The Journal of

Workplace Learning

Selected papers from the 3rd International Conference on Researching Work and Learning, Tampere, Finland: Part Two

Guest Editors: Annikki Järvinen and Darryl Dymock

Emerald

The Journal of Workplace Learning

Selected papers from the 3rd International Conference on Researching Work and Learning, Tampere, Finland: Part Two

Guest Editors
Annikki Järvinen and Darryl Dymock

CONTENTS

Access this journal electronically

The current and past volumes of this journal are available at:

www.emeraldinsight.com/1366-5626.htm

You can also search over 100 additional Emerald journals in Emerald Fulltext at:

www.emeraldinsight.com/ft

See page following contents for full details of what your access includes.

CONTENTS
continued

As a subscriber to this journal, you can benefit from instant, electronic access to this title via Emerald Fulltext. Your access includes a variety of features that increase the value of your journal subscription.

How to access this journal electronically

To benefit from electronic access to this journal you first need to register via the Internet. Registration is simple and full instructions are available online at **www.emeraldinsight.com/ rpsv/librariantoolkit/emeraldadmin** Once registration is completed, your institution will have instant access to all articles through the journal's Table of Contents page at **www.emeraldinsight.com/1366-5626.htm** More information about the journal is also available at **www.emeraldinsight.com/ jwl.htm**

Our liberal institution-wide licence allows everyone within your institution to access your journal electronically, making your subscription more cost effective. Our Web site has been designed to provide you with a comprehensive, simple system that needs only minimum administration. Access is available via IP authentication or username and password.

Key features of Emerald electronic journals

Automatic permission to make up to 25 copies of individual articles

This facility can be used for training purposes, course notes, seminars etc. This only applies to articles of which Emerald owns copyright. For further details visit **www.emeraldinsight.com/ copyright**

Online publishing and archiving

As well as current volumes of the journal, you can also gain access to past volumes on the internet via Emerald Fulltext. Archives go back to 1994 and abstracts back to 1989. You can browse or search the database for relevant articles.

Key readings

This feature provides abstracts of related articles chosen by the journal editor, selected to provide readers with current awareness of interesting articles from other publications in the field.

Reference linking

Direct links from the journal article references to abstracts of the most influential articles cited. Where possible, this link is to the full text of the article.

E-mail an article

Allows users to e-mail links to relevant and interesting articles to another computer for later use, reference or printing purposes.

Additional complementary services available

Your access includes a variety of features that add to the functionality and value of your journal subscription:

E-mail alert services

These services allow you to be kept up to date with the latest additions to the journal via e-mail, as soon as new material enters the database. Further information about the services available can be found at **www.emeraldinsight.com/usertoolkit/ emailalerts**

Emerald WIRE (World Independent Reviews)

A fully searchable subject specific database, brought to you by Emerald Management Reviews, providing article reviews from the world's top management journals.

Research register

A web-based research forum that provides insider information on research activity world-wide located at **www.emeraldinsight.com/researchregister** You can also register your research activity here.

User services

Comprehensive librarian and user toolkits have been created to help you get the most from your journal subscription. For further information about what is available visit **www.emeraldinsight.com/usagetoolkit**

Choice of access

Electronic access to this journal is available via a number of channels. Our Web site **www.emeraldinsight.com** is the recommended means of electronic access, as it provides fully searchable and value added access to the complete content of the journal. However, you can also access and search the article content of this journal through the following journal delivery services:

EBSCOHost Electronic Journals Service
ejournals.ebsco.com

Huber E-Journals
e-journals.hanshuber.com/english/index.htm

Ingenta
www.ingenta.com

Minerva Electronic Online Services
www.minerva.at

OCLC FirstSearch
www.oclc.org/firstsearch

SilverLinker
www.ovid.com

SwetsWise
www.swetswise.com

Emerald Customer Support

For customer support and technical help contact:
E-mail **support@emeraldinsight.com**
Web **www.emeraldinsight.com/customercharter**
Tel +44 (0) 1274 785278
Fax +44 (0) 1274 785204

4

New forms of learning in co-configuration work

Yrjö Engeström

Keywords Workplace learning,
Organizational theory,
Configuration management

Focuses on the theories and study of organizational and workplace learning. Outlines the landscape of learning in co-configuration settings, a new type of work that includes interdependency between multiple producers forming a strategic alliance, supplier network, or other such pattern of partnership which collaboratively puts together and maintains a complex package, integrating material products and services. Notes that learning in co-configuration settings is typically distributed over long, discontinuous periods of time. It is accomplished in and between multiple loosely interconnected activity systems and organizations operating in divided local and global terrains and representing different traditions, domains of expertise, and social languages. Learning is crucially dependent on the contribution of the clients or users. Asserts that co-configuration presents a twofold learning challenge to work organizations and outlines interventionist and longitudinal approaches taken.

Lifelong learning in the workplace? Challenges and issues

Paul Hager

Keywords Lifelong learning,
Workplace learning

There is much scepticism about the concept of lifelong learning within both the educational literature and the literature on work. Certainly, many work arrangements discourage learning, let alone lifelong learning. Nevertheless, there are also work situations in which significant learning occurs. However, even in instances where work arrangements are more favourable for learning, there does not seem to be wide recognition that this is the case. This paper suggests that this reflects the fact that learning is widely misunderstood. The common-sense view of learning as a product gives many types of learning a bad press, including learning at work and lifelong learning. However, when the process aspects of learning are given due attention, as in the emerging view of learning outlined in this paper, much learning, including informal workplace learning at its best, is accurately described as a form of lifelong learning.

Distributed systems of generalizing as the basis of workplace learning

Jaakko Virkkunen and Juha Pihlaja

Keywords Workplace learning, Training,
Taylorism, Total quality management

This article proposes a new way of conceptualizing workplace learning as distributed systems of appropriation, development and the use of practice-relevant generalizations fixed within mediational artifacts. The article maintains that these systems change historically as technology and increasingly sophisticated forms of production develop. Within these parameters, Taylorism is analyzed as the principal form of the learning systems of mass production, and the total quality management as the learning system of flexible manufacturing, or continuous improvement of processes, as it is also called. The article also maintains that the current IC technology-based transformation of businesses increasingly calls for meta-level learning, which makes it possible for the stakeholders within a given system of production to flexibly transform their system of producing generalizations, as the business concept's life cycle proceeds from one phase to another.

Learning in two communities: the challenge for universities and workplaces

Cathrine Le Maistre and Anthony Paré

Keywords Professional education,
Graduates, School leavers, Training

This article reports on a longitudinal study of school-to-work transitions in four professions: education, social work, physiotherapy, and occupational therapy. Each of these professions is characterized by the need for an undergraduate degree for certification; extensive, supervised internships before graduation; and, to a greater or lesser extent, supervision for beginning professionals after graduation. Students in their last years of

university, beginning professionals in their first years of practice, and the experienced practitioners who supervise both these groups were interviewed. The article draws on theory and data to help explain why the move from classroom to workplace is often so difficult, and makes recommendations to stakeholders in the training and induction of new practitioners in these professions. The recommendations may be extrapolated to other workplaces.

elements of "mastery", which experienced workers draw upon in everyday activities and continuously expand in tackling new or unexpected situations. This paper, based on the ESRC Teaching and Learning Research Network on Workplace Learning, argues that it is important to understand better how tacit forms of key competences can contribute to sustaining learning outcomes in different types of learning environments.

Participation, reflection and integration for business and lifelong learning: pedagogical challenges of the integrative studies programme at the University of Strathclyde Business School

Bill Johnston and Aileen Watson

Keywords Skills, Curriculum development, Learning organizations, Graduates, Employment, Lifelong learning

This paper gives a succinct account of current debates in the literature on graduate attributes as they are related to employment and lifelong learning, and argues the limitations of a "key skills" agenda as a guide to curriculum practice. Development of a curricular innovation that addresses key skills, "integrative studies" at the Strathclyde University Business School, is described and located in a wider framework of work-related facets that extend thinking beyond key skills. Those facets include the idea of a learning organisation and the concept of student identity formation. A research-based approach to further development of the curriculum is outlined, which takes the experiences of students and the perceptions and practices of specific employers to be key influences.

Learning for/at work: Somali women "doing it for themselves"

Gayle Morris and David Beckett

Keywords Culture (sociology), Learning, Women, Somalia, Employment, Literacy

This article draws on the understanding of the lives and experiences of two Somali women, as case studies, to examine the relationship between identity, work and language learning. The article begins with a brief discussion of embodied knowledge, with a view to exploring how "know how" intersects with literacy and identity. It then moves to the two case studies to illustrate how certain experiences of work, and of seeking work, embody vital knowledge. The article concludes by considering how this practical embodied knowledge can be confirmed and harnessed to enrich adults' learning for the workplace.

Recognition of tacit skills and knowledge: sustaining learning outcomes in workplace environments

Karen Evans and Natasha Kersh

Keywords Workplace learning, Skills, Knowledge

The part played by tacit skills and knowledge in work performance is well recognised but not well understood. These implicit or hidden dimensions of knowledge and skill are key

Safety in operating theatres: improving teamwork through team resource management

Alan Bleakley, Adrian Hobbs, James Boyden and Linda Walsh

Keywords
Operating theatres, Health services sector, Safety, Team working, Resource management

Work in progress is reported for a research project aiming to improve multiprofessional teamworking in operating theatres through iterative educational intervention. Experimental design is combined with collaborative inquiry. The hypothesis is: will planned, complex educational intervention

focused upon improving communication in teamwork lead to better patient safety? The project is embedded in a wider educational agenda promoting democratic working practices, and this is reflected in the participative inquiry aspect of the research where operating theatre staff take ownership of the project through establishing common meanings for "good practice". The cohort involves 300 personnel (surgeons, anaesthetists, nurses and support staff) spread across two theatre complexes (11 theatres in total) in a large UK hospital. The focus of this paper is necessarily upon design and methodology, as the first data set is being gathered and analysed at the time of writing.

Learning processes in a work organization: from individual to collective and/or vice versa?

Tuija Lehesvirta

Keywords Learning processes, Learning organizations, Ethnography

The study investigates learning as knowledge-creation processes on individual and collective levels. The processes were examined in an ethnographic study, conducted in a metal industry company over a four-year period. The empirical study suggests that conflicts and crises experienced on individual level were some kind of incidental starting points for individual learning processes. Whether these processes continued to the collective level depended on how the individual learner or the collective recognised the significance of sharing knowledge as well as on opportunities, willingness and ability of individuals to share their experiences. It also depended on managers' understanding of learning processes whether opportunities for knowledge sharing were arranged and thus, whether learning at work was supported.

The savvy learner

Richard Dealtry

Keywords Learning, Self-managed learning, Action learning

This article defines the cultural nature and scale of change in learning consciousness that has to take place when the organisationally- based adult learner makes the transition from formal prescriptive learning practice to self-owned, self-directed learning. It articulates some of the learning-to-learn process models that introduce, accelerate, enhance and facilitate the adult person's understanding of this evolutionary journey. It also provides practical guidelines in progressively shaping their endeavours to take effective ownership of their own managerial learning at work. It draws on experience in delivering learning-to-learn programmes to suggest that the management learner in particular has to be increasingly aware and more discriminating in how they spend their time and learning energy if they are to arrive where they want to be and at the same time satisfy all the stakeholders investments in these process events. It illustrates, using a portfolio of learning-to-learn process- management-practice ideas, how the individual and groups of learners can effectively and progressively begin to manage the quality of their experience in learning to learn. The author advises that, in the long term, taking responsibility for learning to learn is not something that can be absolved by the learner manager; it has to become a self-determined series of personally-managed events. Adult learners have to have a heightened state of alertness to the dynamics of gradualism in managing the new learning process itself – to become "savvy" about the dynamics of the learning process and the key decision areas that will make a difference between learning satisfaction and success or failure in achieving their personal objectives.

Guest editorial

About the Guest Editors *Annikki Järvinen has worked in different positions at the Universities of Tampere and Jyväskylä in Finland since 1971 and since 1998 as a Professor in Adult Education in the Faculty of Education at the University of Tampere. She has a large record of research and scientific publications in higher education, professional development, experiential learning, workplace learning etc. She has organized four international conferences in these areas in recent years. She has supervised two research projects, the first one "Work, Organization and Training" 1995-1997 and the second one "Learning at Work and Work Communities" 1998-2003, both supported by the Academy of Finland. E-mail: kaanja@uta.fi*

Darryl Dymock is the regular editor of the Journal of Workplace Learning *and joins Annikki Jarvinen to co-edit this second special issue of selected papers from the 3rd International Conference on Researching Work and Learning. He is an Adjunct Associate Professor with the International Graduate School of Management at the University of South Australia and has recently held appointments as Deputy Director of the Centre for Lifelong Learning and Development and as Executive Consultant with the Department of Further Education, Employment, Science and Technology in the Government of South Australia. E-mail: dymock.darryl@saugov.sa.gov.au*

This special double issue of the *Journal of Workplace Learning* is the second to present selected papers from the 3rd International Conference on Researching Work and Learning, held in Tampere, Finland, in July 2003. The host of the conference was the Department of Education at the University of Tampere. Ten papers were published in volume 15, numbers 7 and 8, under guest editor Annikki Järvinen. As with the earlier issue, the nine papers published here were selected through a double review process by expert international referees from an original field of 143 papers submitted.

The papers reveal not only the diversity of workplace learning, but also the depth of thought that is emerging from research in this field. One of the other significant features is the "internationalness" of this area of research. Given that the conference was held in Finland, it might be expected that the papers presented would be dominated by Scandinavian researchers. While that part of the world was well represented, what was stimulating about the conference, however, and is reflected in these papers, was the range of countries represented. The challenge is to ensure that the research outcomes find their way into workplace learning practice.

Since this is the first issue of volume 16 of the *Journal of Workplace Learning*, the themes of the Tampere conference are repeated here for the benefit of new readers:

The first theme was societal contexts, which refers to global and political challenges for workplace learning, and new contents and forms of work

(knowledge work, contingent work, unpaid work, new technology reshaping the nature of work, etc.).

The second theme was organizational contexts, which included learning in dispersed organizations and multiorganizational networks, and partnerships and co-operation in workplace learning and learning communities. This theme also included learning processes and work processes (work design, an interplay between individual, group and organisational learning, knowledge creation processes, situated learning, etc.).

The third theme was lifelong learning contexts, which covered life history and work (professional development, gender and diversity issues, etc.), and learning and learners at work (meta-competences, learning skills, involvement, empowerment, etc.).

The nine papers presented here cover all three themes.

In the first paper, Yrjö Engeström, working in Finland and the USA, presents his challenging concept of "co-configuration", in which "the customer becomes, in a sense, a real partner with the producer". This leads to the idea of "knotworking", particularly in areas such as health, where all the key players have a part and the question of whether there is, or should be, a central controller, is a key issue. Paul Hager from Australia goes back to the basics to discuss what "learning" really means and how it relates to the concept of "lifelong learning". We then move back to the northern hemisphere where Jaakko Virkkunen and Juha Pihlaja from Finland propose a new way of conceptualizing workplace learning as "distributed systems of appropriation, development and the use of practice-relevant generalizations fixed within mediational artifacts", a discussion that is fully centred on the workplace.

From Canada, Cathrine Le Maistre and Anthony Paré report on a longitudinal study of school-to-work transitions in four professions: education, social work, physiotherapy, and occupational therapy. School-to-work transition has been an area of considerable international research interest in recent times as educators struggle to find the right mix of classroom and work-based learning. Bill Johnston and Aileen Watson from Scotland tackle a similar issue but through a case study of the notion of graduate attributes, a concern of many universities and professions in recent times. In a related area of research, Karen Evans and Natasha Kersh, from England, are interested in the tacit skills that adult learners bring to the workplace and use a promising modelling approach, dynamic concept analysis, to consider the issues and implications.

In another exploration of the tacit skills of adults, Gayle Morris and David Beckett from Australia draw on their studies of the experiences of two Somali women a long way from their country of birth, to conclude that formal certificated learning is still by far the most acceptable to employers. Alan Bleakley, Adrian Hobbs, James Boyden, and Linda Walsh from England tell us have combined experimental design with collaborative inquiry to try to

improve safety in operating theatres. Finally, in an ethnographic study in a metal industry company in Finland, Tuija Lehesvirta investigates learning as knowledge creation processes on individual and collective levels.

The *Journal of Workplace Learning* has been pleased to present two special issues from the papers presented at the 3rd International Conference on Researching Work and Learning. The reputations of the researchers, and the quality of the papers published here, indicate that this is a lively, thoughtful and relevant research field. It augurs well for the 4th International Conference, to be held in Sydney in December 2005.

**Darryl Dymock and
Annikki Järvinen**
Guest Editors

New forms of learning in co-configuration work

Yrjö Engeström

University of California, San Diego, USA and the University of Helsinki, Helsinki, Finland

Abstract *Focuses on the theories and study of organizational and workplace learning. Outlines the landscape of learning in co-configuration settings, a new type of work that includes interdependency between multiple producers forming a strategic alliance, supplier network, or other such pattern of partnership which collaboratively puts together and maintains a complex package, integrating material products and services. Notes that learning in co-configuration settings is typically distributed over long, discontinuous periods of time. It is accomplished in and between multiple loosely interconnected activity systems and organizations operating in divided local and global terrains and representing different traditions, domains of expertise, and social languages. Learning is crucially dependent on the contribution of the clients or users. Asserts that co-configuration presents a twofold learning challenge to work organizations and outlines interventionist and longitudinal approaches taken.*

Co-configuration as a new type of work and production

Barley and Kunda (2001) argue that prevailing theories of organizing are based primarily on detailed observations of bureaucratic work, but that the nature of work today is sufficiently different to bring the applicability of these theories into question. Barley and Kunda's primary conclusion is that detailed studies of work should be reintegrated into organizational science in order to provide a solid empirical basis for post-bureaucratic theories of organizing. This argument is applicable in the study of organizational and workplace learning. Without a substantive understanding of the historically changing character of the work done in a given organization, theories of organizational and work-based learning are likely to remain too general and abstract to capture the emerging possibilities and new forms of learning.

Victor and Boynton (1998) provide a useful historical framework for such a reintegration of organization, work, and learning. They identify five types of work in the history of industrial production: craft, mass production, process enhancement, mass customization, and co-configuration (Figure 1).

Each type of work generates and requires a certain type of knowledge and learning. At present, the most demanding and promising developments are associated with the emergence of co-configuration work. A critical prerequisite of co-configuration is the creation of customer-intelligent products or services which adapt to the changing needs of the user:

> The work of co-configuration involves building and sustaining a fully integrated system that can sense, respond, and adapt to the individual experience of the customer. When a firm does
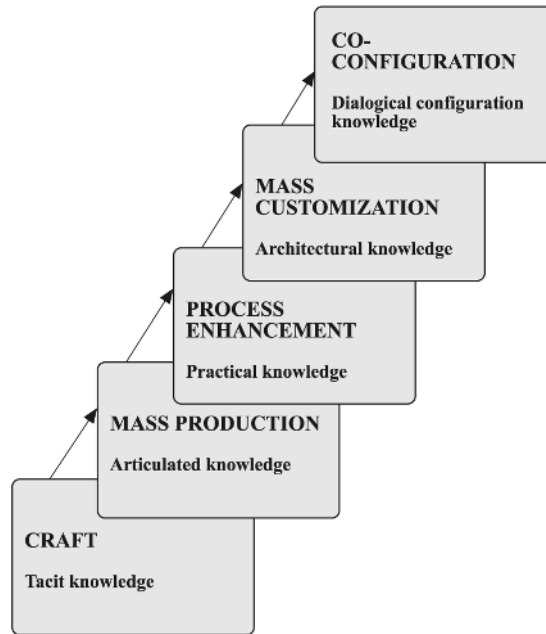
Figure 1.
Historical forms of work

Source: Adapted from Victor and Boynton (1998, pp. 6, 233)

> co-configuration work, it creates a product that can learn and adapt, but it also builds an ongoing relationship between each customer-product pair and the company. Doing mass customization requires designing a product at least once for each customer. This design process requires the company to sense and respond to the individual customer's needs. But co-configuration work takes this relationship up one level - it brings the value of an intelligent and "adapting" product. The company then continues to work with this customer-product pair to make the product more responsive to each user. In this way, the customization work becomes continuous … Unlike previous work, co-configuration work never results in a "finished" product. Instead, a living, growing network develops between customer, product, and company (Victor and Boynton, 1998, p. 195).

We may provisionally define co-configuration as an emerging historically new type of work that has the following characteristics: adaptive 'customer-intelligent' products or services, or more typically integrated product/service combinations; continuous relationships of mutual exchange between customers, producers, and the product/service combinations; ongoing configuration and customization of the product/service combination over lengthy periods of time; active customer involvement and input into the configuration; multiple collaborating producers that need to operate in networks within or between organizations; mutual learning from interactions between the parties involved in the configuration actions.

In other words, co-configuration is more than just smart, adaptive products. "With the organization of work under co-configuration, the customer becomes, in

a sense, a real partner with the producer" (Victor and Boynton, 1998, p. 199). Co-configuration typically also includes interdependency between multiple producers forming a strategic alliance, supplier network, or other such pattern of partnership which collaboratively puts together and maintains a complex package which integrates material products and services and has a long life cycle. Co-configuration requires flexible "knotworking" in which no single actor has the sole, fixed authority – the center does not hold (Engeström *et al.*, 1999).

Co-configuration is a very demanding mode of work and production. It offers radical strategic advantages when the objects of work demand it. Medical care is a case in point. An increasing percentage of patients have multiple chronic illnesses for which standardized, single-diagnosis care packages are inadequate. In Helsinki, 3.3 percent of the patients use 49.3 percent of all health care expenses, and 15.5 percent of patients use 78.2 percent of all resources. A significant portion of these patients are so expensive because they drift from one caregiver to another without anyone having an overview and overall responsibility for their care. Co-configuration work is a strategic priority because the different caregivers and the patients need to learn to produce together well coordinated and highly adaptable long-term care trajectories.

It is not unusual to see co-configuration attempts falter. An observer of one such attempt described her findings with the help of a game metaphor as follows:

> The actors are like blind players who come eagerly to the field in the middle of the game, attracted by shouting voices, not knowing who else are there and what the game is all about. There is no referee, so rules are made up in different parts of the field among those who happen to bump into one another. Some get tired and go home (Kangasoja, 2002).

A precondition of successful co-configuration work is dialogue in which the parties rely on real-time feedback information on their activity. The interpretation, negotiation and synthesizing of such information between the parties requires new, dialogical and reflective knowledge tools as well as new, collaboratively constructed functional rules and infrastructures (Engeström and Ahonen, 2001).

Theory of expansive learning as framework and challenge
Processes of learning may be effectively differentiated along two key dimensions, one representing the given vs. newly emerging nature of the object and activity to be mastered, the other one representing the famous distinction between exploitation of existing knowledge vs. exploration for new knowledge put forward by March (1996). Treated as dichotomies, these two dimensions yield a matrix of four basic types of learning at work (Figure 2).

Transferable exploitation (the lower right-hand field of the matrix) is transmission of existing knowledge in order to cope with a new object and a new activity. The stepwise appropriation of well-established Japanese quality management techniques by American companies facing new competitive pressures and market conditions is a good example (Cole, 1999). Norman's

EXPLORATION

INCRMENTAL EXPLORATION	RADICAL EXPLORATION
-Structuring (Norman, 1982) -Articulation ((Spinosa, Flores & Dreyfus, 1997) CONTEXT OF EXPERIMENTATION	-Expansion (Engeström, 1987) -Reconfiguration (Spinosa, Flores & Dreyfus, 1997) CONTEXT OF TRANSFORMATION
ADJUSTABLE EXPLOITATION	TRANSFERABLE EXPLOITATION
-Tuning (Norman, 1982) -Customary disclosing (Spinosa, Flores & Dreyfus,1997) CONTEXT OF PARTICIPATION	-Accretion (Norman, 1982) -Cross-appropriation (Spinosa, Flores & Dreyfus, 1997) CONTEXT OF TRANSMISSION

OLD OBJECT, OLD ACTIVITY   NEW OBJECT, NEW ACTIVITY

EXPLOITATION

Figure 2.
Four types of learning

Note: The author is grateful to Professor Risto Tainio for ideas that led to the formulation of the matrix

(1982) concept of accretion and the more recent concept of cross-appropriation (Spinosa *et al.*, 1997) illuminate different aspects of this type of learning.

Adjustable exploitation is gradual acquisition and internalization of the existing knowledge and skills embedded in the given activity. This type of learning is manifest in apprenticeship-type settings. Norman (1982) describes it as tuning, and Spinosa *et al.* (1997) as customary disclosing.

Incremental exploration is construction of new knowledge by experimentation within the given activity. Norman (1982) talks about this type of learning as structuring, while Spinosa *et al.* (1997) characterize it as articulation. This type of learning is often associated with the implementation of complex configurational technologies, such as the computer-aided production management systems analyzed by Fleck (1994):

> Each configuration is built up from a range of components to meet the very specific requirements of the particular user organization. Configurations therefore demand substantial user input and effort if they are to be at all successful, and such inputs can provide the raw material for significant innovation . . . the specific implementation/innovation process with configurations is a matter of learning through the struggle to get the overall system to work, i.e. a process of "learning by trying": improvements and modifications have to be made to the constituent components before the configuration can work as an integrated entity (Fleck, 1994, pp. 637-8).

> This is a more fundamental process of learning, much more like the trial and error nature of genuine experimentation than the secular accumulation of improvements in carrying out essentially the same activity (Fleck, 1994, p. 648).

Fleck's case brings us into the transitional zone between incremental exploration and radical, expansive exploration. Radical exploration, or expansive learning (the upper right-hand field of the matrix), begins when experimentation is not anymore aimed only at making a well-bounded new technology work in the framework of a given, pre-existing activity. Radical exploration is learning what is not yet there. It is creation of new knowledge and new practices for a newly emerging activity, that is, learning embedded in and constitutive of qualitative transformation of the entire activity system. Such a transformation may be triggered by the introduction of a new technology, but it is not reducible to it. Radical exploration is the most poorly understood and historically most interesting type of learning. It is what the theory of expansive learning (Engeström, 1987) is focused on, and what Spinosa *et al.* (1997, p. 26) call reconfiguration:

> In cases of reconfiguration, a greater sense of integrity (as experienced in articulation) is generally not experienced. Rather, one has the sense of gaining wider horizons.

The four types of learning are not mutually exclusive. To the contrary, as shown already by Bateson (1972), expansive learning processes involve sub-processes or layers of the other types of learning, but these gain a different meaning, motive and perspective as parts of the expansive process.

The escalating cyclic character of expansive learning through a sequence of learning actions ascending from the initial abstract "germ cell" to the concrete whole of the system to be mastered is reasonably well understood (Davydov, 1990; Engeström, 1987, 1999a, 2001). In this respect, the theory of expansive learning provides a central framework for the analysis and design of learning processes in co-configuration settings.

What is not so well understood is how such basically forward-oriented expansive learning actions are intertwined with horizontal or sideways movement across competing or complementary domains and activity systems, particularly characteristic to co-configuration. In a series of studies, we have identified patterns of such horizontal movement in expansive learning processes situated in organizational fields moving toward co-configuration work: boundary crossing (Engeström *et al.*, 1995), multi-voiced dialogue (Engeström, 1995), negotiated knotworking (Engeström *et al.*, 1999), and cognitive trail-blazing (Engeström, in press). While still provisional, these findings provide significant starting points for building a conceptually solid and empirically well-grounded next-generation version of the theory of expansive learning that puts the horizontal and inter-organizational dimension of learning in the center.

The landscape of learning in co-configuration

Learning in co-configuration settings is typically distributed over long, discontinuous periods of time. It is accomplished in and between multiple

loosely interconnected activity systems and organizations operating in divided local and global terrains and representing different traditions, domains of expertise, and social languages. Learning is crucially dependent on the contribution of the clients or users. Learning is embedded in major transformations, upheavals, innovations, implementations and movements. It takes place is heterogeneous patchworks and textures of small and large, unnoticeable and spectacular actions, objectifications, trajectories and trails.

