient practices, remaining ignorant about the different levels of competence and potential of individual employees and teams, and ignoring work practices that impede or even subvert the goals of management. Learning on-the-job can also be regarded as the cheap way to train: hence, its appeal to both policymakers and employers. The opportunity to learn in a structured way outside the everyday pressures of the workplace can be immensely valuable, not just in terms of providing employees with new skills and knowledge, but also in terms of time for reflection.

In the UK, skills policy is still heavily influenced by the metaphor of 'learning as acquisition' (Sfard, 1998). We see this most starkly in the continued use of qualifications as a proxy measurement for skills, and in the number of surveys that depict learning related to the workplace solely in terms of formal episodes of 'training' that can be counted and costed. Once learning is viewed as a complex, contextualised process, we open the door to a much more meaningful exploration of how knowledge and skills are developed, adapted, transformed and shared within the dynamic setting of the workplace. This is, of course, highly problematic in policy terms because the shift away from the bean counting approach demands a much greater willingness to accept a much holistic approach to the development of skills strategies. It also demands a realisation that employers need much more help if they are going to maximise the learning potential

within their organisations. It is far easier to send people on formal training courses than to re-organise your production process or re-design jobs in order to expand the opportunities for informal learning. We know from research that many employers in the UK lack the management and general business skills to take their organisations forward. It follows, too, that these employers also struggle to design appropriate workforce development strategies, particularly if they too have only ever worked in 'restrictive' environments. The challenge is also there for researchers and those who commission and fund research. We need to design more ambitious work-based studies with a greater longitudinal dimension and much greater effort to bridge the gap between qualitative and quantitative methodologies.

Our research indicates that, regardless of the sectoral context or type of organisation, and regardless of the grade of employee, learning in the workplace plays a major role in the development of skills and work-related knowledge. It is time to take a much closer look at what is going on within workplaces to identify the factors that facilitate such learning. From this, we should be able to create practical models to help employers and the agencies that support them to find ways of reaping greater benefits from everyday workplace activity.

Questions for Policy

1. To what extent do government-funded initiatives such as Train 2 Gain place sufficient emphasis on helping employers reconfigure the way they organise work as opposed to concentrating solely on getting individuals qualified?
2. To what extent do sectoral bodies help employers develop workforce development strategies that are embedded in their business strategies?
3. What ways could be found to help employers learn from each other about the small/realistic steps that can be taken to enable them to move further towards the 'expansive' end of the continuum (e.g. as in the steel stockholder example given in this paper)?

References

- Ashton, D. and Sung, J. (2002) *Supporting Workplace Learning for High Performance Working*, Geneva: International Labour Office.
- Beckett, D. and Hager, P. (2002) *Life, Work and Learning* (London: Routledge).
- Billett, S. (2001) 'Learning through working life: interdependencies at work', *Studies in Continuing Education*, 23(1):19-35.
- Billett, S. (1999) 'Guided learning at work', in Boud, D. and Garrick, J. (eds) *Understanding Learning at Work*, London: Routledge.
- Colley, H., Hodkinson, P. and Malcolm, J. (2003) *Informality and formality in learning*, London: Learning and Skills Development Agency.
- Darrah, C N (1996) *Learning and Work: An Exploration in Industrial Ethnography*, London: Garland Publishing.

Ellstrom, P. (2006) 'The meaning and role of reflection in informal learning at work', in Boud, D., Cressy, P. and Docherty, P. (eds) *Productive Reflection at Work*, London: Routledge.

Engeström, Y (2001) 'Expansive Learning at Work: toward an activity theoretical reconceptualization', *Journal of Education and Work*, 14(1):133-156.

Engeström, Y. (2004) 'The New Generation of Expertise: Seven Theses', in Rainbird, H., Fuller, A. and Munro, A. (eds) *Workplace Learning in Context*, London: Routledge.

Eraut, M (2000) 'Development of knowledge and skills at work', in Coffield, F. (ed.) *Differing Visions of a Learning Society: Research Findings, Volume 1*, Bristol: The Policy Press.