Co-configuration presents a twofold learning challenge to work organizations. First, co-configuration work itself needs to be learned (learning for co-configuration). In divided multi-activity terrains, expansive learning takes shape as renegotiation and reorganization of collaborative relations and practices, and as creation and implementation of corresponding concepts, tools, rules, and entire infrastructures.

Second, within co-configuration work, the organization and its members need to learn constantly from interactions between the user, the product/service, and the producers (learning in co-configuration). Even after the infrastructure is in place, the very nature of ongoing co-configuration work is expansive; the product/service is never finished. These two aspects – learning for and learning in – merge in practice.

As a general working hypothesis, I propose that the expansive learning required and generated by co-configuration work may be characterized with the help of three central features:

(1) It is transformative learning that radically broadens the shared objects of work by means of explicitly objectified and articulated novel tools, models, and concepts (see Engeström, 2001, Engeström *et al.*, 2003a). This transformative aspect of learning in co-configuration puts a heavy emphasis on actions of design, modeling, textualization, objectification, conceptualization and visibilization (Engeström, 1999a). We might say that this is the visible superstructure of new forms of expansive learning at work.

(2) It is horizontal and dialogical learning that creates knowledge and transforms the activity by crossing boundaries and tying knots between activity systems operating in divided multi-organizational terrains (see Engeström *et al.*, 1999, 2003b). This horizontal aspect of learning in co-configuration puts a heavy emphasis on actions of bridging, boundary crossing, "knotworking", negotiation, exchange and trading. This is the structure of situationally constructed social spaces, arenas and encounters needed in new forms of expansive learning at work.

(3) It is subterranean learning that blazes embodied and lived but unnoticeable cognitive trails that serve as anchors and stabilizing networks that secure the viability and sustainability of the new concepts, models and tools, thus making the divided multi-organizational terrains knowable and livable (see Cussins, 1992; Engeström, in press). This

subterranean aspect of learning in co-cofiguration puts a heavy
emphasis on actions of spatial transition and movement, repetition,
stabilization and destabilization, and embodiment. This is the invisible,
rhizomatic infrastructure of new forms of expansive learning at work.

Methodology
Developmental work research (Engeström, 1993) is an application of cultural-
historical activity theory (Leont'ev, 1978; Engeström *et al.*, 1999) in the study of
work and organizations. Within cultural-historical activity theory, formative
experiments and developmental interventions have been an integral aspect of
the methodology from the beginning (Vygotsky, 1978; for a recent discussion
on interventionist methodology in developmental work research, see
Engeström, 2000).

Naturalistic social studies of science and technology (e.g. Latour and
Woolgar, 1979) have been an influential model for ethnographic studies of
professional work and discourse. Latour (1987) crystallized the quest of this
research in his call: Follow the actors! Much of the recent ethnographic research
in professional and industrial work has indeed focused on following the actors
constructing their activities, social worlds and accepted truths by means of talk
and text (e.g. Kunda, 1992; Darrah, 1996).

While this stance has surely been a healthy antidote to the tyranny of
structures, there is a risk in focusing exclusively on actors. The professionals
and their discursive interactions may appear as somewhat omnipotent
constructors of their activities and social worlds. From the point of view of
activity theory, this would mean that the material grounding and stubborn
systemic dynamics of practical activities are lost or ignored, the resistance of
objects is forgotten.

To an increasing degree, professional work and discourse are socio-spatially
distributed among multiple organizational units and form long chains of
interconnected practical and discursive actions. Actors become dispersed and
replacable which renders the focus on actors increasingly vulnerable as a
research strategy. What can keep radically distributed work and expertise
together, coordinated and capable to act in concert when needed? I argue that
the necessary glue is focus on the objects of professional work and discourse.
As Knorr-Cetina (1997, p. 9) points out, "objects serve as centering and
integrating devices for regimes of expertise that transcend an expert's lifetime
and create the collective conventions and the moral order communitarians are
concerned about".

Objects should not be confused with goals. Goals are primarily conscious,
relatively short-lived and finite aims of individual actions. The object is a
heterogeneous and internally contradictory, yet enduring, constantly reproduced
purpose of a collective activity system that motivates and defines the horizon of
possible goals and actions (Leont'ev, 1978; Engeström, 1995).

Organizations may emerge through conversation, but they do not emerge for the sake of conversation. They emerge and continue to exist in order to produce goods, services, or less clearly definable outcomes for clients or users. If you take away patients and illnesses, you do not have hospitals. The object is not reducible to the raw material given or the product achieved. It is understandable as the trajectory from raw material to product in the emerging context of its eventual use by another activity system. Thus, the object of clinical work may be characterized as the trajectory from symptoms to treatment outcomes in the context of the patient's life activity. The object is projective and transitory, truly a moving horizon. But it is also specific and concrete, crystallized, embodied and re-problematized in every patient and illness entering the clinic.

All this indicates that we need to trace the objects of expert work as they move in space and time, across various situations and boundaries. History is not made by singular actors in singular situations but in the interlinking of multiple situations and actors accomplished by virtue of the durability and longevity of objects (see Engeström *et al.*, in press). This calls for a conscious expansion of attention beyond the subjects, to include and center on the objects of work and discourse. This is indeed the spirit of the more recent work of Latour (1996, 1999), as well as that of Knorr-Cetina (1997, 1999) and Daston (2000).

In cultural-historical activity theory, the object of activity is regarded as the key to understanding change and learning (Leont'ev, 1978). Expansive learning is above all stepwise expansion of the object. The potential for such expansion is best discovered by means of change experiments, interventions which open up the zone of proximal development of the activity system (Vygotsky, 1978). Thus, the study of expansive learning in co-configuration settings requires a longitudinal and interventionist approach which may be crystallized in the form of three methodological principles: follow the objects of co-configuration work in their temporal and socio-spatial trajectories; give the objects a voice by involving the clients or users in dialogues where the object is negotiated; expand the objects by organizing intervention sessions where the producers and clients construct new shared models, concepts and tools to master their objects.

Our first major intervention studies in health care settings were conducted in the late 1980s (see Engeström, 1990, 1991). An overview of the 15-year lineage of this research is given in a forthcoming book titled *Collaborative Expertise: Expansive Learning in Medical Work* (Engeström, in press). In the mid-1990s, researchers in the Center for Activity Theory and Developmental Work Research at University of Helsinki developed a new intervention methodology under the generic name of change laboratory (Engeström *et al.*, 1996). Variations of this method have been used in a large number of intervention

studies in settings ranging from post offices and factories to schools and newsrooms.

The change laboratory sessions are a purposeful blend of elements familiar from existing workplace practices and new elements brought in by the researchers. They are designed to serve as microcosms where potentials of co-configuration and knotworking can be experienced and experimented with:

> A microcosm is a social testbench and a spearhead of the coming culturally more advanced form of the activity system the microcosm is supposed to reach within itself and propagate outwards reflective communication … while at the same time expanding and therefore eventually dissolving into the whole community of the activity (Engeström, 1987, pp. 277-8).

In practice, the methodological principles sketched above mean that selected objects of work in the research settings are first followed ethnographically. Critical incidents and examples from the ethnographic material are brought into a series of Change Laboratory sessions to stimulate analysis and negotiation between the participants. The laboratory sessions themselves are videotaped for analysis. The participants of the sessions engage in constructing shared models and tools to enhance their collaborative mastery of the object. The objects are again followed as the new tools and models are being implemented. Drawing on Vygotsky's (1978) method of dual stimulation, this methodology is an expansion of the design experiments described by Brown (1992). It allows for the collection of rich longitudinal data on the micro-interactions and cognitive processes involved in expansive learning as the participants make visible their work, moving between actions and activity, between the past, the present, and the envisioned future (see Engeström, 1999b, 2000).

References

Barley, S.R. and Kunda, G. (2001), "Bringing work back in", *Organization Science*, Vol. 12 No. 1, pp. 76-95.

Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine Books, New York, NY.

Brown, A.L. (1992), "Design experiments: theoretical and methodological challenges in creating complex interventions in classroom settings", *The Journal of the Learning Sciences*, Vol. 2, pp. 141-78.

Cole, R.E. (1999), *Managing Quality Fads: How American Business Learned to Play the Quality Game*, Oxford University Press, New York, NY.

Cussins, A. (1992), "Content, embodiment and objectivity: the theory of cognitive trails", *Mind*, Vol. 101, pp. 651-88.

Darrah, C.N. (1996), *Learning and Work: An Exploration in Industrial Ethnography*, Garland, New York, NY.

Daston, L. (Ed.) (2000), *Biographies of Scientific Objects*, The University of Chicago Press, Chicago, IL.

Davydov, V.V. (1990), *Types of Generalization in Instruction: Logical and Psychological Problems in the Structuring of School Curricula*, National Council of Teachers of Mathematics, Reston, VA.

Engeström, R. (1995), "Voice as communicative action", *Mind, Culture, and Activity*, Vol. 2, pp. 192-214.

Engeström, Y. (1987), *Learning by Expanding: An Activity-theoretical Approach to Developmental Research*, Orienta-Konsultit, Helsinki.

Engeström, Y. (1990), *Learning, Working and Imagining: Twelve Studies in Activity Theory*, Orienta-Konsultit, Helsinki.

Engeström, Y. (1991), "Developmental work research: reconstructing expertise through expansive learning", in Nurminen, M.I. and Weir, G.R.S. (Eds), *Human Jobs and Computer Interfaces*, Elsevier Science Publishers, Amsterdam.

Engeström, Y. (1993), "Developmental studies on work as a testbench of activity theory", in Chaiklin, S. and Lave, L. (Eds), *Understanding Practice: Perspectives on Activity and Context*, Cambridge University Press, Cambridge.

Engeström, Y. (1995), "Objects, contradictions and collaboration in medical cognition: an activity-theoretical perspective", *Artificial Intelligence in Medicine*, Vol. 7, pp. 395-412.

Engeström, Y. (1999a), "Innovative learning in work teams: analyzing cycles of knowledge creation in practice", in Engeström, Y., Miettinen, R. and Punamäki, R.-L. (Eds), *Perspectives on Activity Theory*, Cambridge University Press, Cambridge.

Engeström, Y. (1999b), "Expansive visibilization of work: an activity-theoretical perspective", *Computer Supported Cooperative Work*, Vol. 8, pp. 63-93.

Engeström, Y. (2000), "From individual action to collective activity and back: developmental work research as an interventionist methodology", in Luff, P., Hindmarsh, J. and Heath, C. (Eds), *Workplace Studies*, Cambridge University Press, Cambridge.

Engeström, Y. (2001), "Expansive learning at work: toward an activity theoretical reconceptualization", *Journal of Education and Work*, Vol. 14 No. 1, pp. 133-56.

Engeström, Y. (in press), *Collaborative Expertise: Expansive Learning in Medical Work*, Cambridge University Press, Cambridge.

Engeström, Y. and Ahonen, H. (2001), "On the materiality of social capital: an activity-theoretical exploration", in Hasan, H., Gould, E., Larkin, P. and Vrazalic, L. (Eds), *Information Systems and Activity Theory*, *Vol. 2: Theory and Practice*, University of Wollongong Press, Wollongong.

Engeström, Y., Engeström, R. and Kärkkäinen, M. (1995), "Polycontextuality and boundary crossing in expert cognition: learning and problem solving in complex work activities", *Learning and Instruction*, Vol. 5, pp. 319-36.

Engeström, Y., Engeström, R. and Vähäaho, T. (1999), "When the center does not hold: the importance of knotworking", in Chaiklin, S., Hedegaard, M. and Jensen, U.J. (Eds), *Activity Theory and Social Practice*, Aarhus University Press, Aarhus.

Engeström, Y., Puonti, A. and Seppänen, L. (2003a), "Spatial and temporal expansion of the object as a challenge for reorganizing work", in Nicolini, D., Gherardi, S. and Yanow, D. (Eds), *Knowing in Organizations: A Practice-based Approach*, M.E. Sharpe, Armonk, NY..

Engeström, Y., Engeström, R. and Kerosuo, H. (2003b), "The discursive construction of collaborative care", *Applied Linguistics*, Vol. 24, pp. 286-315.

Engeström, Y., Virkkunen, J., Helle, M., Pihlaja, J. and Poikela, R. (1996), "Change laboratory as a tool for transforming work", *Lifelong Learning in Europe*, Vol. 1 No. 2, pp. 10-17.

Fleck, J. (1994), "Learning by trying: the implementation of configurational technology", *Research Policy*, Vol. 23, pp. 637-52.

Knorr-Cetina, K. (1997), "Sociality with objects: social relations in postsocial knowledge societies", *Theory, Culture & Society*, Vol. 14 No. 4, pp. 1-30.

Knorr-Cetina, K. (1999), *Epistemic Cultures: How the Sciences Make Knowledge*, Harvard University Press, Cambridge, MA.

Kunda, G. (1992), *Engineering Culture: Control and Commitment in a High-tech Corporation*, Temple University Press, Philadelphia, PA.

Latour, B. (1987), *Science in Action: How to Follow Scientists and Engineers through Society*, Harvard University Press, Cambridge, MA.

Latour, B. (1996), "On interobjectivity", *Mind, Culture and Activity*, Vol. 3, pp. 228-45.

Latour, B. (1999), *Pandora's Hope: Essays on the Reality of Science Studies*, Harvard University Press, Cambridge, MA.

Latour, B. and Woolgar, S. (1979), *Laboratory Life: The Construction of Scientific Facts*, Princeton University Press, Princeton, NJ.

Leont'ev, A.N. (1978), *Activity, Consciousness, and Personality*, Prentice-Hall, Englewood Cliffs, NJ.

March, J. (1996), "Exploration and exploitation in organizational learning", in Cohen, M. and Sproull, L.S. (Eds), *Organizational Learning*, Sage, Thousand Oaks, CA.

Norman, D.A. (1982), *Learning and Memory*, Freeman, New York, NY.

Spinosa, C., Flores, F. and Dreyfus, H.L. (1997), *Disclosing New Worlds: Enterpreneurship, Democratic Action, and the Cultivation of Solidarity*, The MIT Press, Cambridge, MA.

Victor, B. and Boynton, A.C. (1998), *Invented Here: Maximizing Your Organization's Internal Growth and Profitability*, Harvard Business School Press, Boston, MA.

Vygotsky, L.S. (1978), *Mind in Society: The Development of Higher Psychological Processes*, Harvard University Press, Cambridge, MA.

Further reading

Bliss, J., Säljö, R. and Light, P. (Eds) (1999), *Learning Sites: Social and Technological Resources for Learning*, Pergamon, Amsterdam.

Dierkes, M., Antal, A.B., Child, J. and Nonaka, I. (Eds) (2001), *Handbook of Organizational Learning and Knowledge*, Oxford University Press, Oxford.

Engeström, Y. (1992), *Interactive Expertise: Studies in Distributed Working Intelligence*, Research Bulletin 83, Department of Education, University of Helsinki, Helsinki.

Engeström, Y. (2001), "Making expansive decisions: an activity-theoretical study of practitioners building collaborative medical care for children", in Allwood, C.M. and Selart, M. (Eds), *Decision Making: Social and Creative Dimensions*, Kluwer, Dordrecht.

Engeström, Y., Brown, K., Christopher, C. and Gregory, J. (1997), "Coordination, cooperation and communication in courts: expansive transitions in legal work", in Cole, M., Engeström, Y. and Vasquez, O. (Eds), *Mind, Culture and Activity: Seminal Papers from the Laboratory of Comparative Human Cognition*, Cambridge University Press, Cambridge.

Haavisto, V. (2002), "Court work in transition", PhD dissertation, Department of Education, University of Helsinki, Helsinki.

Kärkkäinen, M. (1999), *Teams as Breakers of Traditional Work Practices: A Longitudinal Study of Planning and Implementing Curriculum Units in Elementary School Teacher Teams*, Research Bulletin 100, Department of Education, University of Helsinki, Helsinki.

Lifelong learning in the workplace? Challenges and issues

Paul Hager

OVAL Research, University of Technology, Sydney, Australia

Abstract *There is much scepticism about the concept of lifelong learning within both the educational literature and the literature on work. Certainly, many work arrangements discourage learning, let alone lifelong learning. Nevertheless, there are also work situations in which significant learning occurs. However, even in instances where work arrangements are more favourable for learning, there does not seem to be wide recognition that this is the case. This paper suggests that this reflects the fact that learning is widely misunderstood. The common-sense view of learning as a product gives many types of learning a bad press, including learning at work and lifelong learning. However, when the process aspects of learning are given due attention, as in the emerging view of learning outlined in this paper, much learning, including informal workplace learning at its best, is accurately described as a form of lifelong learning.*

The concept of lifelong learning can be viewed as originating in the Faure (UNESCO, 1972) report, though its actual conceptual heart is the notion of lifelong education and the vision of a learning society. The UNESCO position saw "lifelong education as involving a fundamental transformation of society, so that the whole of society becomes a learning resource for each individual" (Cropley, 1979, p. 105). Philosophically, this position envisaged the society of the future as a scientific humanist learning society in which all citizens would participate fully. Despite its humanistic origins, the concept of lifelong education received wide criticism and rejection from many educational theorists in the 1970s and receded somewhat into the background. However, since the 1990s it has returned to favour as lifelong learning because, amongst other things, it sits well with OECD neo-liberal economic agendas. As Boshier (1998, p. 13) put it:

> There has been a shift from a neo-Marxist or anarchistic-utopian template for reform (the Faure report) to a neo-liberal, functionalist rendition (OECD) orchestrated as a corollary of globalisation and hyper capitalism.

Inevitably, the OECD take on lifelong learning will be condemned by many for not being humanistic enough. These two distinct waves in understandings of what lifelong learning might be could well be succeeded by others. For instance, Edwards (1997, ch. 6) identifies three distinct discourses that construct differing versions of the learning society. Coffield (2000) discusses ten models of a learning society, all of which were instanced to some extent in his empirical research project.

Work and lifelong learning
There is no doubt that many contemporary work arrangements discourage
learning, let alone lifelong learning. This is reflected in many papers presented
at these Researching Work and Learning conferences that address issues such
as work structures, workplace power and gender relations, workplace culture,
etc. Nevertheless, there are also work situations in which significant learning
occurs. My own research (e.g. Beckett and Hager, 2002; Hager, 2001) has
identified many such instances, including some where the learning is
sufficiently rich to pass as lifelong learning at work. In all of these cases, a
common factor is that workers place high value on the satisfaction they obtain
from their work. It provides them with a strong sense of personal development.
This personal development is something that is an internal good to the work
itself. For these workers, work is much more than paid employment. We need
an account of work that locates this satisfaction and distinguishes it from work
that is essentially alienating.

Dewey (1916) was well aware that much work is alienating and maintained
that unless workers see the social and political point of their work and the ideas
that underpin it, then the educative potential of experience at work is negated.
For Dewey work should assist workers to develop a capacity for judgement
applicable beyond their practice at work. This requires their practice to be
informed by some overall notions of purpose and intention that link to practices
that are not obviously related to work at all. Thus, for Dewey, work and
lifelong learning can coalesce.

Dewey's predilection for "occupation as becoming" and the importance of
productive learning at work finds a resonance in more recent writers.
According to Standing (1999, p. 3), work is:

> ... rounded activity combining creative, conceptual and analytical thinking and use of
> manual aptitudes – the *vita activa* of human existence ... Work involves an individual
> element and a social element, an interaction with objects – raw materials, tools, "inputs", etc.
> – and an interaction with people and institutions.

Standing (1999, p. 4) goes on to contrast labour sharply with work: "Labour is
arduous – perhaps *alienated work* – and epistemologically it conveys a sense
of 'pain' – *animal laborans*". Thus, for Standing, labour is "activity done under
some duress, and some sense of *control* by others or by institutions or by
technology, or more likely by a combination of all three".

The economic rationalist labour market policies that have dominated
Western countries in recent decades treat individuals as mere economic units
("labour"), rather than as "aspirants with personal and professional goals"
(Waterhouse *et al.*, 1999, p. 22). For economists, labour is merely that which is
expended in production. The alienation associated with labour reflects an
impoverished work context "... that uses only a narrow range of physical or
mental attributes, or that restricts the development or renewal of physical,
intellectual or psychological capacities ..." (Standing, 1999, p. 7). Whereas the

complex set of relationships that characterise work on Standing's account, requires a rich and varying context. Clearly, "... wherever possible, policy should encourage work and not merely labour" (Buchanan *et al.*, 2001, p. 25). Such possibilities are more widespread than previously thought, if Murphy (1993) is correct in his conclusion that economists, including both Adam Smith and Marx, have typically overestimated the technical restrictions that efficiency of production places on work organisation. On Murphy's account, it appears that "[m]any social divisions of labour are compatible with different (but equally technically efficient) configurations of tasks" (Buchanan *et al.*, 2001, p. 25).

So for those like Dewey and Standing who support an understanding of work as creative action that is productive of human growth and development, lifelong learning at work is a viable possibility. It is interesting to note that contemporary workers' views on what they themselves want from work are closely akin to Dewey and Standing. In 2001, the NSW Labor Council (in Australia) commissioned a comprehensive study of employees' views about working life. A key question was: "What would you say is the most important factor to you making your work a positive experience?". A total of 29 per cent of respondents nominated "interesting and satisfying work", while 26 per cent nominated "co-workers getting along". All other factors received much less support, with "fair and reasonable pay" scoring 7 per cent, "recognition of efforts" 7 per cent, and "control over the way you do work" 5 per cent, with lesser factors making up the remaining 26 per cent (Buchanan *et al.*, 2001, p. 23). Quite clearly, "the content and immediate social setting of work are very important for people enjoying paid employment" (Buchanan *et al.*, 2001, p. 24).

Although the global flourishing of capitalism and the unbridled profit motive gives us cause for pessimism, it seems that in some sense, lifelong learning at work may still be possible. However, even in instances where work arrangements are more favourable for learning, there does not seem to be wide recognition that this is the case. Why is this so? My diagnosis is that learning is widely misunderstood in our present society. Traditional understandings of learning give learning in general a bad press, let alone lifelong learning.

The systematic and ubiquitous misunderstanding of learning

Elsewhere (Hager, 2003), I have argued that the idea that learning is a kind of product has been pervasive in its influence. This dominant understanding of learning – the "common sense" account – views the mind as a "container" and "knowledge as a type of substance" (Lakoff and Johnson, 1980):

> Under the influence of the mind-as-container metaphor, knowledge is treated as consisting of objects contained in individual minds, something like the contents of mental filing cabinets (Bereiter, 2002, p. 179).

Thus there is a focus on "adding more substance" to the mind. This has become the "folk theory" of learning (e.g. Bereiter, 2002). It emphasises the accumulation of atomistic products of learning.

This pervasive view of learning involves two particularly important basic assumptions. First, the stability assumption, which requires the products of learning to be relatively stable over time. This stability enables learning to be incorporated into curricula and textbooks, to be passed on from teachers to students, its attainment to be measured in examinations, and the examination results for different teachers and different institutions to be readily amenable to comparison. Thus formal education systems depend for assessment purposes on learning that is stable, familiar and widely understood. Second, there is the replicability assumption – that the learning of different learners can be literally the same or identical. The sorting and grading functions of education systems requires the possibility of this kind of foundational certainty of marks and grades.

The dominance of this "folk" theory of learning is so widespread that even those institutions with the greatest claims to having a theoretical and practical knowledge of learning in practice have had their understanding of learning distorted by it. Universities, the traditional bastions of learning, whose origins can be traced back into antiquity, surely understand what learning is, if anyone does. Yet the recent cyber learning debacle suggests that their understanding is flawed. According to Brabazon (2002) the scale of failure associated with attempts to market digital cyber-classes is massive. She claims that in 2000, $US483 million was spent on companies building online materials for the educational market. By 2002 this figure was reduced to $US17 million. She concludes that these e-learning ventures failed through the desire to make quick money based on naïve understandings of learning. As examples, she cites:

- Columbia University, which spent more than $US25 million building a suite of online courses. Unfortunately, it discovered that prospective students were not prepared to pay for the privilege of access. Now these courses are offered free, as part of Fathom.com, providing "samples" for "customers".
- New York University closed NYUonline, its internet based learning operation, in 2002. This was after the host university pumped $US25 million into the offerings – courses that only attracted 500 students at its height.
- The University of California has simply closed down its online divisions.
- The London School of Economics does not charge for its e-courses, using them only to promote the conventional learning environments.

Brabazon draws various conclusions from this waste of money, talent and time on futile attempts to profit from digital cyber-classes. She thinks they show

that education is not a business, students are not consumers, and attaining a degree is not like shopping online. University administrators have confused technology with teaching and tools with learning. By not signing up for these courses, students have revealed the administrators' total misunderstanding of the university experience. I would add that the staggering sums of money mis-invested in online education certainly show that universities do not have the sophisticated understanding of learning that they think they do.

The dominant influence of the "folk" theory of learning is also apparent in the workplace. Educators use the terms "learner" and "learning" in unproblematic, relatively neutral ways. Likewise those interested in such topics as workplace learning, lifelong learning, and organisational learning, readily associate the terms "work" and "learner" and "working" and "learning". But as research reported by Boud and Solomon (2003) suggests, in workplaces not too far removed from the academy, such associations of terms can be problematic in that they can conflict with workers' overall perception of their identity and status within the organisation. It is precisely because of the dominant learning as product view that in the community at large, being a learner can be seriously problematic. On the product view of learning a learner is someone who has yet to acquire all of the requisite products or mental items for carrying out the work. Thus to be a learner in the workplace on this view is:

(1) to have a deficit, e.g. to be inexperienced or not yet competent;

(2) to therefore have less power, position, recognition, or legitimation; and

(3) to need to leave behind the role of "learner" as quickly as possible (the "L plate" syndrome).

As will be argued below, a different account of learning does not have these consequences. However, the efficacy of lifelong learning discourse is clearly reduced by workers having perceptions such as these, which is not to deny that this discourse has had some success in changing peoples' understandings of "learning". However, the dominance of the "folk" theory of learning means that there can be tensions in being both a worker (or professional) and a learner at the one time. Terms such as "learner" and "learning" do different work in different contexts. So the act of naming someone (including oneself) as a learner can be controversial. Though, as Boud and Solomon's research suggested, the act of naming something as learning is usually somewhat less controversial.

The pervasive influence of the "learning as product" view can perhaps be thought of in terms of Bourdieu's concept of habitus. For Bourdieu (1990b), habitus is a kind of socialised subjectivity, that is socially acquired, embodied systems of dispositions. As such, they represent a fine balance between structure and agency:

> Agents to some extent *fall into* the practice that is theirs rather than freely choosing it or being impelled into it by mechanical constraints (Bourdieu, 1990b, p. 90).

The suggestion is that "learning as product", as socially acquired habitus, is not immutably entrenched. However, change is possible only to the extent that the wider social forces that transmit it are themselves altered.

Problems for the "learning as a product" view
The "learning as a product" view is under increasing pressure. Five current problem areas (out of many) are listed and discussed briefly below.

(1) *Failures of theory/practice accounts of performance.* Bourdieu (1990a) makes a distinction between two logics: the logic of practice and the logic of the theorisation of practice. He sees a strong tension between the two, between the logic of practice that is situated, contextual, embodied and tacit, and the logic of the theorisation of practice which centres on generality, abstraction and logical reasoning. Bourdieu's (1990a, p. 11) critique is that "the logic of practice can only be grasped through constructs which destroy it as such". While accepting that there is a tension here, my response is that the gap may not be so unbridgeable. Rather, the logic of the theorisation of practice has focussed on the wrong concepts, ones that bring with them unacceptable assumptions. Hence the perceived incommensurability of theory and practice. Better concepts that involve more relevant assumptions might yet produce a conceptual understanding of practice (see Beckett and Hager, 2002, pp. 130-2).

(2) *Failures of the front-end model of vocational preparation.* These include:
 • the increasing realisation that front-end courses in themselves are insufficient to prepare novices for a lifetime of practice;
 • the growing rejection of the technical-rationality assumption that underpins many front-end vocational preparation courses; and
 • growing doubts about the capacity of the front-end model to prepare practitioners for accelerating change (for more discussion, see Beckett and Hager, 2002, pp. 101-5).

(3) *Research in higher education learning.* Resting on concepts such as surface vs. deep learning, a range of research has found that much learning is higher education is far from optimal (see, for example, Bowden and Marton, 1998; Prosser and Trigwell, 1999). It is often found that "... despite students' having successfully negotiated the assessment system, little understanding of fundamental concepts has been gained" (Bowden and Marton, 1998, p. 61). Perhaps the conclusion from this is that even learning a traditional discipline is a gradual process of growing understanding, rather than discrete bit-by-bit mastery. This would suggest that gaining high level proficiency in a discipline more resembles the "gradual clearing of a fog in a landscape" than atom-by-atom acquisition of content.

(4) *New directions in psychology*. There is a clear move away from learning as a mind being stored with contents (e.g. Bruner, 1996; Bereiter, 2002,). As Bereiter (2002, pp. 196-7) puts it: "... everyday cognition makes more sense if we abandon the idea of a mind operating on stored mental content and replace it with the idea of a mind continually and automatically responding to the world and making sense of whatever befalls it. I call this the 'connectionist view of mind' ...". Connectionism provides an alternative metaphor, which enables us to conceive of a mind that can act knowledgeably without containing propositions or other knowledge objects. To gain benefit from the connectionist metaphor, we most find ways to construct mentalistic accounts that do not refer to things residing, being searched for, or undergoing changes in the mind (Bereiter, 2002, p. 179).

(5) *Learning transfer research*. Learning transfer research has led to recent proposals to reconceptualise transfer and, by implication, learning (e.g. Bransford and Schwartz, 1999; Schoenfeld, 1999). Researchers see the institution of formal education being underpinned by the basic assumption that transfer is a ubiquitous phenomenon. However despite increasing power of experimental techniques, transfer "seems to vanish when experimenters try to pin it down" (Schoenfeld, 1999, p. 7). As Bransford and Schwartz (1999) point out, transfer is indeed rare if it is restricted to "replicative" transfer, which involves both the stability and replicability assumptions that were noted above. However, they propose that we broaden the notion of "transfer" by including an emphasis on "preparation for future learning", the ability to learn in new environments. So the point of transfer is not replication. They suggest this broader notion is "knowing with" rather than "knowing that" (replicative) or "knowing how" (applicative).

The recognition of each of these problems in one way or another involves rejection of the learning as a product view. The result is, that as problems like these multiply, theorists increasingly are searching for a better account of learning. There is growing evidence that "learning" is now a contested concept, a concept less well-understood than previously thought. The narrowness of conventional understandings of learning is seen to be an important reason why learning is not well understood. For, instance Brown and Palincsar (1989, p. 394) observed: "Learning is a term with more meanings that there are theorists". Schoenfeld (1999, p. 6) noted "... that the very definition of learning is contested, and that assumptions that people make regarding its nature and where it takes place also vary widely". According to Winch (1998, p. 2), "... the possibility of giving a *scientific* or even a *systematic* account of human learning is ... mistaken". His argument is that there are many and diverse cases of learning, each subject to "constraints in a variety of contexts and cultures", which precludes them from being treated in a general way (Winch, 1998, p. 85).

He concludes that "… grand theories of learning …. are underpinned … invariably … by faulty epistemological premises" (Winch, 1998, p. 183).

The emerging view of learning

Increasingly prominent in educational thought of the last hundred or so years is an alternative conception of learning that views it as a process (or, more accurately, as a dialectical interplay of process and product). Viewing learning primarily as a process rather than as a product enables different features to be emphasised. Learning becomes a process that changes both the learner and the environment (with the learner being part of the environment rather than a detached spectator – see Beckett and Hager, 2002, section 7.9). This view of learning underlines its contextuality, as well as the influence of cultural and social factors. It is holistic in that it points to the organic, whole person nature of learning, including the importance of dispositions and abilities.

The following definitions highlight the contrasts between the two views of learning. According to the *Oxford English Dictionary*, learning means: "To acquire knowledge of (a subject) or skill (an art, etc.) As a result of study, experience or teaching". Besides portraying learning as a product, this definition is in danger of limiting learning to propositions and skills. The more holistic emerging view of learning is captured in Schoenfeld's (1999, p. 6) definition: "… coming to understand things and developing increased capacities to do what one wants or needs to do …".

Learning metaphors

Sfard (1998) argued that two basic metaphors – learning as acquisition and as participation – have underpinned much educational thought. The acquisition metaphor has long been influential. It subordinates the process of learning to its products – the something acquired (knowledge, skills, attitudes, values, behaviour, understanding, etc.). Sfard contrasts this metaphor with the increasingly influential participation one, claiming that neither metaphor by itself is adequate to understanding of the full complexities of learning.

My view is that acquisition emphasises learning as a product and the "folk theory" of a mind accumulating stable, discrete substances or atoms. In contrast, the participation metaphor presents learning as either a product or a process. This is because while participation itself is a process, the learner belongs more and more to the community of practice by acquiring the right characteristics (products of learning). A metaphor not mentioned by Sfard that I suggest better accords with learning as a process is construction (re-construction). This includes the construction of the learning, of the self, and of the environment (world) which includes the self.

I would argue that participation accounts less well than does construction for change. So the latter has an extra dimension. Rogoff (1995) seemingly recognises the limitations of mere participation as a metaphor. Her

sociocultural approach proposes viewing learning and development within a community in terms of three "... inseparable, mutually constituting planes comprising activities that can become the focus of analysis at different times, but with the others necessarily remaining in the background of the analysis" (Rogoff, 1995, p. 139). The three planes of analysis are:

(1) apprenticeship (community/institutional);

(2) guided participation (interpersonal); and

(3) participatory appropriation (personal).

It is the third of these that particularly involves constructive processes, since appropriation of a personal kind clearly implies something stronger than mere replication.

The three metaphors about learning link differently to lifelong learning and related concepts. The acquisition metaphor has unattractive implications for lifelong learning, suggesting endless accumulation of discrete pieces of learning. One imagines over-crammed filing cabinets. If learning is centrally about minds acquiring propositions, lifelong learning is potentially about perpetual enrolment in formal accredited courses. The individual learner is in danger of being condemned to learn all subjects/disciplines. In this respect, part of the "folk theory" of learning is an acceptance of a "quiz show" view of what it is for someone to be learned. (This contrasts with the Socratic view that the more you "know", the more you know that you don't know.) As well, the focus here is firmly on the individual learner. Illich (1973) was right that we have been schooled to accept a "consumer of formal courses" view of knowledge acquisition. By contrast, the participation metaphor is undoubtedly more congenial for lifelong learning. People participate in many activities at many levels, signalling much scope for learning. This learning is at whole person level rather than just being centred on the mind. As well, rather than focussing solely on individual learners, the participation metaphor accepts the importance of learning by groups, communities and organisations. However, participation in itself does not ensure learning. Quite the opposite, as is demonstrated by participation in closed societies or organisations that are dedicated to resisting change (e.g. certain religious societies). The construction metaphor, however, with its tripartite focus on the construction of learning, of learners, and of the environments in which they operate, has a wider scope. One in which change, learning and human flourishing are inextricably enmeshed. Certainly, the construction metaphor fits best with several of my research case studies of learning at work that were mentioned above. Sfard's two basic metaphors need expansion to include (re)construction as a third metaphor, so that learning at work and lifelong learning can receive proper attention.

Conclusions

There has been much scepticism about the concept of lifelong learning within the educational literature. This paper has argued that this is because it

clashes with conventional understandings of learning, with their unstated acceptance of learning as a product. The result of the strong public acceptance of this narrow view of learning is that there is systematic and widespread misunderstanding of the nature of learning. Hence lifelong learning looks to be distinctly unattractive from this perspective. However, when the process aspects of learning are given due attention, as in the emerging view of learning outlined above, much learning, including informal learning at its best, is accurately described as a form of lifelong learning. Changing social and contextual circumstances may be creating conditions in which the concept of lifelong learning is potentially a fruitful one. It is also notable that, influenced perhaps by the "folk theory" of learning, much literature on lifelong learning assumes that the individual learner is the appropriate unit of analysis. It may, however, be more useful to view entities such as communities and organisations as having a lifetime over which they can learn. There are considerable advantages in viewing learning at work primarily as a process. Both work practices and the learning that accompanies them are processes. This process feature is better captured by a (re)construction metaphor than by acquisition or participation metaphors. So, I conclude that major criteria for assessing theories of learning at work are how consistently they view such learning as a process and how well they reflect the (re)construction metaphor.

References

Beckett, D. and Hager, P. (2002), *Life, Work and Learning: Practice in Postmodernity*, Routledge International Studies in the Philosophy of Education 14, Routledge, London and New York, NY.

Bereiter, C. (2002), *Education and Mind in the Knowledge Age*, Lawrence Erlbaum Associates, Mahwah, NJ and London.

Boshier, R. (1998), "Edgar Faure after 25 years: down but not out", in Holford, J., Jarvis, P. and Griffin, C. (Eds), *International Perspectives on Lifelong Learning*, Kogan Page, London.

Boud, D. and Solomon, N. (2003), "'I don't think I am a learner': acts of naming learners at work", paper presented 3rd International Conference on Researching Work and Learning, Tampere, 25-27 July.

Bourdieu, P. (1990a), *The Logic of Practice*, Stanford University Press, Stanford, CA.

Bourdieu, P. (1990b), *In Other Words: Essays Towards a Reflexive Practice*, Polity Press, Cambridge.

Bowden, J. and Marton, F. (1998), *The University of Learning*, Kogan Page, London.

Brabazon, T. (2002), *Digital Hemlock: Internet Education and the Poisoning of Teaching*, University of New South Wales Press, Sydney.

Bransford, J.D. and Schwartz, D.L. (1999), "Rethinking transfer: a simple proposal with multiple implications", *Review of Research in Education*, Vol. 24, pp. 61-100.

Brown, A.L. and Palincsar, A.S. (1989), "Guided, cooperative learning and individual knowledge acquisition", in Resnick, L.B. (Ed.), *Knowing, Learning and Instruction: Essays in Honour of Robert Glaser*, Lawrence Erlbaum, Hillsdale, NJ, pp. 393-451.

Bruner, J. (1996), *The Culture of Education*, Harvard University Press, Cambridge, MA.

Buchanan, J., Schofield, K., Briggs, C., Considine, G., Hager, P., Hawke, G., Kitay, J., Meagher, G., McIntyre, J., Mounier, A. and Ryan, S. (2001), *Beyond Flexibility: Skills and Work in the Future*, NSW Board of Vocational Education and Training, Sydney.

Coffield, F. (Ed.) (2000), *Differing Visions of a Learning Society: Research Findings – Volume 1*, The Policy Press, Bristol.

Cropley, A.J. (Ed.) (1979), *Lifelong Education: A Stocktaking*, UNESCO Institute for Education, Hamburg.

Dewey, J. (1916), *Democracy and Education*, Macmillan, New York, NY.

Edwards, R. (1997), *Changing Places?: Flexibility, Lifelong Learning and a Learning Society*, Routledge, London and New York, NY.

Hager, P. (2001), "Construction industry case study", in Meagher, G., Ryan, S., Buchanan, J., Considine, G., Hager, P. and Kitay, J. (Eds), *Changing Nature of Work: Industry Case Studies*, NSW Board of Vocational Education and Training, Sydney, pp. 27-39.

Hager, P. (2003), "Philosophical accounts of learning", in *Philosophy of Education Society of Great Britain Annual Conference 2003, New College, Oxford*, Vol. 1, pp. 262-76.

Illich, I. (1973), *Deschooling Society*, Penguin, Harmondsworth.

Lakoff, G. and Johnson, M. (1980), *Metaphors We Live By*, University of Chicago Press, Chicago, IL.

Murphy, J.B. (1993), *The Moral Economy of Labour – Aristotelian Themes in Economic Theory*, Yale University Press, New Haven, CT and London.

Prosser, M. and Trigwell, K. (1999), *Understanding Learning and Teaching: The Experience of Higher Education*, Open University Press/Society for Research into Higher Education, Buckingham.

Rogoff, B. (1995), "Observing sociocultural activity on three planes: participatory appropriation, guided participation, and apprenticeship", in Wertsch, J.J., del Rio, P. and Alvarez, A. (Eds), *Sociocultural Studies of Mind*, Cambridge University Press, Cambridge.

Schoenfeld, A.H. (1999), "Looking toward the 21st century: challenges of educational theory and practice", *Educational Researcher*, Vol. 28 No. 7, pp. 4-14.

Sfard, A. (1998), "On two metaphors for learning and the dangers of choosing just one", *Educational Researcher*, Vol. 27 No. 2, pp. 4-13.

Standing, G. (1999), *Global Labour Flexibility: Seeking Distributive Justice*, Macmillan/St Martin's Press, London/New York, NY.

UNESCO (1972), *Learning to Be (The Faure Report)*, UNESCO, Paris.

Waterhouse, P., Wilson, B. and Ewer, P. (1999), *The Changing Nature and Patterns of Work and Implications for VET*, National Centre for Vocational Education Research, Adelaide.

Winch, C. (1998), *The Philosophy of Human Learning*, Routledge, London and New York, NY.

Distributed systems of generalizing as the basis of workplace learning

Jaakko Virkkunen and Juha Pihlaja

Univerity of Helsinki, Helsinki, Finland

Abstract *This article proposes a new way of conceptualizing workplace learning as distributed systems of appropriation, development and the use of practice-relevant generalizations fixed within mediational artifacts. This article maintains that these systems change historically as technology and increasingly sophisticated forms of production develop. Within these parameters, Taylorism is analyzed as the principal form of the learning systems of mass production, and the total quality management as the learning system of flexible manufacturing, or continuous improvement of processes, as it is also called. The article also maintains that the current IC technology-based transformation of businesses increasingly calls for meta-level learning, which makes it possible for the stakeholders within a given system of production to flexibly transform their system of producing generalizations, as the business concept's life cycle proceeds from one phase to another.*

Introduction: the need for a historical approach

The ongoing globalization of markets, innovation-based business competition and the informatization of work using the new IC technologies are currently changing the overall structures of production and management. In addition, forms of generating, accumulating, and passing on knowledge are also in the process of change. According to Freeman and Louça (2000), these changes compose just one part of an ongoing shift in the techno-economic paradigm within the industrialized countries. The former mass-production paradigm that was based on cheap energy is now being replaced by new emerging forms of production and exchange that make effective use of the information that has been made economical by the new IC technologies. To understand how this change affects workplace learning, we must study both work and learning as two historically changing phenomena.

In this paper, we will propose a way of analysing workplace learning as a distributed system of production and the use of work-related generalizations that are fixed in mediational artifacts. This way of conceptualizing workplace learning, we believe, helps to clarify the dialectical relationship between individual and organizational learning, and to analyze the changes that are taking place in workplace learning. We will first present the idea of learning as a process of artifact-mediated generalizing. Then, we will discuss three levels of mediational artifacts, as well as the different sorts of processes that produce practice-relevant generalizations. In these analyses, we will rely on the cultural historical theory of activity. We will analyze the systems of workplace learning

of three historical forms of production, handicraft, mass production and flexible mass production, applying the proposed concepts. Finally, on the basis of these analyses and through an empirical case example, we will discuss the nature of the current challenges facing workplace learning.

Learning as the appropriaton and creation of generalizations

According to Leontyev (1933), a physical tool reifies a specific cause-effect relationship that is utilized to carry out a recurrent task in any given human practice. As a tool is developed, a set of objects becomes delineated as workable with that specific tool. In effect, both the tool and the way it is used make use of certain common properties of these objects, as well as a general causal relationship. In this sense, we can say that there is in each tool embedded an abstraction and generalization. Also concepts that form the meanings of words are generalizations that abstract features in objects and situations that are important for a specific human practice, as Vygotsky (1987) has shown. The cooperative use of physical tools is not typically possible without a corresponding set of signs and words that are used as tools for coordination and communication. On the one hand, human cooperation is not possible without engaging in generalizations that are fixed in signs, symbols and tools. On the other hand, such generalizations can only develop within peoples' collaborative activities and communications (Leontyev, 1933).

Culturally developed artifacts also serve the function of linking individual and cultural learning. Individuals internalize the signs and symbols that were originally used in social interaction, and use them also as their individual psychological tools for self-regulation and thinking (Vygotsky, 1987, p. 148). They do not, however, simply appropriate culturally developed generalizations that have been preserved in language and tools, but construct additional generalizations from their own experience. Individuals synthesize constantly their immediate experience and the cultural generalizations, in order to provide the mental foundations of their real-time actions (Cole and Engeström, 1993, p. 6). Of special interest in this process is the creative interplay between everyday concepts that develop "upwards" from an individuals' personal experiences and scientific generalizations that "grow downward" to individual and local applications and concretizations (Vygotsky, 1987, p. 108).

Concepts or tools are not in-and of-themselves generalizations. Rather, they serve to mediate generalized operations in the same way that a hammer mediates the operation of hammering. To appropriate a tool or concept means that one learns to perform the specific generalized operations of perceiving, thinking, communicating or practical action that the artifact has been created for (Leontyev, 1933). Wartofsky (1979, p. 201) differentiates between primary and secondary artifacts. Primary artifacts are those that are directly used in production, such as tools, modes of social organization, and bodily skills that enable the use of tools. The representation of actions by symbolic means

generates the distinctive class of secondary artifacts, including models of forms of action, designs and prescriptions that are "... created for the purpose of preserving and transmitting skills, in the production and use of primary artifacts". Secondary artifacts make it possible for practitioners to take an overall view of their activity, and then to reflect on it, as well as to collect and save their experiences as potential material for further development of the work.

According to Wartofsky (1979), there are also tertiary artifacts that do not have a direct representational function but instead serve the free construction, in the imagination, of tools, rules and operations that are distinctively different from those adopted for the praxis. Such "possible worlds" may in fact reflect the limits of the actual praxis, and can help the practitioners to create alternatives for conceivable change in the model of praxis itself. We can go so far as to say that secondary artifacts serve as tools for reflecting upon, evaluating and developing primary artifacts, while tertiary artifacts serve as tools for reflecting upon, evaluating and transforming both secondary and primary artifacts.

Generalization is only possible on the basis of variation that makes it possible to identify similarities and differences (Marton, 2000). An actor's interaction with external objects which is mediated through tools and concepts makes up a natural experimental setting for controlled comparisons, as the actor can test the impact that different tools have on the same object as well as the impact a specific tool has on different objects. The generalizations fixed in artifacts, on the one hand, and processes of generalization, on the other, are in a dynamic, dialectical relationship with one another. They form a unity of opposites, and functionally permeate one another. In action, tools and concepts become parts of a process that winds up producing changes in them. Actions link generalizations to practice and the subject with reality. According to Leontyev (1933) it is this dialectical relationship between generalizations and the process of generalizing that is the pivotal key for understanding learning, and not the difference between internalized, mental representations and processes, on the one hand, and external material representations and external action, on the other.

The nature of the generalization that is embedded in a sign or tool is not apparent within the artifact itself. It can only be revealed through tracing the process of generalizing that led to the generalization. These processes can be analyzed using Leontyev's theory of the hierarchic structure of human activity. According to Leontyev (Leont'ev, 1978) there are three interconnected systemic levels in human activities: the system of societal activity with a specific object and outcome; individuals' actions that realize specific objectives within the system of joint activity; and operations through which one's actions are carried out. In Leontyev's terms, the process of generalizing in a work activity can be based on operations that are carried out in the midst of other operations that

are necessary to accomplish a productive action as, for example, when an actor in passing changes a tool or the way of using a tool while accomplishing a task, and such a change prevails. The process of generalizing can also be based on conscious actions of generalization that are taken in the midst of actions of production within an activity. One example of this might be seen when a manager uses a decision as the precedent for cases still to come. Producing concepts and tools for mastering an activity can also be a specific form of collaborative activity that is realized through chains of actions needed for reaching new generalizations. This is certainly the case in scientific research and in many design and planning activities.

From the tradition-based system of generalizing to conscious actions of generalization

In the late 1800s, the owners of factories made a contract for the work to be done with a foreman, who was to lead a group of workers. In these groups, the skill and competence of carrying out the work was preserved in traditional methods and "rules of thumb", as is typical of craftwork. In this form of activity, generalizations concerning effective work methods were primarily produced through incremental adjustments and improvements regarding the work implements and the methods for using them. These changes were to a great extent made through operations within actions of production. A good example might be a worker developing a motor or mental representation of an effective way to realize a recurrent action, or changing a tool to make it more appropriate for the task at hand. The results of this accidental process of generalizing were predominantly fixed by changing the primary artifacts, and the workers' perceptual-functional representations of various tasks and action situations. In the lack of well-developed secondary artifacts, the generalizations could only be transmitted to new generations of workers through a process of "legitimate peripheral participation" and apprentice in the productive activity as well as through rough rules of thumb.

In the late 1800s, the invention of the electric motor and a set of further complementary innovations led to the new principle of arranging layouts of industrial plants as centered upon production lines, which were laid out according to the successive phases of manufacturing a specific product (Hirschhorn, 1986). The idea of the production line became a central generalization regarding effective mass production. The overall output of a production line comprising mechanical machines depended, however, to a great extent on the speed of the manual operations that could not be mechanized. In this situation, Taylor (1911) developed a new way to improve the method of performing specific manual tasks in a system of production. He collected a few workers who were particularly skilful in the specific work in question. Then, Taylor separately studied the exact series of work motions each of these men used when performing his task, and selected the optimum sequence of motions,

and the quickest possible way of carrying out each motion. The result of this process of forming a generalization from varying individual performances was in fact a secondary artifact, which became known as the work standard. It described the fair amount of work that could be expected from a workman who was performing a specific task, and "the one best method" for performing the task. Each worker was subsequently taught and obliged to carry out the task according to the standard created for it. The standards of the work tasks set the frame for the individual workers' workplace learning.

This systematic analysis of the various ways to carry out a task only become possible on the basis of the previous generalization that work is in fact comprised of identifiable "tasks". This concept delineated the object of attention and the sphere of variation used as the basis for learning. This new form of generalizing that comprised the conscious actions of searching out the optimal form and sequence of work motions to be used to perform a task, was, according to Taylor, only possible when a group of people specializes in carrying out these actions. Taylor proposed that every industrial plant should maintain a planning office of specialists who devoted themselves to producing and teaching standards for the work tasks in its production process. Thus, a new subject-object relationship needed to be institutionalized, in which the work-study specialists became the subjects, and the optimization of the way workers performed their work tasks became their object. During the long period of economic growth after the Second World War, this system of generalization which Taylor called "scientific management" spread out in various forms, as part of the permeation of the principles of mass production into almost all areas of human activity.

After the so-called "oil crisis" of the 1970s, a new way of flexibly mass producing a variety of quality products spread all over the world, as well as to diverse areas of activity (Womack *et al.*, 1990). This model was initiated after the Second World War in the Toyota car factory on the basis of partial automation (Ohno, 1978). It was later theoretically elaborated upon by engineer Kaoru Ishikawa (1990). In this system, production line has been replaced with a flexible, order-based production flow within a network of subcontractors. In this type of production, work is performed in teams. The workers are obliged to halt production if they recognize an error or threat of disturbance. In order to determine the causes of disturbances, waste, and quality problems in the production, the workers in flexible mass production use a set of analytic tools collaboratively in special social formation of quality-control circles discussing also with the firm's production planners. After establishing the cause of an identified problem, they use a process of experimentation to solve it and to improve the work standard in question, which they subsequently keenly follow as they go on with their production activity (Victor *et al.*, 2000).

Because, in the state of flexible mass production, a set of different products are produced on the same production line, there is far more variation in the production than might be found in a more traditional form of mass-production. The initial generalization that constitutes the object of attention in the continuous improvement of working processes in the flexible mass production is not a "task", as it was in Taylor's scientific management, but a "problem". The source of variation that the generalizations that provide the solutions to the problems are based on is not a set of individual ways of performing the same task, but is rather the varying functionality of optional ways of arranging a specific detail within the production flow. In flexible mass production as well, the practice of production is rendered into the object of actions of generalization with the aid of work standards as the secondary artifacts. In this case, however, the same workers flexibly switch the object of their attention from centering on production according to the standard into developing the standard-and back, from taking productive actions to taking actions of generalization and back to taking, this time somewhat altered, actions of production (Victor *et al.*, 2000). The standards that are used as secondary artifacts, although they are to a great extent externally similar those involved in traditional mass production, are produced through a qualitatively different process of generalization, and are also applied to production in a qualitatively different way, and thus mediate a different generalization.

Generalization concerning a new principle of production
The principles of mass production and the continuous improvement of processed in flexible mass production were the tangible results of a determined and sustained activity of producing a new form of production (Taylor, 1911; Ohno, 1978). Such a collaborative activity indeed calls for specific expansive actions of generalization such as questioning aspects of the prevailing production model and practice, analyzing its inner relationships as well as its historical development, modelling a new principle for the production, examining the new model through conducting thought experiments, and finally transforming the practice through the experimental implementation of new tools (Engeström, 1999). In these actions, the object of attention, learning and development is not a specific task or problem-nor is it the optimal way to master the flow of production. Instead, it is the entire system and principle of production. The motive for creating a new form of production was obviously an emerging contradiction that was inherent in the existing one. The new principle of production was created by analyzing the contradictions inherent in the prevailing system, and combining elements from different existing cultural resources in order to create a new principle. The resulting new form of production became later a model that was used to solve similar developmental contradictions in other local production activities. The historically unique process of expansive generalization that led to the qualitatively new principle

and form of production was, in the both cases described above, Scientific management and total quality management, accompanied by a new distributed system of production-related generalization. In these systems, a new general production concept has set the stage for both perceiving and utilizing the available empirical variation in the production process for creating generalizations that incrementally improve the production.

It is not yet clear what forms of work will turn out to be most effective regarding the utilization of new resources of cheap information, as well as meeting the new challenges of continuous innovation and a global market. Some tentative observations regarding this development are, however, at least possible. Instead of a standardized product or service, today's firms are increasingly creating customized offerings that contain both products and services. Firms specialize in areas in which they can afford continuous research and development. The end results are increasingly produced in concurrent cooperation of many specialized firms in a star-like constellation, as opposed to the traditional value chain (Normann and Ramirez, 1994).

The most profound change, however, seems to be the accelerated pace of deep qualitative transformations regarding the principle of production itself. The two production systems discussed above were based upon the idea of linear development of production after the creation of the new production concept. Due to an increased investment in research and development, cycles of renewal regarding business-, product- and production-concepts have been summarily shortened. In order to master such cycles of transformation practitioners need new forms of production-related generalization, which would make it possible for them to take a reflective stance not only on individual tasks or problems, but to the historical transformation of both the object and principle of their production activity. This type of reflection on the historical transformation of an activity calls for expansive learning actions, as well as a new basic generalization that redefines the object of attention as a historically changing system of activity. It also calls for tertiary artifacts to serve as tools for the critical analysis of the present principle of the production activity, and for designing a new principle and new secondary artifacts needed in the new form of production activity. Besides this new level of mastery regarding the transformation of an activity, qualitatively new types of actions of generalizing are also often needed such as generalization through negotiation and collaborative prototyping.

An example of the change of the system of distributed generalization and learning at work as the business concept evolves

The telecommunications industry provides many interesting examples of changes regarding learning in and for work, because new information technologies in the telecom field radically change the logic of businesses, as well as the methods of using the old infrastructure of telephone connections. In

the following example from the "TC" telecommunication (a pseudonym) we can see some of the aforementioned current changes in the processes of production-related generalization and learning. The data concerning this example has been collected in a developmental intervention, in which the team in question analyzed the development of its work and designed a new form of their work along with an external researcher (Virkkunen and Ahonen, in press)[1].