Eraut, M, Alderton, J, Cole, G and Senker, P (1999) 'The impact of the manager on learning in the workplace', in Coffield, F (ed.) *Speaking Truth to Power: Research and Policy on Lifelong Learning*, Bristol: Policy Press.

Eraut, M. (2004) 'Informal learning in the workplace', *Studies in Continuing Education*, 26(2): 247-273.

Evans, K., Hodkinson, P., Rainbird, H. and Unwin, L. (2006) (eds) *Improving Workplace Learning*, London: Routledge.

Felstead, A., Fuller, A., Unwin, L., Ashton, D., Butler, P., Lee, T. and Walters, S. (2004) *Better learning, better performance: evidence from the 2004 Learning at Work Survey*, Leicester: NIACE.

Fuller, A, Ashton, D, Felstead, A, Unwin, L, Walters, S and Quinn, M (2003) *The Impact of Informal Learning at Work on Business Productivity*, London: Department of Trade and Industry.

Fuller, A and Unwin, L (2003) 'Learning as Apprentices in the contemporary UK workforce: creating and managing expansive and restrictive participation', *Journal of Education and Work*, 16(4): 407-426.

Fuller, A. and Unwin, L. (2004) 'Expansive learning environments: integrating personal and organisational development', in Rainbird, H., Fuller, A. and Munro, A. (eds) *Workplace Learning in Context*, London: Routledge.

Fuller, A., Hodkinson, H., Hodkinson, P. and Unwin, L. (2005) 'Learning as Peripheral Participation in Communities of Practice: A reassessment of key concepts in workplace learning', *British Educational Research Journal*, 31(1): 49-68.

Fuller, A. and Unwin, L. (2006) Older workers' learning in changing workplace

contexts: barriers and opportunities, in Tikkanen, T. and Nyhan, B. (eds) *Promoting lifelong learning for older workers*, Cedefop Reference Series 65, Luxembourg: Office for Official Publications of the European Commission.

Garrick, J. (1998) *Informal Learning in the Workplace*, London: Routledge.

Hoyrup, S. and Elkjaer, B. (2006) 'Reflection: Taking it beyond the individual', in Boud, D., Cressey, P. and Docherty, P. (eds) *Productive Reflection at Work*, London: Routledge.

Koike, K. (2002) 'Intellectual Skills and Competitive Strength: is a radical change necessary?', *Journal of Education and Work*, 15 (2) 391-408

Lave, J and Wenger, E (1991) *Situated Learning: Legitimate Peripheral Participation*, Cambridge: Cambridge University Press.

Marsick, V. J. and Watkins, K. (1999) *Informal and Incidental Learning in the Workplace*, New York: Routledge.

Niesser, U. (1983) Toward a skilful psychology, in Rogers, D. and Sloboda, J.A. (eds) *The Acquisition of Symbolic Skills*, New York: Plenum Publishing Corporation.

OED (1976) *Shorter Oxford Dictionary*, Oxford: Oxford University Press.

Piaget, J. (1968) *Structuralism*, translated and edited by C. Maschler, London: Routledge and Kegan Paul.

Purcell, J. (2002) *Sustaining the HR and performance link in difficult times*, London, Chartered Institute for Personnel Development Research Summary.

Rainbird, H., Munro, A. and Holly, L. (2004) 'The Employment Relationship and Workplace Learning', in Rainbird, H., Fuller, A. and Munro, A. (eds) *Workplace Learning in Context*, London: Routledge.

Sfard, A (1998) 'On two metaphors for learning and the dangers of choosing just one', *Educational Researcher*, 27(2): 4-13.

Tamkin, P. (2005) *The Contribution of Skills to Business Performance*, Brighton: Institute for Employment Studies.

Unwin, L. and Fuller, A. (2003) *Expanding Learning in the Workplace*, Leicester: NIACE.

Vaught, C. and Smith, D.L. (2003) 'Incorporation and Mechanical Solidarity in An Underground Coal Mine', in Harper, D. and Lawson, H.M. (eds) *The Cultural Study of Work*, Oxford: Rowman and Littlefield.

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