In early 1990s, TC decided to develop a new product that consisted of computer connections for the use of PCs (ISDN). After the technical and commercial preparations had been made for the new product, the firm invited its telephone technicians to apply for a position on a new team of home-ISDN connection technicians, which was soon to be established. Before the new product was launched, the technicians selected for the team underwent a two-year regime of intensive training in ISDN and PC technologies. As the sales of the new product started, members of the new team began their installation work and continued to learn by performing installations. In difficult cases, they took extra time in order to solve problems and learn how to master different kinds of installations. The team members frequently met to discuss problems that occurred during the installations, and to further develop the evolving installation practice. In these meetings, they produced new generalizations concerning the installation methods. After an initial period marked by a slow increase in the amount of connections sold, the demand and sales of these connections exploded. A number of other teams of technicians were trained to perform ISDN installations, and the original team was given the responsibility of guiding the work of these teams, for handling especially difficult installations, for controlling the overall quality of the installations, and for further developing the overall installation practice. The original team was also expected to create profit by performing installations.

At that point the team took part in a developmental intervention called the competence laboratory, which was composed of six two-hour sessions weekly, a period of experimentation with new solutions, a follow-up and evaluation session, and various forms of data collection and planning before and between sessions. In this process, both the researcher and the technicians collected observations concerning resent problems and changes that had taken place during the short history of the team's installation work. When analyzing its situation, the team noticed that because of the increased workload, they no longer had time to solve problems together. Each technician tried to learn individually while doing his or her work. They strongly felt that they were caught in a double-bind situation regarding their new role; it was not possible for them to meet all the competing demands made on them.

During the first sessions of the intervention, both the team and the researcher collaboratively used the data collected by the researcher and the team members for the purpose of questioning aspects of the team's present

practice. In analyzing the systemic causes of the highlighted problems in their current practice, they used graphic models of the basic structure of an activity system and the cycle of expansive development of an activity (Engeström, 1978). Using these general models as intellectual tools, they constructed a tertiary artifact, a model of the qualitative change and phase of development of the system of their joint activity as well as the internal contradictions within it. This tertiary artifact helped the technicians to understand the roots of the problems they experienced during their daily work. This analysis also formed the basis for a number of important reforms in the team's activity, as well as the team's methods of developing generalizations concerning various aspects of their installation activity.

As one of the reforms, the team created a secondary artifact, a form for collecting data concerning problems in installations. This new tool enabled them to solve recurring installation problems on the basis of aggregate problem descriptions. The team began to meet regularly to discuss the installation problems on the basis of the collected data. Members of the team prepared the discussions in these meetings according to a new division of labor and areas of specialization between the team members. The team also initiated a new process of generalizing; a series of negotiations with its cooperation partners for the purpose of eliminating problems and finding a functional form for the cooperation with each cooperation partner. Such a negotiation took place for instance with the subcontractor who provided the ISDN cards for installation in customers' PCs, and it was this negotiation that led to an important reduction in the types of cards to be used, which made the installations easier and quicker.

In the generalizing system of flexible manufacturing, teams use secondary artifacts to solve problems and to improve the production process. Observations about disturbances and waste are used both as the starting point and as material for the process of problems solving. The participants in the competence-laboratory intervention used two tertiary artifacts, the models of an activity system and the model of the cycle of expansive development of an activity system, to envision a new principle for their activity, as well as for designing new secondary artifacts. The object of this process was not primarily to solve identified problems that would make the existing form of activity more fluent, but to create a new form and principle for the activity that would solve the deadlock created by the old principle. This new principle was based on a new, broader generalization about the object and motive of the team's activity as standardization of the installation practices. The collaborative intervention described above not only led to new processes of generalizing (one of these processes, the use of the problem form, highly resembles the principle of quality control circles), it also led to an important meta-level generalization. The team reconceptualized its activity as cycles of technology implementation and begun the task of transforming its historical experiences from the

development of the ISDN installation practices into future plans concerning ways to learn and master the development of installation practices for the next-generation technology, the ADSL.

We have found that two fundamental aspects are particularly important in the preceding example. First, the forms and distributed systems of generalizing within the home-ISDN installation team profoundly changed during the developmental cycle of the ISDN business. The process began with rather traditional training, in which the team members appropriated the theoretical generalizations, methods and tools of ISDN installation. This phase of technological appropriation was followed by a process of learning by performing ISDN installations, in which most of the generalizing took place as the technicians solved problems they encountered in their work. As the object of the team's activity expanded, this form of generalizing and learning led to a crisis. In the competence-laboratory process, using the theoretical generalization of an activity system and analyzing the historical changes in their activity with the help of the two tertiary artifacts, the team produced a new system of distributed generalizing. This new system was based on new kinds of actions of generalizing that took, with the help of the new tool, advantage of the increased variety of experiences the newly established local teams of technicians provided. The use of the models of an activity system and the cycle of expansive development as tertiary artifacts enabled the practitioners to adapt a reflective stance towards the entire system of their activity and its history of change. Then, the team was able to generate secondary artifacts as tools for ongoing analysis and reflection upon their work. In the competence laboratory, the team engaged itself in a form of collaborative activity of generalization, in which the team was using tertiary artifacts for reconstructing and retooling their methods of generalizing and learning at work. It is this new level of workplace learning that we expect will become increasingly important and in demand.

Note

1. The intervention as well as the collection and analysis of the data was carried out by M.A. Heli Ahonen.

References

Cole, M. and Engeström, Y. (1993), "A cultural-historical approach to distributed cognition", in Solomon, G. (Ed.), *Distributed Cognitions*, Cambridge University Press, Cambridge, pp. 1-43.

Engeström, Y. (1978), *Learning by Expanding*, Orienta-Konsultit Oy, Helsinki.

Engeström, Y. (1999), "Innovative learning in work teams: analyzing cycles of knowledge creation in practice", in Engeström, Y., Miettinen, R. and Punamäki, R.L. (Eds), *Perspectives on Activity Theory*, Cambridge University Press, Cambridge, pp. 377-406.

Freeman, C. and Louça, F. (2000), *As Time Goes By*, Oxford University Press, Oxford.

Ishikawa, K. (1990), *Introduction to Quality Control*, 3A Corporation, Tokyo.

Hirschhorn, L. (1986), *Beyond Mechanization*, The MIT Press, Cambridge, MA.

Leontyev (Leont'ev), A.N. (1933), "Notes on consciousness I and II", *Multidisciplinary Newsletter for Activity Theory*, Vol. 1989 No. 3/4, pp. I-VIII and Vol. 1990 No. 5/6, pp. I-VIII.

Leont'ev, A.N. (1978), *Activity, Consciousness, and Personality*, Prentice-Hall, Englewood Cliffs, NJ.

Marton, F. (2000), "Variatio est mater studiorum", *Magyar Pedagógica*, Vol. 100 No. 2, pp. 127-40.

Normann, R. and Ramirez, R. (1994), *Designing Interactive Strategy: From Value Chain to Value Constellation*, Wiley, New York, NY.

Ohno, T. (1978), *Toyota Production System: Beyond Large-Scale Production*, Productivity Press, Portland, OR.

Taylor, F. (1911), *The Principles of Scientific Management*, W.W. Norton & Company, New York, NY.

Victor, B., Stephens-Jahng, T. and Boynton, A. (2000), "The effective design of work under total quality management", *Organization Science*, Vol. 11 No. 1, pp. 102-18.

Virkkunen, J. and Ahonen, H. (in press), "Transforming learning and knowledge creation on the shop floor", *International Journal of Human Resources Development and Management*.

Vygotsky, L.S. (1987), *Thinking and Speech*, Plenum, New York, NY.

Wartofsky, M. (1979), *Models: Representation and Scientific Understanding*, Reidel, Dordecht.

Womack, J., Jones, D. and Roos, D. (1990), *The Machine that Changed the World*, Rawson Associates, New York, NY.

Learning in two communities: the challenge for universities and workplaces

Cathrine Le Maistre and Anthony Paré

Faculty of Education, McGill University, Montreal, Canada

Abstract *This article reports on a longitudinal study of school-to-work transitions in four professions: education, social work, physiotherapy, and occupational therapy. Each of these professions is characterized by the need for an undergraduate degree for certification; extensive, supervised internships before graduation; and, to a greater or lesser extent, supervision for beginning professionals after graduation. Students in their last years of university, beginning professionals in their first years of practice, and the experienced practitioners who supervise both these groups were interviewed. The article draws on theory and data to help explain why the move from classroom to workplace is often so difficult, and make recommendations to stakeholders in the training and induction of new practitioners in these professions. The recommendations may be extrapolated to other workplaces.*

From object to artifact: the transition from school to work

In a longitudinal study of the transition from university to workplace, our investigations are influenced by the work of Lave and Wenger on communities of practice (e.g. Chaiklin and Lave, 1993; Lave, 1991; Lave and Wenger, 1991; Wenger, 1998), on Eraut's descriptions of knowledge in the workplace (e.g. Eraut, 2000), and – of particular importance to this paper – on activity theory (e.g. Cole and Engeström, 1993; Engeström, 1987; Engeström, 1993).

We have found that activity theory is a powerful tool for comparing school and work and for explaining the often difficult transition between the two contexts. The comparison is particularly relevant and revealing when comparison is made between activity in professional schools and activity in their cognate workplace settings and we have chosen to examine the professional education of teachers, social workers, physiotherapists and occupational therapists. The chief aim of professional education is to prepare new practitioners, and many of the techniques designed for that end – such as simulations, case studies, and internships of various sorts – seek to ease the passage to professional practice by recreating it under controlled conditions in school or in a practicum. In addition, artifacts of workplace activity – from technologies to theories – are closely examined in classrooms in anticipation of

their deployment on the job, on the assumption that students will carry knowledge gained in school into workplace contexts.

However, as we argue in this article and elsewhere (Le Maistre and Paré, 2002; Paré and Le Maistre, 2002; see also Dias *et al.*, 1999), school and work are radically different activity systems, with quite distinct objectives, mediational means, rules, divisions of labour, and so on. Figure 1 presents a simplified graphic depiction of those differences. The triangle on the left represents the key components of the activity system in professional schools, and the one on the right reflects the activity system that apprentice or newly graduated teachers, physio- and occupational therapists, and social workers enter in the workplace.

As Figure 1 indicates, when the student moves into the subject role of practitioner, the "objects" of the learning activity in the school (the theories, laws, methods, tools, and other artifacts of the profession) become "mediational means" in the workplace. Thus, the language acquisition theory that an education student studies at university becomes the practitioner's means of enhancing language development in the elementary classroom; the legal procedures related to admissibility of evidence that the social work student memorizes for an examination serve to shape her relations with judges, lawyers, and clients during court proceedings; the technique for repairing a separated shoulder – first learned as a textbook description – must be applied to the actual injury during the physiotherapist's daily practice. We believe that this transformation of objects into artifacts, whereby the focus of learning becomes the means of practice, is the critical distinction between school and work, and the reason that transition between the two contexts is frequently difficult.

Naturally, the other components of the systems change as well; for example, the rules and divisions of labour are dramatically different in each activity system. Academic rules may discourage collaboration (i.e. cheating), while workplace activity demands it. And those workplace rules that are codified and studied in school, such as ethical guidelines, are far more difficult to apply on the
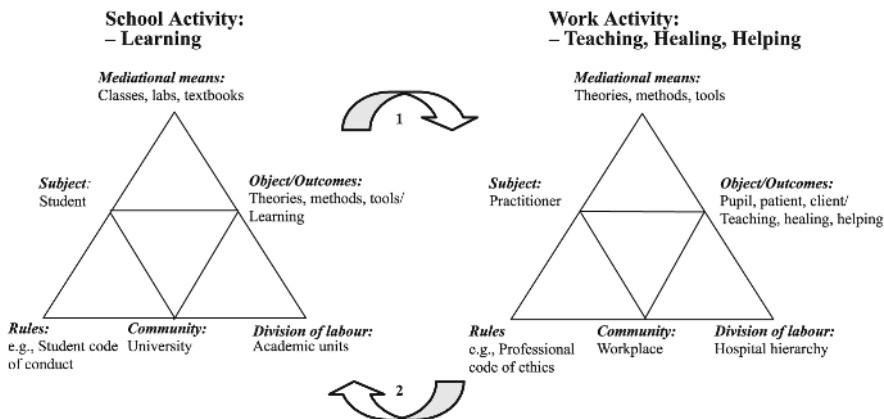
Figure 1.
Work and school activity

job than to regurgitate in school assignments. Other rules, tacit and deeply embedded in the community's culture, cannot be learned at a distance. The divisions of workplace labour may lie along professional boundaries, so that the tasks a new social worker expects to perform are, in practice, handled by psychologists or nurses or doctors. Most importantly, workplace activity systems, such as hospitals and large schools, are always complex and fraught with politics. So, for example, a social worker who did her final practicum and initial professional practice in the same setting reported that the two experiences had been like two different workplaces: what she called "the student bubble" had prevented her from even noticing the day-to-day politics she experienced immediately and uncomfortably as a newly-minted social worker. Professional schools are also complex activity systems, but they are necessarily more single-minded in their objective: the preparation of new practitioners.

Further complicating the school-to-work transition is that fact that hospitals, schools, agencies, or clinics are not single activity systems but, rather, collections of activity systems, sometimes working in concert, sometimes in conflict. This was well-described by a social work student:

> . . . the hierarchy of the hospital in terms of the nursing role and the doctor role . . . there's that conflict between the social workers and the nursing staff and, like, everyone . . . It seems everyone's main goal is for the client, but everyone's approaching it in different ways (Christopher, social work student).

This is probably a good description of the general dynamic in most hospitals, and similar situations would apply in any school or any social work agency. But as we suggest above, and have argued elsewhere (Le Maistre and Paré, 2002; see also Ahlstrand *et al.*, 1996), each individual workplace has its own geography, political structure, and culture, so that the knowledge of the organization must be acquired for each particular organization or worksite – or, more accurately, in each particular organization or worksite. A new teacher told us:

> Part of becoming a professional is figuring out what the rules are – the politics of the school (Philip, new teacher).

While this is also true for experienced workers moving to a new workplace, we assume that the veteran worker has access to a store of professional knowledge drawn from experience in similar workplaces – knowledge about the profession's repertoire of objectives, rules, and mediational means. So, for example, the teacher switching from elementary to secondary school or the physiotherapist transferring from obstetrics to gerontology would need to adapt to variations of objectives, rules, and mediational means with which she was already familiar. In contrast, the newcomer is familiar only with the objectives, rules, and means of academic activity, and must develop organizational knowledge without the benefit of prior experience.

In graphical terms, the movement between the two activity systems may be described by the arrows in Figure 1. Arrow 1 represents the students' movement from the university to the workplace, either as student interns

during their undergraduate programme, or as newcomers to the profession. Both of these situations involve a major shift in the behaviour of the participant. The student intern must adapt from being a successful student, with skills developed over about 17 years of schooling, and start developing a "professional identity" (Proshansky *et al.*, 1995):

> The whole point of *stage* work [i.e. practica] is for students to get into a real living, breathing school where there are all of the things that can go wrong and can go right ... So, I think to me what's the most important is that the *stagiaire* comes away from their experience in the school and they say "Wow, that was what's, what I really needed to have as a completion of my studies, was that element of real life" (Theresa, supervising teacher).

Arrow 1 also represents the trajectory of the beginning professional. The beginning professional has left behind the security of the university, which provides a safe environment for experimentation and reflection, and where the elements of professional activity are studied at a distance as disembodied or de-contextualized practices. Instead of being a cool observer, the new professional is now thrust into the heat of activity, where textbook descriptions become the actions of daily practice. He is now an insecure employee, vulnerable because of his youth, inexperience, and lack of job security:

> My clients are really, like, three or four years younger than me. So, you know, if I wasn't confident about myself and about my work then they'd step all over me and totally be in control (Emily, social work student).

Arrow 1 charts a movement from abstraction to enactment, from the study of practices to their performance. In this transition, the main concerns of both the intern and newcomer are immediate and survival-oriented. They have no time to be concerned with overarching theories or generalities, but move from one particular situation to another:

> It just seems that there are so many adjustments that you're making all the time in the classroom. It's like [snaps fingers], boom, OK, do this, do that, and then you see this happening and there's always decisions being made, like all the time (Ethan, education student).

As a result of the intensity and immediacy of professional activity – which up close looks and feels nothing like the theories and methods described so dispassionately in classroom lectures – many beginners fail to make the link between what they have learned at university and the situations they face in the classroom, clinic, or interview room:

> When they come in, they have no sense of how the theory fits in with the practice ... they see ... a real separation between their theory and their practice (Lauren, social work supervisor).

We also note that some supervisors encourage them not to try to make the link, but criticize the university preparation as being too theoretical:

> I think the learning [in university] is in a rarified air (Carol, social work supervisor).

Arrow 2 represents movement from the workplace back to the school. For the interns, this is an actual, physical movement, since the practica are

integrated and spaced during the undergraduate programmes. Their curricula are planned to give them an opportunity to bring back the practical experiences of several weeks in the workplace and lay them on the test bed of theories that are explicit, public, documented, codified (Eraut, 2000). However, we have observed that this return to academic activity, particularly in education and social work, is an opportunity for students to denounce their professional education for its failure to prepare them for workplace practice.

First-year practitioners have no organized opportunity to return to the university and, like interns, frequently complain that their professional preparation has been insufficient. But our work with second-year teachers suggests that, as they gain experience, they start to make school-to-work links for themselves. During a focus group, teachers in their second year said:

> . . . already I notice a difference in how I look back on my Bachelor of Education programme. Last year I was just totally upset. I just didn't know where to put my hands first. I just got hired and I had to teach tomorrow, and how do I put together this plan? . . . So the first year is very frustrating. You need that practical aspect. The theory part I think comes in. You see it.

> Educational philosophy helped. I just figured out the link. Once you're teaching you figure out why you have Educational Psychology. Thinking back on it now, it was extremely helpful for me . . . every time I went to a school on a practicum, I did it the way the teachers wanted it and it wasn't me. I remembered a lot of what the other teachers did, but a lot of the time I didn't agree with it, it wasn't me. So that's where theory helped me when I got into my own class, it helped me to decide.

> [In the first year] you learn a lot and you make the links between your theory and . . . your classroom.

We believe that interns and new practitioners, faced with the hurly-burly of initial practice, fail to transform the objects of university study – that is, the theories, methods, and tools of their trade – into the mediational means of workplace activity. Instead, they adopt means that will enable them to make it through the day. Thus, for example, we see new teachers and social workers operating from theoretical positions completely opposed to those they studied and espoused during their academic preparation. But with time and reflection, those objects of study resurface and are transformed into actions. Observations like this begin to suggest how the university and the workplace might collaborate to ease the newcomer's passage from classroom to work.

Implications
Given the differences between the activity systems of university and workplace in terms of subjects, objects, mediational means, rules, division of labour, and community, it seems impossible that the two systems could ever be mapped on each other. But our analysis and our experience suggest that there is a need for both university training (for disciplinary knowledge, and "just in case" learning) and on-the-job training (for a variety of practical knowledges and

"just in time" learning), and that neither of these is sufficient on its own. The movement back and forth between these two learning contexts implies the need to introduce a sense of the workplace into the university context and also to maintain a theoretical focus once practice begins. That is, there is a need to help students move from the general (book knowledge, theories, abstractions) to the particular (real clients, students, patients) as they move from the university to actual practice situations, but there is also a related need to help new practitioners move from the specifics of practice (the client, student, or patient that is the focus of their attention as they first join the workforce) to the generalities and abstractions that will inform their continuing, principled practice. In Elliott's (1991) terms, there is a need to help them move from propositions to case repertoires. We infer from this that there is a need for careful consideration of the content of the training in both environments, and a concomitant need for collaboration between the agencies involved in preparing and welcoming the new professionals into a community of practice.

We agree with Eraut and de Boulay (2000) that:

> . . . programmes for professional formation seldom recognise the learning effort required for the transfer of knowledge [from the university to the workplace]. Support for transfer is rarely provided, even though trainee and novice professionals are ill-prepared to tackle it on their own.

But we caution that there is a danger if too much emphasis is taken away from the training institution and put on an apprenticeship model. To take an example from teaching, it is likely that student teachers would develop a narrow range of strategies if all their training were in one school, with one or two supervising teachers, rather than grafting this practical experience on to the range of viewpoints and theoretical constructs to which the professional school exposes them. This is clearly true of all the professions we are studying, and is supported by our observations that activity systems are deeply embedded in particular contexts, and cannot be easily simulated or replicated. Further, we believe that it is characteristic of the university to challenge students to experiment and to externalize, while there is a danger – as we have noted above – that newcomers entering the workplace quickly become conservative. Because new professionals are vulnerable, they are unlikely to want to "rock the boat," yet professions rely on young employees to make changes and introduce innovations. Good supervisors tell us how much they are energized by their contact with newcomers, given the fact that they bring new ideas from the university. In professions as complex and demanding as those we are studying, we believe that this flow of information is crucial, and that the university is its best source.

However, we also believe that newcomers will fail to transform the objects of classroom study into workplace practices unless they receive close attention and assistance from veteran practitioners. Every school is different from every other school; a private physiotherapy clinic is different from a hospital; a social

worker's role is different in a group home than in a foster home. Interns and new practitioners need help to recognize how the abstractions of theory, method, and law come to life in practice. Although many university professors in professional schools have experience in the field, workplace culture – especially the ethos particular to each individual workplace – is beyond their knowledge. The student or beginning professional is in survival mode, and getting through the week – or even the day – is a challenge.

Furthermore, it is clear from our conversations with first-year and second-year professionals and their supervisors that employers must acknowledge that learning-to-act is a slow process and that time must be built in to the newcomer's schedule to accommodate it, as well as into the supervisor's schedule if the newcomer is to get the support he needs. We note considerable variation in the success of the supervision for beginning professionals after graduation, at least in the professions we are studying, and in the jurisdictions where our graduates work. On a continuum of support, from extensive to non-existent, physio- and occupational-therapy are at one end, with education at the other, and social work somewhere in the middle. The physiotherapist receives close supervision throughout the first years of practice, while new teachers reported to us that they received little or no support (Le Maistre *et al.*, 2001). Unfortunately, according to our analysis, the culture of teaching encourages autonomy and non-interference (see also Feiman-Nemser, 1996):

> I think that's one of the problems with teaching, especially when you're a new teacher. It's a very isolating feeling because you're there in the classroom and you don't know who to turn to if you need help. You often find that teachers don't necessarily collaborate together on projects. They're more – it's almost like they're in competition with each other (Robin, first year teacher).

In contrast, it appears from our interviews that physiotherapy and occupational therapy – professions based on a medical model – take it for granted that the induction of newcomers is a professional responsibility:

> I do take a lot of students. It's always been part of my duty. It's part of the culture here . . . to teach and prepare students for the *marché du travail* (Adeline, occupational therapy supervisor).

If the preparation in either the university or the workplace alone is inadequate, and if supervision is inadequate, then the student and beginner would be better served by a partnership between the two stakeholders. We believe that both the university and the workplace have important roles to play in the preparation of new professionals. We identify the need for both formal, university-based education as well as for practical experience. The knowledge acquired at university acts as a principled foundation for the practical knowledge of the clinical setting, although its relevance may not be evident at the very beginning of professional practice. Practical experience provides the cultural context that, based on our belief in situated learning, we believe is necessary for the

development of professional knowledge. We have observed excellent examples of partnerships between universities and schools, hospitals, and clinics. Dependence on a partnership between the university and the workplace is really interdependence and it is beneficial to newcomers if this interdependence continues after graduation. It takes sensitivity to the differences between the two activity systems of school and work if newcomers are to be helped to move between them. We believe that both partners have roles to play in continuing the development of the newcomer, and in training and supporting the supervisors who are responsible for the newcomers in the field. The university has a role to play in training old-timers to identify and share accepted (tacit) information with newcomers. Only then can objects of study in one system become mediational means in the other.

References

Ahlstrand, E., Carlsson, G., Hartman, S.G., Magnusson, A., Nœslund, L. and Rannström, A. (1996), "Teacher Knowledge development in a social and individual context", in Kompf, M., Bond, W.R., Dworet, D. and Boak, R.T. (Eds), *Changing Research and Practice: Teachers' Professionalism, Identities and Knowledge*, Falmer Press, London, pp. 186-210.

Chaiklin, S. and Lave, J. (Eds) (1993), *Understanding Practice: Perspectives on Activity and Context*, Cambridge University Press, Cambridge.

Cole, M. and Engeström, Y. (1993), "A cultural-historical approach to distributed cognition", in Salomon, G. (Ed.), *Distributed Cognitions: Psychological and Educational Considerations*, Cambridge University Press, Cambridge, pp. 1-46.

Dias, P.X., Freedman, A., Medway, P. and Paré, A. (1999), *Worlds Apart: Writing and Acting in Academic and Workplace Contexts*, Erlbaum, Mahwah, NJ.

Elliott, J. (1991), "A model of professionalism and its implications for teacher education", *British Educational Research Journal*, Vol. 17 No. 4, pp. 309-18.

Engeström, Y. (1987), *Learning by Expanding: An Activity-Theoretical Approach to Developmental Research*, Orienta-Konsultit, Helsinki.

Engeström, Y. (1993), "Developmental studies of work as a testbench of activity theory: the case of primary care medical practice", in Chaiklin, S. and Lave, J. (Eds), *Understanding Practice: Perspectives on Activity and Context*, Cambridge University Press, Cambridge, pp. 64-103.

Eraut, M. (2000), "Non-formal learning and tacit knowledge in professional work", *British Journal of Educational Psychology*, Vol. 70, pp. 113-36.

Eraut, M. and de Boulay, B. (2000), "Developing the attributes of medical professional judgment and competence", available at: www.cogs.susx.ac.uk/users/bend/doh/reporthtmlnode4.html (accessed September 16, 2002).

Feiman-Nemser, S. (1996), "Teacher mentoring: a critical review", *ERIC Digest*, July (ERIC Document no. ED 397 060).

Lave, J. (1991), "Situated learning in communities of practice", in Resnick, L.B., Levine, J.M. and Teasley, S.D. (Eds), *Perspectives on Socially Shared Cognition*, American Psychological Association, Washington, DC, pp. 63-82.

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

Le Maistre, C. and Paré, A. (2002), "A typology of the knowledge involved in field experience in the professions", paper presented at the Universities Association for Continual Learning (UACL) Work Based Learning Network Annual Conference: Knowledge, Work and Learning, Cardiff, November.

Le Maistre, C., Boudreau, S. and Paré, A. (2001), "Mentoring the beginning teacher: assessing the support needed and provided", unpublished report to the Comité d'agrément des Programmes de Formation à l'enseignement, Montreal, available at: www.capfe.gouv.qc. ca/documents_a.htm (accessed September 2, 2003).

Paré, A. and Le Maistre, C. (2002), "Zones of development in the helping professions: physical space and its influence on knowledge-making", paper presented at the 5th International Congress of the Learning Sciences (ICLS), Seattle, WA.

Proshansky, H.M., Fabian, A.K. and Kaminoff, R. (1995), "Place identity: physical world socialization of the self", in Groat, L. (Ed.), *Giving Places Meaning*, Harcourt Brace and Company, London, pp. 87-114.

Wenger, E. (1998), *Communities of Practice: Learning, Meaning, and Identity*, Cambridge University Press, Cambridge.

Participation, reflection and integration for business and lifelong learning

Pedagogical challenges of the integrative studies programme at the University of Strathclyde Business School

Bill Johnston and Aileen Watson
University of Strathclyde, Glasgow, Scotland, UK

Abstract *This paper gives a succinct account of current debates in the literature on graduate attributes as they are related to employment and lifelong learning, and argues the limitations of a "key skills" agenda as a guide to curriculum practice. Development of a curricular innovation that addresses key skills, "integrative studies" at the Strathclyde University Business School, is described and located in a wider framework of work-related facets that extend thinking beyond key skills. Those facets include the idea of a learning organisation and the concept of student identity formation. A research-based approach to further development of the curriculum is outlined, which takes the experiences of students and the perceptions and practices of specific employers to be key influences.*

Introduction: the knowledge economy and lifelong learning

Academic and policy debate on the future of work and learning has come to be constelled around the concepts of a knowledge intensive, post-industrial economic order (Castells, 1996; Thompson and Warhurst, 1998) and the associated realignment of educational systems constituted as lifelong learning (Holford *et al.*, 1998). In this short paper we focus on the specific issue of change in graduate employment and undergraduate education, as expressed in terms of the generic skills and personal dispositions required for effective learning at work, and lifelong learning. In the UK this change agenda has been driven by state and employer demands, and is currently described in terms of "key skills". Key skills typically encompass graduate attributes that have been expressed as "generic", "personal", "core" or "transferable". They include hard areas such as "numeracy" and "information technology", and soft areas such as "communication" and "teamworking", and are proposed as essential attributes for employment.

This framing is linked to a broader concept of "personal development planning and profiling" which entails the notion that students will take a greater role in self-assessing their development needs and stages of progress. In

effect beginning to develop "reflective practice" (Schon, 1987). Allied to this is the idea that universities will legitimise such objectives as part of the degree programme, and support students with relevant teaching. In addition universities are being required to support students by making provision for detailed records of progress in these areas. This policy area is currently referred to as key skills and progress files (KSPF), and all universities are required to evidence commitment and provision (www.qaa.ac.uk). This has proved to be an influential combination of forces in renovating curriculum and the interface between educators, students and graduate employers.

This development represents a shift in the balance from an academic-led "supply" model, to an employer-led "demand" model of higher education. This in turn associates with a paradigm shift in teaching practice from a lecturer/subject emphasis, to a student learning/skill development emphasis. Drawing on experience gained from implementing a major KSPF innovation in undergraduate business education, we argue that whilst the KSPF agenda is a valid force for change it has a number of limitations. We will argue that the "key skills" rhetoric and practice, whilst significant, is an insufficient framework being too simplistic in relation to the complexity of change in organisations employing graduates. Similarly ideas of personal development planning and personal progress files (PDP/PPF) whilst potentially useful, require to be developed appropriately, to avoid mechanistic implementation. They should aid reflection and develop process and analytical skills rather simply recording events and achievements.

Key skills: supporters and critics

The "key skills" movement in the UK has developed through a sequence of initiatives driven by employers, employer organisations and government agencies, and has taken a variety of forms in universities. Typically, the rhetoric of key skills is adopted by senior university managers as a requirement of employer-friendly degree programmes, and harnessed to the remits of careers advisors, educational developers, and lecturers to generate some form of teaching innovation at course and class level (Hockley and Moore, 2001). Whilst this process has brought about significant change, it has been criticised on grounds of: relative superficiality and limited basis in research (Hyland and Johnson, 1998; Bennet *et al.*, 2000); lack of engagement with employers desire for higher order skills (Harvey *et al.*, 1997); dissonance with the critical purposes of universities and too close an ideological link to free-market thinking (Barnett, 1997).

The challenge to educators is therefore twofold, how to respond to the substantial pressures to demonstrate provision of KSPF, and how to ensure that such provision displays pedagogical coherence and academic validity. We will consider pedagogy by presenting an analytical case study of a particular innovation, the integrative core at Strathclyde University Business School, but

first we will outline some of the main themes in the relevant human resource management (HRM) literature.

Beyond key skills: learning organisations and employment identities
Within the UK, and globally, organisations are undergoing dramatic change and re-structuring. In contemporary organisations employees are encouraged to be enterprising subjects – more self-reliant, risk taking and responsible (du Gay, 1996). Lifelong Learning has been heralded as the survival tool for individuals, the economy and organisations. Within professional bodies, e.g. Chartered Institute of Personnel and Development there is an emphasis on continuing professional development where employees are expected to reflect on their practice to enable them to become "reflective practitioners" and "thinking performers" (www.cipd.co.uk). The Learning organisation (Senge, 1990) has been promoted as an ideal type for organisations where individuals are encouraged to learn and develop to their full potential, and the organisation is conceived as being in a continuous process of organisational transformation to enable it to be more competitive.

Within the organisational relationship the "psychological contract" (Makin *et al.*, 1996) has been highlighted. Typical of the rhetoric of this thinking is the proposition that the traditional "career for life" is being supplanted by the expectation of regular job and role change accompanied by continuing professional development and lifelong learning. Inherent in this model is the shift in conception from employment to employability where the education system and employers will provide you with relevant skills/knowledge for employability, but with little by way of the traditional notion of employment security (Herriot and Pemberton, 1995). The employability scenario has been accompanied by enabling concepts directed at the nature of self, and the personal attributes for success. Goleman (1998) has promoted emotional intelligence (EI), as a requisite for all future managers and purports to distinguish outstanding performers in organisations. The essential EI competencies relate to mastering the skills of self-awareness, social awareness, self-management and relationship management. The emphasis on this approach is the importance of these skills in an organisational context and translating intelligence into on-the-job capabilities for management and leadership.

Within this changing organisational context performance management is central to organisational effectiveness and the process involves reviewing and reflecting. A variety of tools/approaches may be significant in enabling a prospective employee to be successful in the workplace and critical reflection has been identified by several authors (van Woerkom *et al.*, 2002) as important in the current organisational climate. Closely linked with this definition is self-efficacy (Bandura, 1986) which focuses on the belief in one's capabilities and involves self-evaluation.

Relating these ideas to graduate recruiters, there is an expectation that graduates will obtain a 2:1 degree, and have obtained relevant work experience. In addition employers are interested in competence in communication, teamwork/collaboration, planning and organising, analytical thinking and problem solving, personal effectiveness, research, managing information, information technology, numerical interpretation (www.careers.strath.ac.uk). Researchers in this field have also shown that recruiters expect students to have developed their self-awareness and have an accurate sense of their own identity in terms of what they are seeking from employers (Stewart and Knowles, 2000).

The rise of the flexible learning organisation and the demise of the traditional career, together with the emergence of new employment identities exemplified as: the portfolio career, the intelligent career, the boundaryless career (Arthur and Rousseau, 1996) highlight the significance for future employees of planning their own "self-managed careers" (Arnold, 1997). The challenge facing students, graduates and educators is therefore much more complex than simply obtaining a standard set of "key skills". This suggests the arguably more difficult project of using research on changing career perspectives in organisations to help students form relevant employment identities which entail notions of self-awareness, self-efficacy and emotional intelligence.

From the foregoing discussion, we have selected four constructs that we regard as the most important nodes of the emerging network of relationships between work and learning. These nodes are displayed in Table I and a broad indication given of their impact on university thinking and practice in relation to graduate development.

These constructs draw on different stakeholder perspectives and whilst there is a discernible pattern of interactions between 1 and 2 which can be found enacted in courses and recruitment, 3 and 4 are more theoretical in nature and less evident as influences on practice. However we will argue that 3 and 4 require much greater involvement and that it is with these "higher order" concepts that the future lies. In the following case study we will present an expanded account of the four nodes as they might relate to aspects of a university course, specifically aimed at enhancing graduate employability.

Work and learning facets	Impact on university thinking and teaching practice
1 Key skills	Established and growing in importance
2 Personal development and progress files	Established and growing in importance
3 The learning organisation	Restricted to particular subject areas business education, and research agendas
4 Student identity formation	Restricted to particular subject areas business education, and research agendas

Table I.

Integrative studies: a case study of key skills and and identity formation for employability

The University of Strathclyde Business Faculty offers undergraduate programmes through a modular course structure. In year 1, students are required to take modules in five subjects; in years 2 and 3, two principal subjects are studied; eligible students proceed to single or joint honours in year 4.This structure tended to militate against the development of interdisciplinary awareness and a coherent approach to transferable personal skills.

Following investigation of trends in business education and internal consultation the Faculty decided to modify the structure by introducing a new credit-bearing class, integrative studies, to form a spinal core of development in both transferable skills and interdisciplinary understanding over the first three years of the degree.

In year 1 (introduced in session 1999/2000), students are required to develop over both semesters the following five post-Dearing skill areas: communication, numeracy, use of specific computer technologies, problem solving and interpersonal skills.

Compulsory integrative studies classes in years 1, 2 and 3 enable students working in inter-disciplinary teams to share and integrate the knowledge and experience gained from their Principal Subjects into the broader business context. Year 2 focuses on decision making, negotiation, leadership and entrepreneurship where interpersonal skills development is further developed. Year 3 includes research methodology/project management, strategic management and ethics. This current year (2002/2003 at time of writing) we have 460 students in year 1, 490 in years 2 and 3. The first cohort graduated in 2003. The teaching teams include staff from all the Business School departments: Accountancy and Finance, Economics, Entrepreneurship. Human Resource Management, Law, Hotel School, Management Science, Marketing additionally Computer and Information Science, and Statistics and Modelling Science.

Reflective tools have been utilised, e.g. learning diaries in year 1; and reflective reports on negotiation and leadership practical exercises in year 2. By raising awareness of critical reflective working behaviour we are encouraging "reflective practitioners" who can manage their own careers. Three educational principles have been adopted for the class: active and problem-based learning, students taking responsibility for developing understanding and lecturer as facilitator of learning.

These principles guide: policy, practice and development of the programme; use of case studies, organisational projects, and other learning experiences; and inform dialogue with employers. This pedagogy is appropriate to fuller development of the class to better meet the conceptualisation of the new graduate workforce. Comprehensive evaluation of the class is an integral part of the development and draws on a range of staff/student views. Evaluation data is circulated within the teaching team and used to modify practice in all

areas of the course design. Further discussion of integrative studies is available (Belton *et al.*, 2001).

The class has been endorsed by all the employers involved as providing the key business skills that they are seeking. Employer representatives who have observed first-year student presentations have commented very favourably on the professionalism and effective team working displayed. Throughout the three years, business leaders and entrepreneurs have contributed a welcome insight from their professional practice and experience. Additionally we have consulted with human resource managers in developing our assessment criteria for reflection elements of decision making in teams, negotiation activities and leadership role plays.

Current status: coherence and academic validity

There are challenges in motivating students where identification with principal subjects are paramount, and student "buy in" has not been totally achieved. Additionally, vertical and horizontal integration of the curriculum for integrative studies within the faculty has still to be achieved. The goal of alignment of objectives, learning design and assessment (Biggs, 1999) over the three years of the programme, is still being developed by the multi-disciplinary design and teaching team. Equally, integration across the Faculty with its traditional "silo" structure of academic disciplines related to business functions (Macfarlane and Ottewill, 2001) is still under way. It is intended that the conceptual framework and research approach outlined below will assist the teaching team in further developing the concept, design and practice of the class by providing an additional and wider frame of reference which can be translated into specific elements of learning outcome, teaching, and assessment.

The relationship of integrative studies to the forgoing discussion of KSPF, learning organisation and identity constructs can be illustrated by the matrix shown in Table II as an outline guide to the evolving direction of the programme. We portray the relationships between our four key nodes of education/employment relations, and four key elements of the class in terms of both design and experience of pedagogy, staff support, student response and employer perception.

Researching key skills: student and employer perceptions 2003

The requirement on British universities to evidence provision of KSPF by 2004/2005 is a further spur to development. Integrative studies is well placed to meet that target date by continuing to develop its curriculum and enhancing reflective practice in ways which underpin personal development planning. We are treating this as an opportunity to research the work/learning interface by exploring questions such as:

- To what extent do students prepare throughout their University career for their futures?

Work and learning Learning facets related to work: policy, education and HRM literature	Pedagogy: as the aims, design of teaching; the learning process	Integrative studies (2002/2003)		
		Staff support: degree of buy-in and involvement	Student response: degree of buy-in and involvement	Employer perception: rhetoric and reality
1. Key Skills concept	Present and developing	Present and developing	Present and needs motivating. Influenced by silo thinking/task orientation	Present and explicit
2. PDP/PDF	Implementing 2003/2004	Partial and needs discussion	Under investigation	Aspect of recruitment and HRM
3. Learning org. context	Latent	Latent, may reside more in HRM silo	Unknown	Present in literature but variable in practice
4. Identity formation concept: EI; self-awareness	Not present but with potential	Potential and needs theorising and development of reflection	Under investigation	Unknown but may be expressed as "higher order skills"

Table II.

· What are students' perceptions of what employers want?

· To what extent do we provide students with the relevant experiences and tools?

· To what extent do we challenge and encourage critical thinking and reflection?

Our approach is twofold, focus groups with honours students from the cohort which has experienced all three years of integrative studies, and interviews with a number of local graduate employers.

Focus groups with final year students (2003)

The objectives were to identify students perceptions of what skills graduate employers were seeking, to evaluate students understanding of which skills they had acquired throughout their period of four years of study at university and, specifically, to seek to evaluate the role of integrative studies in the development of skills, behaviours and reflection tools which could assist in self-assessment and self-efficacy. Additionally, we sought to identify whether there was evidence of a planned approach to career decision making. The majority of students had a clear understanding of what employers were looking for, i.e. team working skills, leadership, drive, enthusiasm, self-reliance, motivation and analytical skills. It was also recognised that a range of behavioural and experiential examples were required within a competency framework when completing application forms and that this was a complex and time consuming activity. Whilst this is consistent with the key skills language it was apparent that the whole activity was challenging and leading to reappraisal of their skills and competencies.

However, a theme which emerges across several focus groups can be expressed by a strong sense that employers demands were unrealistically high, they were seeking "superhumans" which tended to be related to attributes such as leadership, creativity, vision, personal drive and relevant work experience. There was a tendency to respond to these demands by exaggerating their abilities and experiences. Others felt a sense of powerless and inability to provide suitable evidence to meet these high levels of employer expectations, in some cases they withdrew from the exercise until they could acquire relevant experience unable to compete at this stage. Whilst this is understandable given the pressures of final year none the less it suggests that there was a lack of engagement with self-assessment and deeper reflection of self-awareness throughout degree studies.

Working with employers (2003/2004)

We are working with major graduate recruiters, e.g. IBM, Scottish Power, Standard Life, Royal Bank of Scotland and conducting interviews with graduate selectors. At this early stage our research has involved analysis of recruitment and selection policies and practices and performance management

systems as provided in company documentation. In the next semester we will extend our contacts to include small and medium enterprises (SMEs), which are a significant contributor to the Scottish economy and recruiter of graduates. Our aim is to develop this research to provide a finer grain of understanding, and to further involve colleagues in the business community in the integrative studies curriculum. Ideally, we will be able to align key skills and personal development work more closely and critically with employer perceptions and practices, and also to involve business people more directly in the teaching practice of the classes.

Conclusions

We have attempted to give a succinct account of current debates in the literature on graduate attributes as they are related to employment and lifelong learning, and to express our sense of the limitations of a "key skills" agenda as a guide to curriculum practice. We have described in some detail the development of a particular curricular innovation, "integrative studies" at the Strathclyde University Business School, which addresses key skills, and we have attempted to locate the current state of its development in a wider framework of work related facets. Those facets including the idea of a learning organisation and the concept of student identity formation as extensions of the debate on the relationship between undergraduate learning, career planning, graduate employment and lifelong learning. We have also outlined a research-based approach to further development of the curriculum which takes the experiences of students and the perceptions and practices of particular employers to be key influences, and actively solicits and analyses that material.

As we have indicated above there are still pedagogical challenges to be overcome in developing integrative studies, and this is the ongoing task of the multidisciplinary team within the Business School. Perhaps the key challenge lies in permeating the course with a more complex set of learning outcomes than that outlined by the KSPF agenda. The major task will be to engage staff and students in that project and enhancing our links with employers. By these means we hope to implement the thinking behind our argument for a more complex experience than that offered by KSPF.

References

Arnold, J. (1997), *Managing Careers in the 21st Century*, Paul Chapman Publishing, London.

Arthur, M.B. and Rousseau, D.M. (1996), *The Boundaryless Career*, Oxford University Press, Oxford.

Bandura, A. (1986), *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice-Hall, Englewood Cliff, NJ.

Barnett, R. (1997), *Higher Education: A Critical Business*, Open University Press, London.

Belton, V., Johnston, B. and Walls, L. (2001), "Developing key skills at Strathclyde Business School through the integrative core", in Hockley, J. and Moore, I. (Eds), *Innovations in Teaching Business and Management*, SEDA paper 11, pp. 75-86.

Bennet, N., Dunne, E. and Carre, C. (2000), *Skills Development in Higher Education and Employment*, SRHE and Open University Press, Buckingham.

Biggs, J. (1999), *Teaching for Quality Learning at University*, SRHE and Open University Press, Buckingham.

Castells, M. (1996), *The Rise of the Network Society*, Blackwell, Oxford.

du Gay, P. (1996), *Consumption and Identity at Work*, Sage, London.

Goleman, D. (1998), *Working with Emotional Intelligence*, Bloomsbury, London.

Harvey, L., Moon, S. and Geall, V. (1997), *Graduates' Work: Organisational Change and Students' Attributes*, Centre for Research into Quality, Birmingham.

Herriot, P. and Pemberton, C. (1995), *New Deals: The Revolution in Managerial Careers*, Wiley, Chichester.

Hockley, J. and Moore, I. (Eds) (2001), *Innovations in Teaching Business and Management*, SEDA paper 11, pp. 75-86.

Holford, J., Jarvis, P. and Griffin, C. (1998), *International Perspectives on Lifelong Learning*, Kogan Page, London.

Hyland, T. and Johnson, S. (1998), "Of cabbages and key skills: exploding the mythology of core transferable skills in post-school education", *Journal of Further and Higher Education*, Vol. 22 No. 2, pp. 163-72.

Macfarlane, B. and Ottewill, R. (2001), *Effective Learning and Teaching in Business and Management*, Kogan Page, London.

Makin, P., Cooper, C. and Cox, C. (1996), *Organisations and the Psychological Contract*, British Psychological Society, Leicester.

Schon, D. (1987), *Educating the Reflective Practitioner*, Jossey-Bass, San Francisco, CA.

Senge, P.M. (1990), *The Fifth Discipline: The Art and Practice of the Learning Organisation*, Doubleday, New York, NY.

Stewart, J. and Knowles, V. (2000), "Graduate recruitment and selection: implications for HE, graduates and small business recruiters", *Career Development International*, Vol. 5 No. 2, pp. 65-80.

Thompson, P. and Warhurst, C. (1998), *Workplaces of the Future*, Macmillan Business, London.

van Woerkom, M., Nijhof, W.J. and Nieuwenhuis, L.F.M. (2002), "Critical reflective working behaviour: a survey research", *Journal of European Industrial Training*, Vol. 26 No. 8, pp. 375-83.

Recognition of tacit skills and knowledge
Sustaining learning outcomes in workplace environments

Karen Evans and Natasha Kersh

*School of Lifelong Education and International Development,
Institute of Education, University of London, London, UK*

Abstract *The part played by tacit skills and knowledge in work performance is well recognised but not well understood. These implicit or hidden dimensions of knowledge and skill are key elements of "mastery", which experienced workers draw upon in everyday activities and continuously expand in tackling new or unexpected situations. This paper, based on the ESRC Teaching and Learning Research Network on Workplace Learning, argues that it is important to understand better how tacit forms of key competences can contribute to sustaining learning outcomes in different types of learning environments.*

Introduction

The importance of the workplace as a type of a learning environment has been emphasised in a number of recent research publications (e.g. Harris *et al.*, 2001; Billett, 2002). A shift in emphasis away from institutionalised learning to workplace learning has been the key reform initiative in the last decade (Harris *et al.*, 2001, p. 263). We argue that workplace environments may be experienced by adult learners/employees either as restrictive (or non-stimulating) or expansive (or stimulating). In respect of workplace learning in modern apprenticeships, Fuller and Unwin (2003) have shown that workplaces may be placed along a continuum which extends from restrictive to expansive, according to the ways in which their features (including culture, business goals and external pressures) combine to create environments which develop and expand (or restrict) the development of expertise. In assessing the applicability of this concept to the experiences of adults re-entering the workplace, we interpret the expansive workplace environment as one that is stimulating for adult workers as well as young people, and ask how far this expansiveness is related to recognition and development of skills.

Our data indicate that for adult learners the expansive or stimulating workplace environment is associated with recognition and development of tacit skills and opportunities to engage in learning, either formal or

Journal of Workplace Learning
Vol. 16 No. 1/2, 2004
pp. 63-74
© Emerald Group Publishing Limited
1366-5626
DOI 10.1108/13665620410521521

informal. Hodkinson *et al.* (2003) argue that all (or almost all) workplace learning situations contain attributes of formality and informality that are interrelated in different ways in different situations or settings. A qualitative analysis by Harris *et al.* (2001) found that employers offered learning opportunities through a variety of strategies within non-formal learning settings such as staying with the employees on site, building on the closeness with them, encouraging them to think for themselves and try their own approaches before asking for help, adding explanation where appropriate or giving direct instructions.

The idea of individuals being able to transfer skills and competences between jobs in the interests of "flexibility" came to the fore as an instrument of "lifelong learning" policy. Key skills have been described as generic transferable skills that contribute to individual effectiveness, flexibility and adaptability within the labour market (Kelly, 2001). Our data confirm that harnessing tacit forms of these skills and competences into environments experienced as stimulating or expansive contributes to sustaining learning outcomes and further development of skills and competences. In discussing the issue: expansive versus restrictive, we argue that an environment experienced as expansive is characterised both by recognition of employees' skills and abilities and opportunities for workplace training and career development. Another point to be taken into account is that employees may assist in creating an expansive environment for themselves in the first instance by taking more initiative end engaging in various kinds of workplace activities.

We argue that it may be more helpful to regard tacit skills as partly structural and partly "referential" (i.e. referenced to context), recognising that people do take things with them into new jobs and occupations, but not in simple ways. Naïve mappings of key skills from one environment into another are not a basis for occupational mobility. Even "near" transfer into related activities is far from simple, leading to the recognition by activity theorists such as Engestrom (1994) that it is whole activity systems which count. For people with interrupted occupational biographies, this presents particular problems, particularly when they have spent extended periods away from the workplace and often have little belief or confidence in their previous skills. Their feeling of being completely deskilled can be seen as a lived reality, not as lack of the personal attribute called "confidence". Our early research (Evans *et al.*, 2002) confirmed that naïve mapping of "key skills" between environments does not work. The tacit dimensions, including attributes of creativity, sensitivity and emotional intelligence, often go unrecognised or are taken for granted.

Data collection and analysis
To uncover the tacit skills of adults re-entering their workplaces we have interviewed 60 people studying at six different colleges within and just outside

London, to elicit a wide range of tacit skills by asking adult learners about their life and work experiences and to relate these to their learning outcomes and achievements. The research participants have been selected from particular learning programmes, in order that their responses can be related specific learning experiences, including tutor observations and recordings of learning processes and achievements. Self-completion questionnaires are being completed by a sub-sample, giving responses against a set of fixed indicators of skill development and use. The second stage of research involves, with the agreement of the adult learners, tracking them into their workplaces and reviewing with them what they have gained from their learning and how this is built upon after they move into new working environments. Responses from interviewees are being analysed with the assistance of new qualitative analysis software programs[1].

Deployment, acquisition and recognition of tacit skills

Our interview data support the view that adults re-entering the workplace after completing their college programmes have previously acquired personal skills from various experiences such as work experience, formal education, various life experiences (e.g. running of households, bringing up children, travel, etc.) or unidentified experiences. We have shown that although many valuable skills are acquired through the workplace and formal education, considerable learning also results from a range of life experiences, in home and family settings, engaging in volunteer activities and overcoming various setbacks in life (see Evans *et al.*, forthcoming). Such skills are often tacit in nature and become codifiable only through their deployment or recognition in a relevant context or environment. Our findings also show that males and females perceive their tacit skills differently. Females really value their skills acquired as a result of household experience, although they claim that such skills are not recognised by the job market. Males tend to disregard skills gained outside of formal learning while attaching importance to "formally acquired" skills.

The interrelationship between recognition of tacit skills, learning processes, gains and outcomes is well illustrated by our learning episodes or specific case studies of the tutors'/learners' perspectives on the learning. The learning episodes allowed us to triangulate learners' accounts, considering them within their own perspectives, their tutors' perspectives and in the context of their official grades. Such an approach allowed us to gain insight into specific aspects of an individual learner's case study, comparing both learners' and tutors' perspectives on the learners' gains and outcomes. Evidence from the learning episode interviews and discussions supports the view that there is a strong connection between recognition of tacit skills (by tutors and learners themselves) and learning gains and outcomes

In the course of our learning episodes we attempted to draw on those factors that make this connection visible. In other words we tried to identify how (or if) both students and tutors contribute to the process of the

recognition of tacit skills in order to facilitate and improve students' learning success. Our findings show that the starting point of this process is that of awareness and self-awareness of students' hidden abilities or tacit skills by tutors and students themselves. This contributes to further deployment and recognition of these skills in a learning environment. A learning episode of Julia, for example, shows that from the very beginning of her course her tutor, Jason, thought it very important to identify her prior skills and to make use of these skills in the setting of the course. The initial test scores provided the "preliminary" source of information about her skills, such as math skills or language skills. However, as noted by the tutor, a number of important hidden skills could become more explicit through employing different methods. He argues that specific activities on the course, such as teamwork for example, helped to make her tacit skills more explicit. He also maintains that teamwork was very important in her case for self-awareness and self-recognition of her own skills. Being a full-time mother for twelve years, Julia was not confident enough about her own skills. In order to boost her confidence, her tutor encouraged her to collaborate and help other students in the areas where he thought her skills were quite strong:

> Yes, we certainly utilised them [her skills]. On the course we work fairly collaboratively, so she was at times working with other students who were having difficulties with particular things and we'd go into a huddle; so we'd work in that way, that everybody helps everyone in areas where they're strong and someone else might be weak, and vice versa.

Julia, herself, admitted that helping her fellow-students "made her feel good", as for her that meant that her skills were being valued or recognised by someone else. As a result she felt motivated to use her skills and to develop them further. She also claims that recognition of her skills by her tutor encouraged her to "work hard" on her course and, consequently, to improve her final test scores. Another of our learning episodes, the case of Helen, stressed similar issues, in particular, that of improving learning success through recognition and awareness of tacit skills. However, our data indicates that, in every single case, different methods need to be employed in order to make tacit skills more explicit. What is successful in one case may not be very successful in another case, but success is generally associated with a relational emphasis in the learning and teaching approaches used. For example, in Helen's case, one-to-one tutorial help was the method employed by the tutor in order to identify and make her skills "more visible" in the context of the course. Helen said that the fact that her tutor spent some time helping her encouraged her a lot.

Unlike Julia's and Helen's learning episodes (see above) the case of Fiona, our third leaning episode was, not so much about making her aware of her own skills but about giving her plenty of opportunities to demonstrate her skills and make them visible to others. Fiona has been assigned to take her practical work placement in the Business Centre of one of the colleges of further education in London. When Fiona joined the centre she could not fully deploy her personal

and professional skills, as her command of English was poor at that time. As Ann, a co-coordinator who supervised Fiona, notes:

> I think she had it in shed loads [her skills and competences]. She had lots of it. And what she needed, because her English was so poor, what she needed was the opportunity to demonstrate it, and of course it's difficult to demonstrate when people can see that your language communication skills are weak.

Ann stresses that "pushing her" her into deployment and demonstration of her skills was the most important method that facilitated Fiona's learning success. Apart from this, it also provided her with the opportunities to use it and to improve her understanding of the English language, including office language, i.e. the vocabulary of paper clips and staplers, etc. Ann stresses that it was extremely important to make Fiona aware of the fact that her skills and competences were noted and recognised and were not being "overlooked" because of her language problems. Delegating specific responsibilities to her, asking her to take part in a range of activities and encouraging her to take her own initiative were some of the methods Ann employed to make Fiona's skills visible to as many people in the office as possible.

Our primary evidence from initial interviews shows that tacit skills acquisition, deployment and recognition heightens self assurance where learning experiences have been positive or have involved overcoming setbacks and obstacles with positive outcomes. Learning outcomes is a complex concept that has both "formal" and "informal" dimensions.

Evidence from follow-up interviews supports that view that students' attitudes towards "formal" and "informal" learning outcomes change as they move between roles, settings and learning and working environments. The interview data show that at the beginning of their courses, adult students consider a "formal outcome" – qualification or diploma – to be the most important learning result they expect from their course. Informal learning outcomes are often tacit in nature; thus, adult learners do not necessarily recognize that they have gained anything valuable. However, as they are progressing in their course and moving into expansive learning environments (see below), they are beginning to recognize the value of "informal" learning outcomes that are associated with self-assurance, increased capability, improved attainment, greater ability to exercise control over their situations and environments, and development of new attitudes towards learning/working.

Our data from follow-up interviews allowed us to trace former students into their workplaces/places of further study or so-called "forced situation", which in the context of our research means that they were either not able to find a job at all or were doing a job they did not like. Both initial and follow-up interviews enabled us to draw on differences between six participating colleges in the context of their former students' successful/unsuccessful work re-entry. Our main finding was that the most successful work re-entry rate was from the college that combined theoretical studies with practical work placement. Adult

learners taking part in the Business Studies Course were required to spend several months at a job placement in a real office environment. They maintained that the practical skills they acquired while studying proved to be very useful. The fact that they gained some practical experience also made a favourable impression on their prospective employers at job interviews.

Tacit skills in the workplace: expansive versus restrictive environment

Our research shows that recognition and deployment of tacit skills in the workplace facilitates further learning outcomes. Follow-up interviews help us to analyse ways in which tacit skills may help to sustain learning outcomes in new learning and working environments. The main question we address is how tacit skills have been deployed in learning situations at work and how they facilitate learning processes and gains. We argue that there are strong links between tacit skills, learning outcomes and workplace environment. Our interview data indicate that employees' learning success at work is strongly influenced by how they experience or describe their working environments. In particular we identify the working environments, which are experienced as expansive or restrictive by adults re-entering the workplace after their college programmes. An expansive workplace environment is positive, facilitating further development and deployment of skills whereas restrictive refers to negative workplace settings that do not encourage further professional training or development of new skills. Another feature of a restrictive environment is isolation at work when employees have a feeling that they are outsiders or mere observers. Conversely, expansive workplace settings are often associated with the feeling of being a part of a team at a workplace. Our evidence shows that the way adults experience their working environments depends on the following factors: whether they describe their working environment as stimulating or dull; whether they feel that their tacit skills are fully recognised by their employers; and whether they have opportunities for further training, skills acquisition and career development at their workplace. All these factors are interrelated and influenced by each other. Our follow-up interviews indicated that an expansive environment is usually described as "challenging", "interesting", "stimulating" or "motivational". Employees experience their working environments as expansive if they feel that their tacit skills are recognised by their employers or supervisors and especially if they are encouraged to deploy their skills. On the contrary, a restrictive workplace environment is usually perceived as "boring", "non-challenging", "repetitive" or "monotonous". An interview with Stephanie for example shows that she experiences her workplace environment as dull or boring, not allowing for her personal and professional development. She argues that the general negative environment at her workplace makes her feel "a part of the furniture". A similar experience is shared by Irene, who works as an administrative assistant in a small company. She emphasises that her responsibilities are very limited and

not clearly defined and there are not many opportunities to deploy or develop her skills. Conversely, for those adults who describe their workplace as stimulating or expansive both recognition and deployment of tacit skills plays an important part in facilitating such a positive environment.

What is more employees can actually support their expansive workplace environment by taking initiative in many matters such as asking about opportunities for their further training or career development or even suggesting possible opportunities, learning from their colleagues or contributing to the planning, organising and conducting of various workplace activities. The interviews with both Diana and Mary show that they were very enthusiastic about undertaking further learning while doing their current jobs. Both of them took the initiative and convinced their employers that it would be very beneficial if they could undertake a college course in the field of management. As a result they were allowed to do this and their employers paid for their courses.

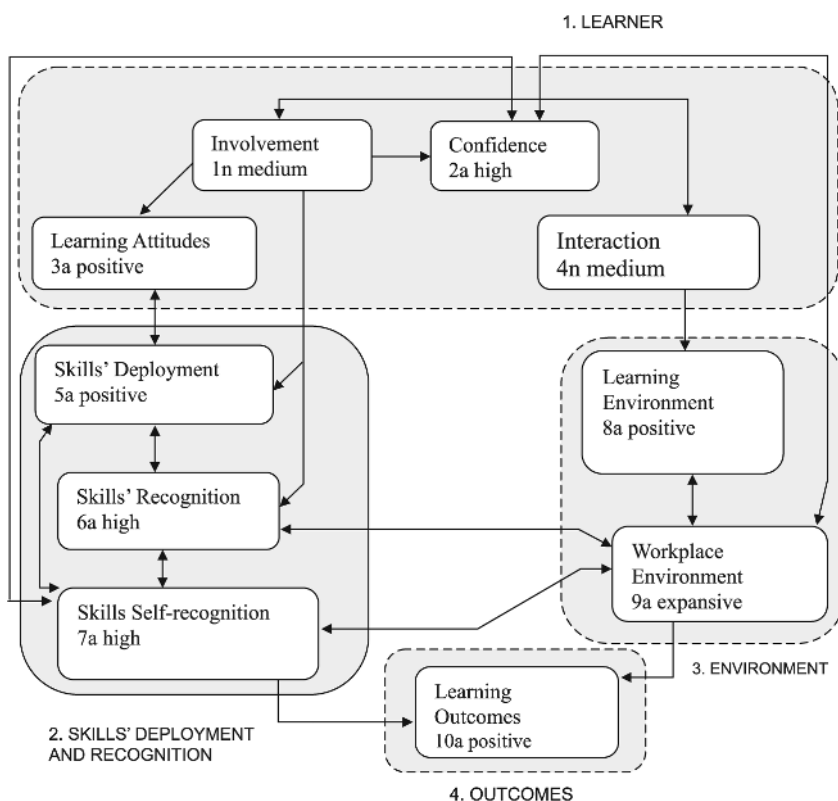## Modelling of learning processes at work: individual case studies

Modelling of learning processes for learners with interrupted occupational and learning careers can identify ways in which recognition and deployment of tacit skills enhances learning experiences and outcomes as learners move between college and workplace settings, a primary goal of this research. The modelling approach being used, dynamic concept analysis (DCA), provides scope for interventions to be identified systematically (Kontiainen, 2002). It enables us to analyse data using conceptual models based on information about concept relations in adult learning including workplace learning. We attempt to analyse how learning processes could be understood in the context of interrelationships between various aspects of learning. The models of learning produced within this study are used only as researchers' tool to provide a better understanding of individual case studies in the general framework of adult learning. The components of workplace learning[2] are divided among four main areas or categories, namely learner; skills deployment and recognition, workplace environment and outcomes. Two examples below will demonstrate the potential of this programme for better understanding of learning process at the workplace[3].

Case 1. Ahmet's case

Personal background

Ahmet works as an overnight porter in a big hotel in London. He came to England from Morocco several years ago. Since then his experiences have included doing short-term jobs such as sandwich making, catering and cleaning. At the time of the initial interview he was participating in a "pre-employment" training programme offered by one of the colleges of further education because as he said he wanted to "do something different and to acquire new experience". This programme involves an intensive training programme in math, English and application form and interview techniques for adults wishing to apply for the

position of station assistant with a major London transport provider. Those who successfully pass a test at the end of the programme are offered a job interview. Ahmet had passed the test and been invited for a job interview. However, he was not successful with the interview and did not get that job. This has not affected his confidence or self-assurance. He is very motivated towards learning, taking various courses in colleges of further education as well as participating in workplace training. He mentions that employees are able to undertake regular workplace training in health and safety as well as fire training. What is more, his manager has offered him one-to-one training in order to develop his computer skills as well as customer service skills. The purpose of this training is to promote Ahmet to a position as a receptionist in this hotel. He is clearly enthusiastic about his workplace learning as well as about good prospects for his career development in the hotel. He notes that he is especially encouraged by the fact that his manager recognises and values his personal or tacit skills such as communication skills, confidence, customer care skills and foreign language skills. All these factors motivate him towards further workplace learning. Ahmet's cae (model 1) is shown in Figure 1.

Figure 1.
Model 1: Ahmet's case

Modelling of learning processes at work: Ahmets's case (model 1)
Learner (1n, 2a, 3a, 4n). Ahmet is confident within his workplace environment (2a). His involvement is medium (1n) as he is not necessarily very independent and autonomous, as he prefers to rely on his manager's advice and instructions. However, this "dependency" has resulted in skills recognition and deployment (5a, 6a) as Ahmet's manager provides one-to-one workplace training for him with the purpose of giving him more responsibilities within the workplace. His learning attitudes are extremely positive (3a) and he uses any opportunity offered by his employers to learn new skills and competencies at his workplace. However, his social interaction with other colleagues within the workplace is not very strong, thus reducing his involvement (1n, 4n).

Skills deployment and recognition (5a, 6a, 7a). Ahmet feels that his skills are fully recognised by his employers and this encourages him to deploy them at the workplace (5a, 6a). Recognition of his skills by his employers also leads to self-recognition of his own skills and competences (6a, 7a):

> I can feel it, they [employers] always mention my name and I've got so many certificates, the guests also mention my name. That's how I know myself I'm doing a proper job. Plus, I am a nominated "employee of the month", so you feel you are respected by the other staff.

Skills recognition and deployment is also facilitated by his positive learning attitudes and expansive workplace environment (3a, 9a).

Workplace/learning environment (8a, 9a). Ahmet experiences his workplace environment as an expansive one, providing opportunities for further training and professional development (8a, 9a). Recognition of his personal tacit skills and opportunities to deploy them contributed greatly to his perception of the workplace environment as expansive (6a, 7a).

Outcomes (10a). Stimulating workplace environment (9a) and skills self-recognition (7a) contributed to the development of position informal outcomes. Ahmet feels that these factors helped further to develop his confidence and self-assurance.

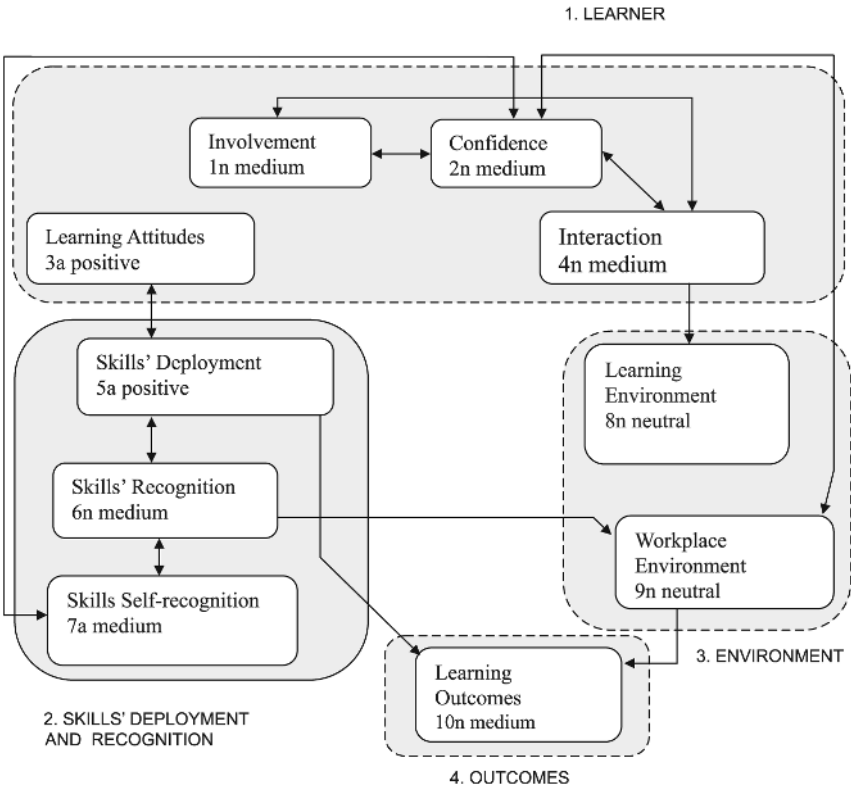## Case 2. Tracey's case
Personal background
Tracey is a separated mother with seven children. Because of her family commitments it was difficult for her to obtain a qualification or to develop her career early in her life. Her previous work experiences included working in the office of a scaffolding company for two years. She left her job to start a family and stayed at home for 15 years. She decided to return to studying when her youngest children started full-time schooling. Because she wanted to work in administration she started taking a range of courses to develop her administrative skills, such as "introduction to computers", "introduction to word-processing and spreadsheets". At the time of the initial interview she was close to completion of her course in business administration GNVQ level 2 in a college of further education. She also undertook a work placement in a major

police department as a part of her college training. At the end of her work placement, she was offered a full-time job by the Metropolitan Police Department. Tracey's case (model 2) is shown in Figure 2.

Modelling of learning processes at work: Tracey's case (model 2)

Learner (1n, 2n, 3a, 4n). Tracey does not personally involve herself very strongly in learning activities at the workplace (1n) and her interaction is not high (4n). She is not confident enough to take the initiative or to interact more actively in workplace (2n, 1n). However, her learning attitudes are positive (3a); when her employers offer her the chance to undertake further training she gladly accepts. She claims that her participating in further workplace training enabled her to use and deploy her tacit skills (5a) such as communication and time-management.

Skills deployment and recognition (5a, 6n, 7n). Tracey maintains that she is able to deploy her personal skills at her workplace (5a). This facilitates further development of her skills and strengthens her learning outcomes (10n). However, she does not feel that her skills are fully recognised (6n). This contributed to her medium levels of confidence (2n). The fact that her skills are

Figure 2.
Model 2: Tracey's case

not fully recognised by her employers also contributes to medium self-recognition of her own skills (7n).

Workplace/learning environment (8n, 9n). Tracey experiences the general learning environment at her workplace as neutral. She maintains that this is mainly due to the fact that she does not feel that her skills are fully recognised by her employers.

Outcomes (10n). Tracey maintains that she developed medium learning outcomes, especially with respect to further development of her personal skills. This mainly resulted from her positive learning attitudes (3a) as well as taking place through her skills deployment (5a).

Conclusions

In this paper we have attempted to describe and analyse the way in which recognition and deployment of tacit skills may sustain learning outcomes and facilitate expansive workplace environments. Tacit skills development is non-linear, and that the use of tacit skills is situation-specific: tacit skills may lead to success in one context but necessary in another. Our primary evidence from the interviews we conducted shows that skills gained from various life experiences such as household experience, bringing up children, community activities or travel could be deployed and developed in both college and workplace settings. The acquisition of these skills is often tacit in nature and therefore individuals do not necessarily recognise that they have gained anything valuable. However, our data show that these previously acquired skills often become a central part of a learning process when they are deployed and developed in new learning and workplace environments. What is more, if these skills are being deployed and subsequently recognised by employers, they can actually contribute to the development of an expansive workplace environment. In other words, the recognition of tacit skills contributes to their transformation from the tacit to the explicit dimension, thus facilitating positive learning outcomes for adult learners, such as those associated with self-assurance, increased capability for improved attainment and greater abilities to exercise control over their situations and environments.

The DCA method enabled us to analyse data using conceptual models. This method enables us to undertake a systematic description of cases/situations and provides a basis for further analysis. Modelling of learning processes for learners/employees can help us to identify ways in which recognition and deployment of tacit skills enhances learning experiences and outcomes by clarifying interrelationships between various aspects of learning and skills recognition. This paper has aimed to show how adults' occupational and learning biographies can be understood in ways which more systematically address the importance of tacit skills recognition and deployment, and the potential of dynamic concept analysis for modelling these processes as a basis for future interventions at the level of practice.

Notes

1. We are using "NVivo". We are also modelling our data through the dynamic concept analysis (DCA) computer program (Kontiainen, 2002), which assists in the analysis of data using conceptual models based on information about concept relations in adult learning.

2. We consider the following concepts (or variables): involvement; confidence; autonomy; skills recognition; skills deployment; learning environment; learning attitudes; interaction; learning outcomes; and workplace environment. Each variable has three attributes: a (positive, high or strong); n (medium or neutral); and b (negative or low).

3. An information matrix stores the concepts and provides a basis for further building of models to describe the learning processes in individual case studies. The models show which of the qualities (or attributes) describe a single case study and specifies relationships between the concepts. Owing to the limited space here we could not explain all of the interrelationships among the concepts within a model. We attempted to draw on those concepts and relationships, which are considered to be of primary importance in a particular case study. The models provide a tool to help us as researchers to describe a single case.

References

Billett, S. (2002), "Critiquing workplace learning discourses: participation and continuity at work", *Studies in the Education of Adults*, Vol. 34 No. 1, pp. 56-67.

Engestrom, Y. (1994), *Training for Change: New Approach to Instruction and Learning in Working Life*, International Labour Office, Geneva.

Evans, K., Hodkinson, P. and Unwin, L. (2002), *Working to Learn: Transforming Learning in the Workplace*, Kogan Page, London.

Evans, K., Kersh, N. and Sakamoto, A. (forthcoming), "Learner biographies: exploring tacit dimensions of knowledge and skills", in Rainbird, H., Munro, A. and Fuller, A. (Eds), *Workplace Learning in Context*, Routledge, London.

Fuller, A. and Unwin, L. (2003), "Learning as apprentices in the contemporary UK workplace: creating and managing expansive and restrictive participation", *Journal of Education and Work*, Vol. 16 No. 4.

Harris, R., Willis, P., Simmons, M. and Collins, E. (2001), "The relative contributions of institutional and workplaces learning environments: an analysis of apprenticeship training", *Journal of Vocational Education and Training*, Vol. 53 No. 2, pp. 263-78.

Hodkinson, P., Colley, H. and Malcolm, J. (2003), "The interrelationships between informal and forma learning", paper presented at the Researching Learning Outside the Academy Conference, Glasgow Caledonian University, Glasgow, 27-29 June.

Kelly, A. (2001), "The evolution of key skills: towards a Tawney paradigm", *Journal of Vocational Education and Training*, Vol. 53 No. 1, pp. 21-35.

Kontiainen, S. (2002), *Dynamic Concepts Analysis (DCA): Integrating Information in Conceptual Models*, Helsinki University Press, Helsinki (book and a computer program available at: www.edu.helsinki.fi/DCA/).

Learning for/at work: Somali women "doing it for themselves"

Gayle Morris and David Beckett

University of Melbourne, Melbourne, Australia

Abstract *This article draws on the understanding of the lives and experiences of two Somali women, as case studies, to examine the relationship between identity, work and language learning. It begins with a brief discussion of embodied knowledge, with a view to exploring how "know how" intersects with literacy and identity. The article then moves to the two case studies to illustrate how certain experiences of work, and of seeking work, embody vital knowledge. The article concludes by considering how this practical embodied knowledge can be confirmed and harnessed to enrich adults' learning for the workplace.*

Introduction

In a forthcoming publication (Morris and Beckett, 2004), we argue that self-hood ("identity") grows out of certain adults' everyday enactments through a model of learning, which is based in practical, performative, material (embodied) actions-in-context. Learning of the kind examined in the fieldwork, suggests an educational model – which may be helpful in identifying a multiplicity of learning opportunities beyond the traditional school-dominated ("front-end") model of learning.

In this paper, we draw on the understanding of the lives and experiences of two Somali women, as case studies, to examine further the relationship between identity, work and language learning, showing in particular how the construction of identity in the home and at school, intersects with the construction of identity, in another site, the workplace. Whilst there is a keen interest in the formation of adult identity through education, we argue that this is more significant when this formation is regarded as a self-construction of identity. By this we mean adults' intentionality, articulated through embodied action, including, but not reducible to speech actions.

What these women share is a clear, articulated desire for work and/or continued learning, and all are agentive, that is, they act with intentionality, articulated through embodied actions. Yet, their experience of formal learning in an adult English as a second language (ESL) literacy classroom, would suggest that their substantial cognitive, social, affective and physical understandings, skills and knowledges (and therefore their needs) are often under recognised by well-meaning teachers. Our claim is that these women already possess well-formed understandings of the workplace and of their position in the Australian labour market (expressed as "know how"), but that

these understandings are coupled with a strong desire to improve their employability. What is at issue is the construction of their identities as learners and as workers by the pedagogies inherent in a traditional adult literacy classroom, and the extent to which these identities are contested by the women themselves.

We begin with a brief discussion of embodied knowledge, with a view to exploring how "know how" intersects with literacy and identity. In particular the paper draws on the growing body of work that details the uses, meaning and tactics of literacy in day-to-day life to argue that there is a gap between the lived experience and the way that literacy (and particular kinds of bodies) becomes framed with educational practice. We then move to the two case studies to illustrate how certain experiences of work and of seeking work, embody vital knowledge. We conclude by considering how this knowledge can be confirmed and harnessed to enrich the teaching and learning context.

Embodied knowledge

In our previous work (Beckett and Morris, 2001), we argued for the body – and not merely discourse – as a site of worthwhile knowledge. It is worth summarising that argument here, drawing on our earlier work.

Attention to embodied performance has not been prominent in literacy or ESL research; rather analyses increasingly informed by the work of critical discourse analysis and post structuralism, have regarded the subject as merely an effect of discourse. We argued that discourse-driven analysis of adult learners (and work) are problematic, they are reductive, in that "conscious action" (the conative) is minimised or ignored, and, related to that, their actual experience (the social and the affective) are similarly minimised or ignored. It was suggested that discourse theory often downplays agency and context and may indeed be implicated in perpetuating the passivity and non-agency of the adults learning. There is resonance with O'Loughlin's (1998, p. 290) analysis, that in many recent "postmodern" accounts "discourse is employed as a kind of one way process in which, discourses construct subjects and in which bodies are 'normalised' though discursive intervention, such that the bodies can no longer speak or have their experiences heard or interpreted". Hager (1999, p. 67) nails home the point:

> It is not enough to simply assert that this discourse creates the objects of which it appears to speak. What is needed is some convincing demonstration that this languaging and being languaged is a sufficient account of the variety and depth of our encounters with the world around us.

Anything less fails to attend to something that is much more complex in practice. Although beyond the scope of this paper to develop fully, notions of literacy appear grounded in an understanding of language and culture fundamentally as "representation" as opposed to "being-in-the-world" (Csordas, 1994). Perhaps it is because in language educators and researchers have

primarily dealt with the world at the level of signification not with the material objects themselves. Yet, the two are mutually imbricated. As Crossley suggests, in his analysis of Merleau-Ponty's work on perception, "discourse itself is a fleshy process ... they belong to each other as do legs and walking" (Crossley, 1995, p. 51).

These considerations present varied implications for adults' learning at and for work. We will show how self-hood ("identity") grows out of certain adults' embodied discourse, and to do this we will try to pin down the "know how" (Beckett and Hager, 2002) which the Somali women bring not just to the adult literacy classroom, but to their lives in general.

"Know how" and adult literacy

The importance of the kind of "know how" displayed by Hawa and Asha needs to be seen against the back drop of "what counts" in their formal classroom setting. After all, pedagogy emerges out of the interplay among conceptions of knowledge, conceptions of identity and conceptions of social order (Greene, 1993, p. 216). Coming to know or understand something has typically been an achievement brought about by form, abstract and immaterial means, for example that which resides in individual minds (not bodies), that which can be expressed verbally and written down and where successful learning or understanding can be inferred from behaviour.

From our immediate perspective, the main problem is that Hawa's and Asha's teachers privilege these at the expense of other forms of knowledge and modes of meaning-making. and in doing so displace other kinds of knowledge. This is particularly significant for adult learners like Hawa and Asha, with no previous formal schooling or literacy in Somali or English, not least because they employ a wide range of multi-modal means of engagement with the world, but also they perform difficult tasks requiring abstraction, transferral and spatial cognition which are either ignored or misrecognised in the formal classroom context.

Hamilton (2002, p. 50) provides a useful discussion on the ways in which different social institutions frame meanings on our experiences and mobilise literacy in the service of these. She suggests that:

> ... we need to examine closely both the lived experience that is the stuff of the everyday, in all its diversity – some of it valued, some of it dismissed and ignored – and what educational institutions make of this stuff, how they represent and privilege certain practices over others.

To illustrate, Hamilton draws a distinction between vernacular and institutional literacy, in order to see what counts as "proper" literacy. At the core of the distinction is the idea that different frames of meaning are used to organise lived experience. For example in civic life or work life, individual citizens as members of social or cultural groups bring their own logic and purpose to everyday activities and mobilise literacy to those ends. In other words they develop a range of diverse, less visible, more fluid and loosely

structured vernacular literacies. Drawing on Michel de Carteau (1984), Hamilton suggests that these can be seen as "tactical moves in a constrained space, through which people make the everyday world habitable" (de Carteau, 1984, p. 50). There are links with recent approaches to situated learning, where knowledge making is viewed as a social activity in which people build both meaning and identities.

Within ESL Literacy contexts, there exists certain conceptions of the learner (not just literacy) that narrow the expectations of teachers and diminish classroom experiences. Several authors point to the shallow version of adult learners prevalent in both second language acquisition theory and practice, for example, Pennycook (2001) suggests that learners are viewed as a "one dimensional acquisition device" while McKay and Wong (1996) use the phrase "generic ahistorical stick figure". Prinsloo and Breier (1996) provided powerful evidence within the context of literacy, that conceptions of adult illiteracy "assumes a cognitive and performative deficit in adults without schooling, which is at odds with the complexity of dispositions and capabilities displayed by this heterogeneou group" (Prinsloo and Breier, 1996, p. 15). In other words, there still exists a lack of awareness or understanding that leads educators to construct adult literacy learners in deficit terms or in ways that don't fully allow for the broadest representation of the learner.

In the case studies that follow, Hawa and Asha display "everyday tactics" (Hamilton, 2002), that is "bodies, brains, feelings, eyes and hands, places and spaces; they inhabit literacy, move around in it; recognising the ecology of learning and different ways of communicating" (Hamilton, 2002, p. 50). Our interest is in how such embodied knowledge can be harnessed as a powerful tool through which to develop textual practice in adult literacy classrooms.

Case study 1: the "unknown" entrepreneur

Our first case study literally unfolds as we encounter Hawa "in action", immersed in daily activities, at the commission house she shares with Kadija, a fellow Somali woman. Upon arrival at Hawa's home to conduct the final in a series of four interviews, there are six or so other Somali woman and their children in the front living room, surrounded by what appears to be an abundance of lingerie items and athletic wear – tracksuit pants, jackets, etc. Hawa explains:

> Kadija and Hawa get money many people, all Somali people. Kadija and Hawa, one maybe, fly Bangkok to buy many things, clothing, bed linen. Come back, sell, bigger money (Interview 4, November 16, 1999).

Hawa and Kadija are quite simply, entrepreneurs, running their own version of a local cooperative. They finance the buying trip to Thailand, by pooling the contributions of local Somali women. Upon return, they distribute the goods to Somali families within the community. Embedded within the entrepreneurial activity are a range of activities; they actively network, establish travel

itineraries, negotiate immigration and customs, and trade in foreign currency –
across geographically, culturally, socially, linguistically disparate contexts.
Like all entrepreneurs, Hawa confronts a range of discourses in the daily flow
of her entrepreneurial activities, and she is able to intelligently engage with
them by thinking and doing, and by learning.

Hawa's situation, a refugee, dislocated from both place and family, affects
both the ways in which she manages her material circumstances, but also in the
ways in which they create meaning and purpose for living. This is evidenced in
both her entrepreneurial activities and in her ongoing search for work. In the
dialogue that follows are embedded a series of reasons, feelings and wants.
These are intertwined in purposes, which are expressed as the actions unfold:

> Always thinking about my children. Always looking in newspapers for job. I'm talking,
> "Hello you available job?". Everyday, Monday talking about job, reading and writing,
> telephone job, "Please give me your address?". I went to factory, man says, "What kind of job
> you like?", "Any job, but easy job". He say, "First do you have a car?", "Yes, I have", "You
> have car?", "Yes, I have car". [In the middle of the re-enactment Hawa says to me laughing,
> she just got her learner's permit.] "I'll call this week for interview. Before your country what
> your work, what business in country?". I say, "Same job". He say, "Yeah maybe call, write
> address" (Interview 4, November 16, 1999).

When queried about whether she indeed had comparable factory experience in
Somalia, Hawa clarifies: "No! [laughing] Small business, food, some clothing".
She is pragmatic; reconnection with her seven children and husband, currently
detained in Kenya, requires money, so she acts upon available resources and
draws on her networks "ask everybody". There is an inventiveness and
playfulness in which she reworks her own narrative to make herself more
attractive to the prospective employer, including reinscribing capabilities of a
licensed vehicle "owner" and in the rewriting of her employment history to
align with the industry at hand. In this way, Hawa embodies the kind of
postmodern "shape-shifting" identity work, advocated by Gee (2000).

Labour of love

In the same way that Hawa foregrounds the significance of work in relation to
her ability to reconnect with her children, and husband, Asha as sole parents to
two children with ongoing financial commitments to her extended family, is
anxious to find "any work". In response to a question about the kind of work
she was looking for, Asha for example, replies:

> Any work because I need to study and I need help for some work, but work anything, for
> cleaner, for kitchen hand, maybe part-time before school in the morning or afternoon after
> four I'm free. I need to arrange for next year. Still study, but if I stop school I never remember
> the English. English is the problem. I get lost. I need maybe two days work, maybe Saturday
> and Sunday (Interview 4, November 21, 1999).

So far, there has not been any opportunity within her ESL Literacy class to
discuss work, develop job search strategies, or compose a resume. But Asha
"knows" much of what is required – she has gone to her local Centrelink (job

placement agency) where she has worked out that "you find it yourself". Asha's job search strategy thus far is to identity a hotel and cold call on the basis of a "recommendation" of one of her friends. At that point she enquires as to whether they have any jobs. On one occasion she was asked to complete a short form, and after doing so, was immediately declined the opportunity for a further interview. As Asha retells the experience, she asserts her identity as a competent worker and reaffirms the knowledge, skill and experience that she acquired while a housekeeper in Sudan over a six-year period: ". . . I know that job, the cleaner, they make beds and clean the bathroom. I think no problem for cleaner. I understand. I work before. But she said you must study English" (Interview 4, November 21, 1999).

Unlike Hawa, Asha is more "earnest" in the articulation of her prior work experience where she draws attention to her current capabilities and limitations. In Norton Peirce's (1995) study of migrant women, identity and work, Martina, a Czechoslovakian was found that despite repeatedly referring to herself as "stupid" and "inferior" because of her language level (Norton Peirce, 1995, p. 21) was nevertheless assertive. Evidence of this is revealed in a diary entry, where she enters into a long conversation with her landlord by phone to convince that her family had not broken their lease agreement. The second occasion occurred in her workplace when she took "initiative" in the serving of customers while fellow co-workers played games. On both these occasions, Norton Peirce (1995, p. 23) expresses "surprise" at such revelations given that Martina was not a "legitimate speaker" (Bourdieu, 1977, p. 650) in the particular discourse, and attributes her challenge to her identity as a mother and primary caregiver. Unlike Martine, on no occasion during the question related to work, do Hawa and Asha attribute deficit characteristics to their language abilities, nor marginalize their skills, experience or knowledge. It is only in the context of formal schooling where Asha refers to herself as not having sufficient schooling in Somalia to warrant entry into a part-time evening beginner ESL class, that such internalised feelings of inadequacy emerge.

Case study 2: "doing it for themselves"

For Hawa and Asha learning flourishes in the interstices of family, community and work life and is shaped by their cultural, socio-economic and historical circumstances. The data emerging from a discussion of work and pathways into work, reveal adults without extended schooling mobilizing local forms of knowledge and resources as they respond to the changing context in which they find themselves. Hawa and Asha are not waiting until they have acquired the "right" amount (or kind) of literacy, or have demonstrated their "job readiness" through successful completion of a vocationally oriented ESL program, they are already "doing it for themselves", through creative, pragmatic and intelligent actions.

Drawing on their "knowledgeability" (Giddens, 1984) Hawa and Asha were able to engage in the process of constructing a discursive narrative of the self in

which culture is made malleable as part of the act of social survival – and in the process carve out a new cultural space to inhabit. Each of the women enacted a version of dominant job search strategies: the use of networks to establish relationships with a variety of employers; appropriating the dominant discourse; and in reinventing of self. There is similarity with Hayes and Way (2000) study with African American women from low-income single-parent female- headed households, where the participants were active in their investigation of work and learning, but where such lived models of life/career planning were unrecognised.

Conclusion

The experiences as described by Hawa and Asha reinforce the view that formal education continues to be the measure of an individual's capacity, and where years of schooling are often equated with literacy, and powerfully equated with readiness to work. This stands in stark contrast where the women are quite literally "doing it for themselves". There is an opportunity to perform pedagogy differently, if embodied knowledge can be confirmed and harnessed to enrich the teaching and learning context, after all, these adult learners bring to learning and work their entire experiential selves. Greene (1993, p. 218) reminds us of such possibilities, suggesting that:

> Even in the small, the local spaces in which teaching is done, educators may begin creating the kinds of situations where, at the very least, students will begin telling the stories of what they are seeking, what they know and might not yet know, exchanging stories with others grounded in other landscapes, at once bring something into being that is in-between.

As educators' we need to find ways of engaging with lives, bodies and desires. We need to start with the view that embodied actions of adults are the raw material for powerful learning; where acknowledged such embodied learning offers a means to move adult learners to fuller engagement and valued participation in their own literacy education, including the development of additional literacies and vocational "know-how", that might open up a broader array of opportunities within the Australian labour market.

References

Beckett, D. and Hager, P. (2002), *Life, Work and Learning: Practice in Postmodernity*, Routledge, London.

Beckett, D. and Morris, G. (2001), "Ontological performance: bodies, identities and learning", *Studies in the Education of Adults*, Vol. 33 No. 1, pp. 35-47.

Bourdieu, P. (1977), "Cultural reproduction and social reproduction", in Karabel, J. and Halsey, A.H. (Eds), *Power and Ideology in Education*, Oxford University Press, New York, NY, pp. 43-61.

Crossley, N. (1995), "Merleau-Ponty: the elusive body and carnal sociology", *Body and Society*, Vol. 1 No. 1, pp. 43-64.

Csordas, T. (Ed.) (1994), *Embodiment and Experience: The Existential Ground of Culture and Self*, Cambridge University Press, Cambridge.

de Carteau, M. (1984), *The Practice of Everyday Life*, University of California Press, Berkeley and Los Angeles, CA.

Gee, J. (2000), "Capitalism lite: implications for schools, work and society, proceedings of working knowledge", *Proceedings of the International Productive Learning at Work Conference, December 11-13, University of Technology, Sydney*, pp. 189-94.

Giddens, A. (1984), *The Constitution of Society: Outline of the Theory of Structuration*, Polity, Cambridge.

Greene, M. (1993), "Diversity and inclusion: toward a curriculum for human beings", *Teachers College Record*, Vol. 95 No. 2, pp. 211-21.

Hager, P. (1999), "Robin Usher on experience", *Educational Philosophy and Theory*, Vol. 31 No. 1, pp. 63-75.

Hamilton, M. (2002), "Developing an inclusive policy and practice for adult literacy and numeracy: on the dangers of working in the cracks", *Proceedings of the National Adult Council of Adult Literacy Conference, November 1-3, Manly Beach, Sydney*, pp. 49-51.

Hayes, E. and Way, W. (2000), "Low-income African American women's cultural models of work: implications for adult education", *Proceedings of the 41st Annual Adult Education Research Conference, June 2-4, The University of British Columbia, Vancouver*, pp. 156-60.

McKay, S. and Wong, S. (1996), "Multiple discourse, multiple identities: investment and agency in second language learning among Chinese adolescent immigrant students", *Harvard Educational Review*, Vol. 66 No. 3, pp. 577-608.

Morris, G. and Beckett, D. (2004), "Performing identities: the new focus on embodied adult learning", in Kell, P., Shore, H. and Singh, M. (Eds), *Adult Education @ 21st Century: Global Futures in Practice and Theory*, Peter Lang Publishing, New York, NY.

Norton Peirce, B. (1995), "Social identity, investment and language learning", *TESOL Quarterly*, Vol. 9 No. 2, pp. 9-31.

O'Loughlin, M. (1998), "Paying attention to bodies in education: theoretical resources and practical suggestions", *Educational Philosophy and Theory*, Vol. 30 No. 3, pp. 275-98.

Pennycook, A. (2001), *Critical Applied Linguistics: A Critical Introduction*, Lawrence Erlbaum Associates, Inc., Mahwah, NJ.

Prinsloo, M. and Breier, M. (Eds) (1996), *The Social Uses of Literacy: Theory and Practice in Contemporary South Africa*, Sached Books, Cape Town.

Safety in operating theatres
Improving teamwork through team resource management

Alan Bleakley

Peninsula Medical School, Royal Cornwall Hospital, Truro, UK

Adrian Hobbs, James Boyden and Linda Walsh

Postgraduate Education Centre, Royal Cornwall Hospital, Truro, UK

Abstract *Work in progress is reported for a research project aiming to improve multiprofessional teamworking in operating theatres through iterative educational intervention. Experimental design is combined with collaborative inquiry. The hypothesis is: will planned, complex educational intervention focused upon improving communication in teamwork lead to better patient safety? The project is embedded in a wider educational agenda promoting democratic working practices, and this is reflected in the participative inquiry aspect of the research where operating theatre staff take ownership of the project through establishing common meanings for "good practice". The cohort involves 300 personnel (surgeons, anaesthetists, nurses and support staff) spread across two theatre complexes (11 theatres in total) in a large UK hospital. The focus of this paper is necessarily upon design and methodology, as the first data set is being gathered and analysed at the time of writing. Future papers will focus upon results and offer conclusions and recommendations.*

Introduction and context

Dynamic and potentially high-risk work environments such as operating theatres are vulnerable to multiple communicative errors. While technologies, physical design of workspace and protocols can counter certain errors, cohesive teamwork is a "bottom line" factor in effective theatre practice leading to good patient care and safety. Where teamwork is poor, this may be remediable through educational intervention. Our definition of a "team" in the context of operating theatres is pragmatic – the team is the group of people engaged with the task of patient care throughout the operation. This group can be fluid. Our concern is less with defining "team" than with Salas' perceptive question: "How can you turn a team of experts into an expert team?" (Salas, 1997).

There are a number of immediate factors that constrain effective teamwork. Theatre personnel have regular points of contact beyond the operating theatre, but these tend to be in uniprofessional settings. The working theatre team is multiprofessional, yet "tribal" affiliations can depress team cohesion and effectiveness (Lingard *et al.*, 2002). Where operating teams have fluid membership, teams tend to be task focused, marginalising process. Members have different perceptions of what constitutes a "team". Within a high pressure and potentially high risk setting, communication can be "hot", stress and fatigue are inevitable, and there are organisational targets to be met in the face

of limited resources. Such pressures produce high turnover of staff, high sickness rates and friction within teams. There is an established culture of reluctance to discuss error and accept fatigue (Sexton *et al.*, 2000). Collective reflection on work is rare for theatre teams. Given this background, it is surprising that little published empirical research exists on how application of human factors principles might promote culture change in operating theatres.

This project draws on the tradition of collaborative action research and participative inquiry, where it sets out to facilitate improvement of teamworking through research with persons, not on them (Reason, 1994). The framework for the project is an explicit initiative to improve patient safety in operating theatres as a result of cumulative climate change leading to longer-term culture change. While patient care and safety is clearly enhanced by individual medical or healthcare expertise (Carthey *et al.*, 2001; Flin *et al.*, 2003), our interest is in the "non-technical", human factors aspect of the theatre group. This includes knowledge and attitudes informing and shaping communication, interpersonal skills and situational awareness. We are interested in the reflective process that may turn a task-based group into an effective, self-reviewing team. We see this as an emerging collective reflexivity and authenticity, or continuing education embedded in everyday work, enhanced by processes such as skilled self review (briefing and debriefing), and transparent reporting and reflective discussion of "close call" incidents (also referred to in the literature as "near miss").

A survey by Flin *et al.* (2003) sampling anaesthetists' attitudes towards teamwork and safety found that poor communication was regularly cited as a source of medical error. When asked how errors may be reduced, the most cited strategy was critical incident reporting followed by reflective deliberation and education for responsive action. When asked how theatre teams could become more effective, anaesthetists saw teamwork as vital. When asked how job satisfaction of theatre teams might be increased, the most common answer was "increased and improved communication".

Our work is informed by research in other complex, dynamic and potentially high-risk contexts such as aviation, oil, nuclear power and space exploration (Helmreich and Merritt, 1998; Helmreich *et al.*, 1999; Reason, 1990; Sexton *et al.*, 2000; Flin and O'Connor, 2001). We draw specifically on the literature addressing reduction of risk in medicine (Leape, 1994; Reason, 2000; Carthey *et al.*, 2001; Secker-Walker and Taylor-Adams, 2001; Fletcher *et al.*, 2002; Flin *et al.*, 2003). There are dangers in attempting to translate from such contexts to the operating theatre. While crew resource management (CRM) in the airline industry has widened to include the wider cabin and ground personnel as well as the cockpit crew, air traffic control is still excluded. Further, education and training interventions do not necessarily result in learning, or translation into practice (Salas *et al.*, 2002).

Medical error has been described in terms of individual attitude, decision-making and action, team process, and organisational (systems)

dysfunction (Leape, 1994; Kohn *et al.*, 1999; Shortcliffe *et al.*, 2000). We describe an integrated research approach to team process that involves all three levels. Inaugurated in December 2002, the research project is in progress at the time of writing and will report on the first set of data, following a series of educational interventions, in January 2004. The inquiry paradigm promises that the project will be self-generating after the formal initiation cycle. Again, this paper describes the context and methodological framework for the project as an example of researching work and learning. We have also designed the project with an awareness of the need for transferability to other health care teamwork environments such as intensive care and accident and emergency.

Enhancing good practice and learning from mistakes

The UK National Health Service (NHS) has recently set up a National Patient Safety Agency with a single aim: "to improve patient safety by reducing the risk of harm through error". Patient safety was highlighted by the publication of the NHS document *Building a Safer NHS for Patients*(Department of Health, 2001) that recommends "analysing and learning from error and adverse events" This document is indicative of a changing discourse in medicine towards greater transparency. A major aspect of this emerging discourse is a shift from the objectifying "clinical gaze" to collaborative care, including multiprofessional teamwork supported by applied continuing education (Bleakley, 2002, 2003). Hierarchical healthcare still dominates in operating theatres, but this is changing. As the surgeon's authoritarian, rather than authoritative, leadership is challenged by a new culture there is uncertainty as to what should fill the void. The NHS document sets out some key research questions, including an important attitudinal one: "How can organisational cultures be achieved that are safety conscious, 'reporting-friendly' and free of blame?". A further question bears on teamwork: "What are the characteristics of good leadership of clinical teams that have a good performance on patient safety?". Such questions imply particular conditions for effective teamwork.

In the wake of a major report on medical errors and patient safety from the American Institute of Medicine (IOM) (Kohn *et al.*, 1999), a CyberForum was set up for doctors to discuss the implications of the report (Deegan, 2000). The report suggested that a variety of human factors, such as inadequate knowledge or training, faulty or poor reasoning, poor teamwork, and communication and fatigue, account for as much as 60 per cent to 80 per cent of medical errors. Four critical domains were outlined that are consistently noted in human factors research in the area of risk management:

(1) Effective teamwork.

(2) Creating a "blame-free" environment for reporting and investigating "near misses" without retribution (that challenges the dominant medical culture's denial of uncertainty, aggressive individualism and

hierarchical practices). This would now be termed a "just", rather than "blame free" culture (Reason, 2000).

(3) Relationships between individual and system errors.

(4) Design of environments for safe use of equipment.

The forum noted a distinction between "active" errors, such as poor or inappropriate surgical technique, and "passive" errors, where the "front-line" practitioner is embedded in a systems fault. Teamwork was identified by the members of this forum as a key concern in improving practice and, in turn, patient safety. Forum participants noted findings from aviation CRM studies neatly summarised in the title of a paper by Salas *et al.* (2002). Salas's (1997) "How can you turn a team of experts into an expert team?' has become a mantra for teamwork studies. Our answer is to engage the team in iterative common education and practice reflection experiences, as outlined below.

Project methodology

The project design is purposefully flexible and incremental, with layers and refinements added according to emerging issues and changing work contexts. The NHS document *Building a Safer NHS for Patients* (Department of Health, 2001) suggests that "[h]ealthcare is complex and at times a high risk activity, where adverse events are inevitable". However, it is not unique, and can learn from other settings such as the aviation industry. We have responded to this by developing the framework for our research aims and methodology from CRM principles, promoting education in human factors, with a focus on group interactions in non-technical domains.

The introduction of regular team self review (both briefing before an operating list and debriefing during and/or after lists), including the possibility for video review, provides a whole team focus for reflection. The primary concern of team self review in our study is shared "non-technical" capabilities such as communication. A team of psychologists has introduced self review methods to one theatre complex (about half of the cohort) and this will be repeated in April 2004 for the second complex. Team self-review formats have been developed through intensive observation and implementation work by the team of psychologists in live theatre settings, followed by reflective group discussion and individual interviews. Through this process, teams have come to adapt and adopt methods of review appropriate for their needs, while maintaining consistency with a broad team self review structure across the project. Logs of team review outcomes are kept by members of teams and will offer key data. Iteration of team self review will be stimulated by a domain expert facilitator who is respected by theatre staff, through regular "drop in" visits that will include help with written logs and other ways of recording views, such as a cumulative in-theatre whiteboard record and voice logs.

CRM literature suggests the value to teamwork effectiveness of both briefing and debriefing – practices that in operating theatres in general are conspicuous by their absence. Briefing serves to prepare, focus and consolidate teams. A surgeon may lead briefing but this should not be automatic and we expect that briefing in more effective teams will be led by a variety of members. Debriefing provides a focus for review of critical incidents, and includes review of good practice. Again, our focus is upon the non-technical (communication) aspects of work which are shared (and negotiated) by all members of the team.

There are logistical difficulties to debriefing such as keeping a team together for long enough after a theatre list, where surgeons, anaesthetists and nursing staff are often committed to different patient-related activities as soon as the list ends. However, debriefing is a key educational intervention in promoting culture change and is central to our methodology. Debriefing in particular can be led by any member of the team. As detailed above, while initiated through use of outside expertise, team self review (briefing and debriefing) will quickly come to be owned by theatre teams themselves. Should such practice prove to be effective in improving safety for patients, its adoption as standard practice will be readily established in our study group and can then be modelled to other, similar, groups in medicine and healthcare.

Information on adverse events must be captured and recorded in such a way that it forms a basis for reflection on practice and not for defensive rationalisation. This suggests a strategy for sensitive collection and reflection on such information. We have developed an anonymous and confidential "close call" incident reporting system that provides narrative accounts of incidents focused on non-technical issues that are not picked up through team self review. These are being analysed by domain experts and human factors researchers through data-grounded and narrative research methods, involving categorisation and coding.

Building a Safer NHS For Patients (Department of Health, 2001) suggests that "[w]eak systems create the conditions for, and the inevitability of, error" in medical settings. This promotes creation of "strong", rigorous and effective systems. The starting point for this is the understanding of effective teamworking through drawing out the characteristics of good theatre teams and actively reflecting on team performance. This demands systematic methods for analysis of teamwork based on live observation and retrospective videotaped data, with opportunities for measuring changes from baseline performance. We have chosen a combination of tailored behavioural markers for non-technical domains, and ethnographic study with follow-up semi-structured interviews. Microanalysis of videotape is central to the study. Cameras and audio equipment are being installed in two operating suites.

A group of human factors experts have established a framework for non-technical, observable behavioural markers in high-risk environments that is grounded in CRM studies (Klampfer *et al.*, 2001). A behavioural marker system refers to either a taxonomy or a mere descriptive listing of key technical

and/or non-technical capabilities or skills associated with effective work performance in a given context. The system is derived from collecting data concerning performances that contribute to successful and unsuccessful outcomes in a work environment. Such a system must be valid and should be able to be implemented as an assessment tool. The latter requires adequate education of users of the behavioural marker system in question. Behavioural markers, including non-technical aspects, have been developed for surgical excellence (Carthey *et al.*, 2001), but this is limited to the highly specialised area of paediatric cardiac surgery.

A central element to our study is the development of behavioural markers systems relevant to the contexts we are studying, such as an orthopaedic team. Other systems have severe limitations for such contexts. NOTECHS, initially developed for CRM in the airline industry (Klampfer *et al.*, 2001), employs two observable social skills categories (co-operation, leadership) and two inferable cognitive skills categories (situation awareness, decision making). It is geared, however, to assessment of an individual's behaviours and not to the dynamic aspects of a working group.

A major interest of the project will be devising a non-technical behavioural marker system in line with recent dynamicist cognitive psychology thinking about team process in time as well as space (van Gelder, 1998). For example, "situational awareness" from CRM studies could be progressed to link with the findings of ecological psychology, to "think ecologically". What, for example, is happening as a whole across the theatre team over the time of an operation, such as tempo of work, or flow of information? Klemola and Norros (2001) note two logics of practice in anaesthesia. One style ("reactive") shows focus upon task to the exclusion of process and other dynamic aspects of the theatre group's activities, and is strongly instrumentation oriented. This style reacts to contexts rather than anticipating what might happen next and preparing accordingly. A second style ("interpretative") is prospective and sensitive to the ecology of the whole theatre context and to process as well as content of work. This style also links patient and instrumentation in a sensitive manner. Anaesthetists displaying this style are more reflective about their work, and, importantly, they score more highly on criteria of effective clinical care and patient safety.

Where a team's performance operates through time as well as in space, doctors and nurses tend to have different conceptions of "time" as a result of their socialization into different communities of practice (Espin and Lingard, 2001; Skjorshammer, 2001). Doctors characteristically do not manage "time" but "episodes", seeing work in terms of "tasks" to be completed. Nurses tend to cut up time into sections and manage time accordingly, where episodes are made to fit schedules. This could be a major source of conflict in an operating theatre team unless it is reflected upon in an intensive manner. A criterion for an exemplary CRM behaviour in NOTECHS is "[a]llocates enough time to

complete a task". Precisely what this means for a healthcare context would be disputed. The development of behavioural markers will thus be informed by the evidence base derived from contemporary research into distributed cognition within communities of practice (Engestrom and Middleton, 1998).

The research methodology also follows Helmreich and Davies (1996), who propose four key principles for successful human factors education: induction, embedding, iteration and data-driven action. Our educational strategy and intervention components include human factors education (as induction and embedding). A two-day CRM course for 15 key "opinion formers", followed by a day symposium for all theatre staff involving expert speakers and debate, has been completed. Focus group evaluation data has provided a baseline view on conditions necessary for positive teamwork climate, and such views are congruent with human factors principles. The symposium has been videotaped and edited. The two-day CRM course has being refined to produce a focused one-day team resource management course relevant for medical and healthcare settings, which is offered on a rolling basis. Pre-course materials are available for all staff.

Both the team self-review logs and "close call" narrative reporting scheme offers data-driven action, as data is analysed and results are fed back to teams for response. Feedback will be augmented by a newsletter with associated Intranet site and web facility for promoting examples of good practice. Data from the project will also be discussed at multidisciplinary clinical governance meetings as a key organisational context for monitoring and review of the project. Regular focus groups of multiprofessional theatre teams will review the educational value of the project and steer the project towards self-governance (as embedding and iteration).

Potential outcomes and their measures include:

- *Improved safety climate*. Measured by data derived from a validated attitudinal survey (safety attitude questionnaire). This has been adapted for operating theatre contexts and will evaluate shifts in attitude towards safety. The first (pre intervention) questionnaire distribution produced a very high response rate and offers a baseline measure of safety climate. We predict an attitudinal shift to a more positive and sensitive view towards patient safety measured by post intervention questionnaire response.

- *Improved incident and close call reporting*. Analysis of narrative-based incident reports. We predict a qualitatively different profile post intervention.

- *Operating theatre staff data*. Theatre staff morale and health. We predict better morale and work satisfaction (indicated by safety attitude questionnaire and interview data) and better staff health (indicated by decline in sickness, absence and turnover rates) post intervention.

- *Operating theatre staff performance*. Using data from team self review logs, naturalistic observation of teamwork and retrospective videotape

review, and follow-up semi-structured interviews. We predict post intervention improved operating theatre performance against baseline markers. This may result in measurable output such as reduced late starts, cancellations and overruns, and increased patient throughput. This aspect of the project, as outlined previously, will involve innovative analysis of improved teamwork through application of dynamicist cognition models – for example, indicating that information flows through a team more effectively and there is less sequestering of information. We also predict deeper understanding and reflection (leading to action) on aspects of teamwork that characteristically hinder performance, such as "tribal" stereotyping, interprofessional rivalry and reductive perceptions of the other's role.

· *Comparison of two theatre complexes in the same institution and across institutions.* Staggering the project introduction and intervention across two theatre complexes in the same hospital will offer some opportunity for cross comparison. By the end of the second phase of the project, we expect phase 1 theatre groups to continue with an improved level of performance, and see phase 2 theatre groups matching this level. However, we recognise the potential for contamination of the purity of the educational interventions across the two groups. For this reason, we plan to compare changes in attitudes towards safety (measured by the safety attitude questionnaire, which includes a subscale on teamwork) in our experimental group with baseline measures of attitude in a matched control group in another hospital.

References

Bleakley, A. (2002), "Pre-registration house officers and ward-based learning", *Medical Education*, Vol. 36, pp. 9-15.

Bleakley, A. (2003), "'Good' and 'poor' communication in an OSCE: education or training?", *Medical Education*, Vol. 37, pp. 186-7.

Carthey, L., deLeval, M.R., Wright, D., Farewell, V.T. and Reason, J.T. (2001), "Behavioural markers of surgical excellence", *Safety Science*.

Deegan, M.J. (2000), "Patient safety and the IOM report", available at: www.acpe.org/cyber/IOMReport.htm

Department of Health (2001), *Building a Safer NHS for Patients*, HMSO, London.

Engestrom, Y. and Middleton, D. (Eds) (1998), *Cognition and Communication at Work*, Cambridge University Press, Cambridge.

Espin, S.L. and Lingard, L.A. (2001), "Time as a catalyst for tension in nurse-surgeon communication", *AORN J*, Vol. 74, pp. 672-82.

Fletcher, G.C.L., McGeorge, P., Flin, R.H., Glavin, R.J. and Maran, N.J. (2002), "The role of non-technical skills in anaesthesia: a review of current literature", *British Journal of Anaesthesia*, Vol. 88, pp. 418-29.

Flin, R. and O'Connor, P. (2001), "Crew resource management in the offshore oil industry", in Salas, E., Bowers, C. and Edens, E. (Eds), *Improving Teamwork in Organizations*, Prentice-Hall, Englewood Cliffs, NJ.

Flin, R., Fletcher, G., McGeorge, P., Sutherland, A. and Patey, R. (2003), "Anaesthetists' attitudes to teamwork and safety", *Anaesthesia*, Vol. 58, pp. 233-42.

Helmreich, R.L. and Davies, J.M. (1996), "Human factors in the operating room: interpersonal determinants of safety, efficiency and morale", in Aitkenhead, A.A. (Ed.), *Bailliere's Clinical Anaesthesiology: Safety and Risk Management in Anaesthesia*, Balliere Tindall, London.

Helmreich, R.L. and Merritt, A.C. (1998), *Culture at Work in Aviation and Medicine: National, Organizational and Professional Influences*, Ashgate, Aldershot.

Helmreich, R.L., Merritt, A.C. and Wilhelm, J.A. (1999), "The evolution of crew resource management training in commercial aviation", *International Journal of Aviation Psychology*, Vol. 9, pp. 19-32.

Klampfer, B., Flin, R., Helmreich, L., Hausler, R., Sexton, B., Fletcher, G., Field, P., Staender, S., Lauche, K., Dieckmann, P. and Amacher, A. (2001), *Behavioural Markers Workshop*, Swissair Training Centre, Zurich.

Klemola, U.-M. and Norros, L. (2001), "Practice-based criteria for assessing anaesthetists' habits of action: outline for a reflexive turn in practice", *Medical Education*, Vol. 35, pp. 455-64.

Kohn, L.T., Corrigan, J.M. and Donaldson, M.S. (Eds) (1999), *To Err Is Human: Building a Safer Health System*, National Academy Press, Washington, DC.

Leape, L.L. (1994), "Error in medicine", *JAMA*, Vol. 272, pp. 1851-7.

Lingard, L., Reznick, R., DeVito, I. and Espin, S. (2002), "Forming professional identities on the health care team: discursive constructions of the 'other' in the operating room", *Medical Education*, Vol. 36, pp. 728-34.

Reason, J.T. (1990), *Human Error*, Cambridge University Press, New York, NY.

Reason, J.T. (2000), "Human error: models and management", *British Medical Journal*, Vol. 320, pp. 768-70.

Reason, P. (1994), "Three approaches to participative inquiry", in Denzin, N.K. and Lincoln, Y.S. (Eds), *Handbook of Qualitative Research*, Sage, Thousand Oaks, CA.

Salas, E. (1997), "How can you turn a team of experts into an expert team?", in Zsambok, C.E. and Klein, G. (Eds), *Naturalistic Decision Making*, Lawrence Erlbaum Associates, Mahwah, NJ.

Salas, E., Wilson, K.A., Burke, C.S. and Bowers, C.A. (2002), "Myths about crew resource management training", *Ergonomics in Design*, No. Fall, pp. 20-4.

Skjorshammer, M. (2001), "Co-operation and conflict in a hospital: interprofessionaql differences in perception and management of conflicts", *Journal of Interprofessional Care*, Vol. 15, pp. 7-18.

Secker-Walker, J. and Taylor-Adams, S. (2001), "Clinical incident reporting", in Vincent, C. (Ed.), *Clinical Risk Management*, BMJ Books, London.

Sexton, J.B., Thomas, E.J. and Helmreich, R.L. (2000), "Error, stress, and teamwork in medicine and aviation: cross-sectional surveys", *British Medical Journal*, Vol. 320, pp. 745-9.

Shortcliffe, E.H., Patel, V.L., Zhang, J. and Freed, M. (2000), "Slips, mistakes and faulty reasoning: the nature of human errors in medicine", AMIA Panel.

van Gelder, T. (1998), "The dynamical hypothesis in cognitive science", *Behavioral and Brain Sciences*, Vol. 21, pp. 1-14.

Learning processes in a work organization
From individual to collective and/or vice versa?

Tuija Lehesvirta

Turku School of Economics and Business Administration, Turku, Finland

Abstract *The study investigates learning as knowledge-creation processes on individual and collective levels. The processes were examined in an ethnographic study, conducted in a metal industry company over a four-year period. The empirical study suggests that conflicts and crises experienced on individual level were some kind of incidental starting points for individual learning processes. Whether these processes continued to the collective level depended on how the individual learner or the collective recognised the significance of sharing knowledge as well as on opportunities, willingness and ability of individuals to share their experiences. It also depended on managers' understanding of learning processes whether opportunities for knowledge sharing were arranged and thus, whether learning at work was supported.*

Introduction

What we believe we know about reality is mainly invented as a result of our attempts to understand it. Knowledge is often a consequence of our search for reality. It is derived from an interaction between environment, individual and the relationship created by the individual. The constructivist learning approach is affected by a learner's beliefs, emotions, feelings and attitudes as well as the environment, culture and climate related to which learning takes place (Berger and Luckmann, 1995; Schurman, 1980; Rauste-von Wright and von Wright, 1994). Management usually has clear ideas of what and who in the organization should learn at a given moment and how this should affect the organizational goals (Leymann, 1980). However, individual learning is increasingly understood to result from what an organization's members themselves determine to be the appropriate response to their environment (Sligo, 1996; Löfberg, 1980). In order to manage learning in organizational contexts it is useful to know something about learning processes (Järvinen and Poikela, 2001).

According to Huber (1991, p. 89), "An entity learns if, through its processing of information, the range of its potential behaviours is changed". A learning entity can be an individual or a collective. In this paper learning is defined according to Huber as follows:

> Learning is a knowledge-creation process in which information perception and interpretation lead to a change in the range of an entity's potential behaviours.

Organizational learning in this paper is examined as a set of processes, not as outcomes. Kolb (1996) argues that the tendency to define learning by its outcomes may become a definition of nonlearning. This can be understood by the behaviourist axiom, according to which the strength of a habit can be measured by its resistance to extinction. Thus, the better a person has learned a given habit, the longer he or she will persist in behaving that way when it is no longer rewarded.

In examining learning processes this study uses Crossan *et al.*'s (1999) framework which involves organizational learning processes on three levels: individual, group and organization. The framework links three levels of learning through four sub-processes: intuiting, interpreting, integrating, and institutionalizing.

According to Crossan *et al.* (1999), intuition is clearly an individual phenomenon: ideas come to a person's mind, even if it happens in a group or in an organizational context. Crossan *et al.* (1999) have two views to intuition: the expert view is a process of past pattern recognition, whereas entrepreneurial intuition is about innovation and change. Individuals use visions and metaphors in explaining their intuition to themselves and others. Individuals build up a picture of one's environment and of oneself as a part of it, based on one's earlier experiences. Interpreting on group level is a social activity that creates common language, shared meaning and understanding. Integrating focuses on coherent collective action. Language and storytelling preserve what has been learned. Stories themselves become storage of both individual and collective/organizational knowledge. Institutionalizing is "the process of ensuring that routinized actions occur" (Crossan *et al.*, 1999, p. 525). What is learned by individuals and groups, becomes embedded in organization structures and processes and hence starts to guide new spontaneous individual and group level learning.

In this paper we focus on the actual processes of individual and group level, that is intuition, interpretation and integration. The purpose of this paper is to examine what are the critical elements of learning subprocesses on and to show some indications of how the subprocesses on different levels are linked with each other.

Method

The learning processes were examined in an ethnographic study over a four-year period in organization M, a leading supplier of technology, systems and equipment for process industries. The researcher was employed by the company and thus "lived" with the processes examined. Access to and contacts with informants were easy to get and a lot of data were collected through career development discussions and other natural occasions which were part of the researcher's job in organization M. This was the first time the researcher had worked for a technology company, and it was obvious from the very beginning

that the challenge of being a "professional stranger" as an anthropologist was easy to rise to, and that the ethnographer's role of "acceptable incompetent" was more than natural, mainly because the educational background was different from the informants' – not engineering – and because of having worked only for a relatively short time with the company at that time (see Hammersley and Atkinson, 1991; Agar, 1996).

The first perceptions about learning processes were not encouraging. To get a grasp of something called learning processes appeared to be hard, and required several discussions with the informants and tens of rounds of reflection. In this phase it was helpful that the researcher only worked for the company part time – and half of the time was to be used for iterative reflecting of perceived data.

Ethnography as a method is useful not only for describing and understanding processes but also for testing existing theories and for creating new ones. This paper focuses on description of the critical elements of subprocesses of learning and on finding some links between different levels.

From individual to collective – and back

The constructivist perspective on individual learning considers human beings as active, goal-oriented and feedback-seeking. The individual learning process is determined by one's needs, intentions, expectations and, the feedback perceived by the individual. This does not mean that all learning should be intentional or even conscious, though. Neither does learning always increase the learner's effectiveness, and it does not have to result in observable changes in behaviour. Intuiting is a largely subconscious process and the links between experience and consciousness are complex (e.g. Crossan *et al.*, 1999; Nonaka, 1996; Kolb, 1996). Thus, studying the individual processes of learning in an organizational context is not a simple task. It can be very frustrating, as it was in the beginning of this research. Only a little goal-oriented, "visible" learning seemed to take place. After several months working with the members of organization M it became obvious that there were multiple individual learning processes going on all the time when individuals were adapting to the changes of their environment. The content of the learning, though, was not always in accordance with the organization's goals set by the management. In fact, there was a lot of ongoing learning that could be considered to be outside the organizational goals, even disadvantageous from the organization's point of view (see Coopey, 1996).

Where does it start?
The members of organization M were not working with the company in order to learn. Some appeared to work just in order to make their living, some were enthusiastic about the technological challenges, some seemed to stay committed with the company only because of a customary habit. There were no great stories about learning occasions or any subprocesses of learning. The

first big question in examining learning as processes was: how to find the beginning of a learning process?

Individuals learn by fitting new information together with what they already know. Learning takes place through and for human activity, not as a separate process. An individual does not learn things as such, but always in situational contexts and related to one's motivation, activity and earlier experiences. The learning process is strongly affected by the learner's beliefs, emotions, feelings and attitudes as well as by environment, culture and climate (Rauste-von Wright and von Wright, 1994; Huber, 1991; Kolb, 1996). The starting points of learning processes in organization M were not to be found in the discussions about "learning". The great stories of the organization were not about learning, they were about successful customer deliveries, about drastic failures in customer projects, about great personalities in the company's past or in the customers' organizations and about the golden times before today's repressive cost hunting and reductions. These were surprisingly also the stories where the wellsprings of learning were to be found. Learning processes could be found in discussions about feelings and emotions: about frustration, anger, disappointment and failure – mostly negative ones, but also feelings of achievement and pride, moments of success.

Conflicts and confusion seemed to be significant incentives for learning. Repeatedly the subprocess of intuition started in either an open confrontation or through a collision in an individual's mind. It is also noted in previous studies that conflicts between one's own and others' conceptions or between one's ideas and the expectations of the environment offer a possibility to end up with a new concept and mental construction (Kolb, 1996; Pirttilä and Backman, 1997).

What to share – why, where, how and with whom
Concurrently in organization M it happened that the top management started large discussions about "learning from experience". Mostly this happened because of some problems with the customer deliveries; actual costs rose heavily above the budget, or technical problems due to a design failure came up, for example. Once this happened and got the attention of the top management, major development programmes were set in motion in order to prevent future failures of the same type. In the organization's stories the course of events of this type was called "fire fighting". These were occasions where learning on the collective level was inevitable: shared interpretations and integrated work processes were needed. The collective learning processes were led by the management in order to improve future performance of the organization.

In many occasions of the type described below, the major failures could have been prevented from emerging through every-day learning. There were members who "had known this would happen one day", or members who "only wished they would have asked me". In organization M it was largely agreed with, that sharing individual knowledge is a central activity in organizational

learning (Nonaka, 1996). The interesting question was: why had not they shared their opinions and ideas? The question was not about nonchalance, malevolence or even laziness of the individuals. It was about recognising the particular individual intuitions that should be shared with somebody in the organization. An individual should have been able to decide whether the information one had processed was of common interest or not. The individuals were, as a matter of course, responsible for their own learning. The environment and organizational settings just did not support collective learning practices (Löfberg, 1980; Rauste-von Wright and von Wright, 1994).

Additionally, sharing one's intuitions requires not only ability to recognise the significance of information but also ability and willingness to share. The questions from an individual's point of view are: why share, with whom and where to share one's experiences? After having processed their intuitions, the members of organization M themselves "already knew" what went wrong, what there was to be learnt and what was successful. They had their minds set towards new projects, travelling to new plants, meeting new customers and managing new project teams. The case was the same with written reports or follow-up meetings where the knowledge of the organization's members could have been shared to enable mutual and collective learning. It was obvious that individual and collective learning were partly inseparable, taking place simultaneously (Brown and Duguid, 1991). However, occasions for sharing the intuitions were incidental, for the most part.

The most valuable occasions for knowledge sharing seemed to be informal. Incidental discussions by the coffee machine or office corridors were the situations where shared interpretations were created. Sharing was not intentionally oriented towards collective learning processes, though. The motives were more of personal type. Project managers said that whenever they feel the information is worth sharing they would talk about it with somebody "if there is somebody to talk to when the issue bothers you". And, if somebody who happened to be there happened to have time or interest to listen to one's experiences. As the social learning approach sees it, knowledge sharing seemed to be based mostly on the individual needs, with less emphasis on the requirements of the organization. (Sligo, 1996; Löfberg, 1980) Of course, there were specific inspection meetings with fixed agendas held by the project manager during the delivery process but, according to the experiences of many design engineers these were not places where experience-based knowledge was shared. Here it became apparent that the power, authority and control issues at work need to be examined further in this research project (see Järvinen and Poikela, 2001).

The other direction
The process of institutionalizing creates a context in which subsequent experiences are interpreted and integrated. The subprocesses of learning on the organizational level formalise the shared interpretations and integrated procedures and begin to guide – even restrict the learning on individual and

group levels (Crossan *et al.*, 1999). Huber (1991) stresses that what once has been learnt must be stored in organizational memory and then brought forth from memory. Additionally, all organizational learning processes and subprocesses are strongly affected by organizational memory. The process in the other direction, where organizational beliefs, language and practices are internalized by the individual members of an organization is called socialization (Bandura, 1977; Leymann and Kornbluh, 1980; March, 1991).

In storytelling organization M and its management were described as "hierarchical, authoritarian, inflexible and old-fashioned". Even those who felt that their own department or working group was flexible and supported innovation and learning, knew these stories and many of them agreed with the descriptions in general. Many of the members defined themselves as "brave fighters" or "independent entrepreneurs" going their own ways despite the managerial control and its restrictions. Several experienced engineers were proud of their ability "to innovate and develop even though the management does its best to prevent it". Newcomers in organization M were rapidly taught the organization's stories about what kind of organization they had been employed with. As a young employee, who was recruited only a few months earlier put it: "One thing has become clear already. The appreciation of the organization outside the company is much better than inside it. I myself have not yet noted any disturbing hierarchy but I have been told about it a lot". Previous learning affects individual intuition as well as the organizational environment. Huber (1991) showed that knowledge possessed by members when entering the organization, may even become unexpectedly unavailable for the organization because of socialization.

What makes it challenging to trace back the subprocesses of learning on different levels is that the processes in both directions – socialization of members to the organization and the organization adapting to what originally were individual intuitions, through interpretation and integration, take place simultaneously.

Managing the learning processes
In organization M there were members in the management team who seemed to understand the significance of interaction and dialogue in organizational learning processes. Some of them, for example, stressed the importance of travelling together with one's superiors: "Sitting side by side in an aeroplane for ten hours with your boss every now and then is the best way to learn how this really works and to learn from other's experiences". In some departments coffee breaks were spent together "on purpose" and effort was put in arranging the facilities favourable for informal interaction. Whether the significance of informal interaction was recognised, depended on how the management of a department understood the subprocesses of learning.

The top management did not avoid conflicts. Indignation arose repeatedly towards the management because of its decisions (which were said to "prevent

profitable business"). It is possible that it was these angry emotions that led the organization members and groups to more efficient learning processes. The facade of the top management seemed authoritarian but, in fact there were many variations of "common truth" and a great diversity allowed within organization M. The "independent entrepreneurs" were left in peace to practice their way of working – so far it was profitable. Every now and then the management shaped up and decided to force these "Camel boots men" into line – with no big success.

Several researchers hold managers and especially top management accountable for the development of organization members and for learning in organizations (see, for example, Senge, 1996; Conger, 1989; Manz and Sims, 1991; Neck and Manz, 1996). According to Nonaka (1996) only a few managers in organizations understand the nature of the knowledge-creating company, and thus are unable to manage it. The reason to this, according to Nonaka, is that the management mainly misunderstands what knowledge is and how to exploit it in organizations. Leymann (1980) states that the management of organizations, due to the lack of psychological skills and knowledge, is conducting their organizations by rules and regulations, which restricts the use of individual learning capacity.

Discussion

Conflicts and confusion are efficient initiatives for learning. Individual learning processes are conducted by emotions and feelings and every individual in an organization creates one's own interpretation of perceived information. Huber (1991) discusses whether organizational learning should be defined in terms of commonality of interpretation or in terms of the variety of interpretations made by an organization's various units. According to Huber more organizational learning has occurred when more and more varied interpretations have been developed. Also Kolb (1996) shows that opposing perspectives are essential for optimal learning and that learning effectiveness is reduced in the long run when one perspective becomes dominating.

Making individual knowledge available for others should be a central activity in organizational learning process according to Nonaka (1996). The importance of knowledge sharing must be recognised by all members of the organization – both those who have something to share and those who need to get the information. Without such recognition the knowledge will remain the individual's private property and never go on to the collective learning level.

The management usually has clear ideas of what and who in the organization should learn at a given moment and how this should affect the organizational goals (Leymann, 1980). It is important that the management is aware of the general regulators of information processing and learning in order to facilitate the subprocesses of learning and to support the linking between different levels of learning.

This paper has described some of the critical elements in and links between the different levels of learning subprocesses. The critical elements and links found in the flow from level to another are: conflicts that start the intuition process; recognising the need of information sharing, which is a precondition for the collective interpretation and integration; and management's understanding about learning processes. Further research will focus on understanding more profoundly the critical phases and decisive elements of learning subprocesses in both directions, from individual to collective and back, including the power and authority issues related to these processes.

References

Agar, M.H. (1996), *The Professional Stranger: An Informal Introduction to Ethnography*, Academic Press, San Diego, CA.

Bandura, A. (1977), *Social Learning Theory*, Prentice-Hall, Englewood Cliffs, NJ.

Berger, P.L. and Luckmann, T. (1995), *Todellisuuden Sosiaalinen Rakentuminen*, Gaudeamus, Helsinki.

Brown, J.S. and Duguid, P. (1991), "Organizational learning and communities-of-practice: toward a unified view of working, learning, and innovation", *Organization Science*, Vol. 2 No. 1, pp. 40-57.

Conger, J.A. (1989), *The Charismatic Leader*, Jossey-Bass, San Francisco, CA.

Coopey, J. (1996), "Crucial gaps in 'the learning organization': power, politics and ideology", in Starkey, K. (Ed.), *How Organizations Learn*, International Thomson Business Press, London, pp. 348-67.

Crossan, M.M., Lane, H.W. and White, R.E. (1999), "An organizational learning framework: from intuition to institution", *Academy of Management Review*, Vol. 24 No. 3, pp. 522-37.

Hammersley, M. and Atkinson, P. (1991), *Ethnography Principles in Practice*, Routledge, London.

Huber, G.B. (1991), "Organizational learning: the contributing processes and the literatures", *Organization Science*, Vol. 2 No. 1, pp. 88-115.

Kolb, D.A. (1996), "Management and the learning process", in Starkey, K. (Ed.), *How Organizations Learn*, International Thomson Business Press, London, pp. 270-87.

Järvinen, A. and Poikela, E. (2001), "Modelling reflective and contextual learning at work", *Journal of Workplace Learning*, Vol. 13 No. 7/8, pp. 282-9.

Leymann, H. (1980), "Learning theories", in Leymann, H. and Kornbluh, H. (Eds), *Socialization and Learning at Work: A New Approach to the Learning Process in the Workplace and Society*, Athenaeum Press Limited, Newcastle upon Tyne.

Leymann, H. and Kornbluh, H. (Eds) (1980), *Socialization and Learning at Work: A New Approach to the Learning Process in the Workplace and Society*, Athenaeum Press Limited, Newcastle upon Tyne.

Löfberg, A. (1980), "Learning and educational intervention from a constructivist point of view: the case of workplace learning", in Leymann, H. and Kornbluh, H. (Eds), *Socialization and Learning at Work: A New Approach to the Learning Process in the Workplace and Society*, Athenaeum Press Limited, Newcastle upon Tyne.

Manz, C.C. and Sims, H.P. Jr (1991), "SuperLeadership: beyond the myth of heroic leadership", *Organizational Dynamics*, Vol. 19 No. 4, pp. 18-35.

March, J.G. (1991), "Exploration and exploitation in organizational learning", *Organization Science*, Vol. 2 No. 1, pp. 71-87.

Neck, C. and Manz, C.C. (1996), "Beyond traditional education: facilitating power-point learning through SuperLeadership", *Journal of Managerial Psychology*, Vol. 11 No. 2, pp. 22-30.

Nonaka, I. (1996), "The knowledge-creating company", in Starkey, K. (Ed.), *How Organizations Learn*, International Thomson Business Press, London, pp. 18-31.

Pirttilä, I. and Backman, A.M. (1997), "Reflektiivinen arviointi", in Kirjonen, J., Remes, P. and Eteläpelto, A. (Eds), *Muuttuva Asiantuntijuus*, Unversity of Jyväskylä, Jyväskylä.

Rauste-von Wright, M. and von Wright, J. (1994), *Oppiminen ja Koulutus*, WSOY, Juva.

Schurman, S.J. (1980), "Reuniting labour and learning: a holistic theory of work", in Leymann, H. and Kornbluh, H. (Eds), *Socialization and Learning at Work: A New Approach to the Learning Process in the Workplace and Society*, Athenaeum Press Limited, Newcastle upon Tyne.

Senge, P.M. (1996), "The leader's new work: building learning organizations", in Starkey, K. (Ed.), *How Organizations Learn*, International Thomson Business Press, London, pp. 288-315.

Sligo, F. (1996), "Disseminating knowledge to build a learning organization", *The International Journal of Human Resource Management*, Vol. 7 No. 2, pp. 508-20.

PROFESSIONAL PRACTICE
The savvy learner

Richard Dealtry
Intellectual Partnerships, Birmingham, UK

Abstract *This article defines the cultural nature and scale of change in learning consciousness that has to take place when the organisationally-based adult learner makes the transition from formal prescriptive learning practice to self-owned, self-directed learning. It articulates some of the learning-to-learn process models that introduce, accelerate, enhance and facilitate the adult person's understanding of this evolutionary journey. It also provides practical guidelines in progressively shaping their endeavours to take effective ownership of their own managerial learning at work. It draws on experience in delivering learning-to-learn programmes to suggest that the management learner in particular has to be increasingly aware and more discriminating in how they spend their time and learning energy if they are to arrive where they want to be and at the same time satisfy all the stakeholders investments in these process events. It illustrates, using a portfolio of learning-to-learn process-management-practice ideas, how the individual and groups of learners can effectively and progressively begin to manage the quality of their experience in learning to learn. The author advises that, in the long term, taking responsibility for learning to learn is not something that can be absolved by the learner manager; it has to become a self-determined series of personally-managed events. Adult learners have to have a heightened state of alertness to the dynamics of gradualism in managing the new learning process itself – to become "savvy" about the dynamics of the learning process and the key decision areas that will make a difference between learning satisfaction and success or failure in achieving their personal objectives.*

"Savvy" – Origin: 1785 Pidgin English imitating Spanish, *Sabe usted* – "you know".

"Savvy" – Definition: Having the intellect to know or understand. Shrewd and knowledgeable. Having practical common sense; nous and gumption. Having *savoir-faire*, the ability to say and do the right thing in any situation. Having the gift of "wit", i.e. ingenuity in creatively connecting diverse ideas – a person gifted with this power.

Originating self-managed new learning perspectives

We live in an age of information and learning which is promoting another wave of theories and counter-theories about what is developmentally good for our understanding of the subject of learning.

But what does all this mean for the individual learner? Will they make the right choice, be better-off and more informed in terms of the quality of their life or even more successful in their careers, or will they find they are simply being pushed along on another tidal wave of advice that is long on words and short on illumination?

An environment rich in learning opportunities is now and for the future part of every adult learner's new inheritance, but will these opportunities manifest

themselves in greater satisfaction and higher quality lifestyles for everyone. They will, but it has to be made to happen – it will not just happen, as the options and dynamics of choice and timing can and do produce many and varied outcomes if they are simply left to chance and hope.

Lifelong learning, action learning, e-learning, passive spoon-fed learning, blended learning, dynamic business-led learning, experiential learning, adult learning, distance learning, on-line learning, workplace learning and many of their derivatives are all expressions given to a bewildering array of overlapping propositions that potential learners are confronted with. And what appears as the most convenient does not necessarily result in the most beneficial outcome for the learner. *Caveat emptor* is the recurrent theme.

The lack of clarity on this learning landscape is further compounded for today's information "haves" as opposed to "have-nots". They are awash with stored data delivered and recycled from every possible media source from television, radio, e-mails, mobile phones, internet, extranets, etc. Information that was the preserve of the lucky few years ago is now available, accessed and dispensed instantly. Knowing how to "search efficiently" is now just as important as knowing how to interpret and apply the information.

All these sources are a highly beneficial resources for the participant in the pub quiz, *Mastermind* TV programme or popular *University Challenge* programmes where the test of memory and the delivery of specific answers are the means of assessment. However, for the people who live in the world of management there are very few ready-made answers and the challenging questions they face are bound up in the complex dynamics of problematic and developmatic events. Not only do they have to find solutions, but they also have, as a precursor to solutions and action, to find the processes that will lead to viable solutions in particular settings.

In today's management learner milieu looking for direction within the individual "tiles" of this learning and information mosaic is perhaps the wrong starting point. We need to encourage learners to reframe and make their choice from a learning to learn driven perspective. And they need to be clear about the robust nature and context of that business and managerial perspective.

Learning to be successful

Some of the most successful and wealthy people we can meet started life as market traders. From the market stalls in the open city marketplace, to the *souk*, to the shopping malls, in every country we can see the five Ps of marketing and a lot more being intensively exercised. Every aspect of management and business is embodied to some degree in the robust and highly competitive behaviour and activity of the market trader. The good ones have total savvy about their business activity and frequently many of them move forward to build larger prosperous businesses.

Top management are also market traders but we think about them in much more sophisticated terms. They set their stall out daily with their equity on

public display to tempt the buyers. But for success they have to have savvy about their business not just in today's terms but in the medium and longer term also.

In each case there has been a gradualism about their learning. And it is framed in the context of where they started from and where they want to finish. These are the anchor points for any learning-to-learn adventure into management.

To be successful between these two points some rather special learning is acquired that is fundamental for both survival and success in business. What is it? It is defined in many ways, for example in terms of subjects, skills, competencies, etc. but it is all bound-up in an intrinsic capability envelope that is called "business and management acumen". Some people are gifted with this capability, others learn the hard way. For the ambitious professional manager the effective management of his or her learning-to-learn pathway is one way of not leaving the acquisition of business and management acumen to chance!

Business and management acumen is however not a commodity. It is something within very generally known parameters that is a unique dynamic personal force and capability that a manager has to have for success in each business situation. Finding out what is the right "acumen formula" for each business and organisational setting is one of the great rewards of a well-managed personal learning-to-learn process.

A well-managed learning-to-learn process will help to maintain focus. It helps managers to make the right decisions about where to deploy their learning time and energy. It will set them firmly on the tracks for developing their business and management acumen capabilities. Ranging across the spectrum from the crudities and subtleties of management to the sophistications and robustness that is inherent in the world of business practice.

It is a journey with many diversions and pitfalls for the unwary but we can identify key sign posts and decision points in evolving a well-managed learning-to-learn process. A process of goodwill hunting for the management equity that underpins business acumen.

Managing learning-to-learn gradualism

The following introduction to the management of the learning-to-learn process relate to facilitated events that we have used to open minds to the nature and scale of the challenge that faces those with ambitions to become an independent self-actualising management learner of quality.

Some of these insight models are of our own manufacture and some are based on the theory and practice of the well-known authors in the field of action learning (see the "References" and "Further reading" sections). It is important to emphasise that the process events described below are simply in an introduction in an outline format. The participants in the actual accelerated

learning to learn development programme operate as a peer group set and are facilitated and sustained every step of the way by professional tutors, coaches and mentors.

*Creating pathways of learning – visualising learning to learn*
Figure 1 provides the contextual framework for a perspective on the blending of useful programmed knowledge (P) with an ability to rigorously question (Q) the value of that knowledge in relation to a given or chosen set of circumstances. Achieving an appropriate balance of P and Q inputs for the management and resolution of different learning situations being an acquired judgemental skill in learning to learn. Managing the dynamics of the learning pathway to achieve and stay "inflow" in "L" is the first objective for a competent learner (Dealtry, 2002).

Scoping the nature and scale of the learning to learn transition
Figure 2 provides a lifetime setting for understanding the evolutionary nature of learning to learn. It illustrates the challenge of the grey transition learning to learn "learner-gate" area that confronts every manager. This is the phase of personal development through which every manager has to navigate and negotiate to become an accomplished self-managed learner. It is the area wherein they have to achieve competency and personal mastery over their personal and situational learning dynamics.

The starting point – CV plus
Managers experience different starting points in their learning to learn experience and establishing where they are at the commencement of the journey or along that road is an essential anchor point for them before going forward. The CV plus is a diagnostic self-appraisal tool that
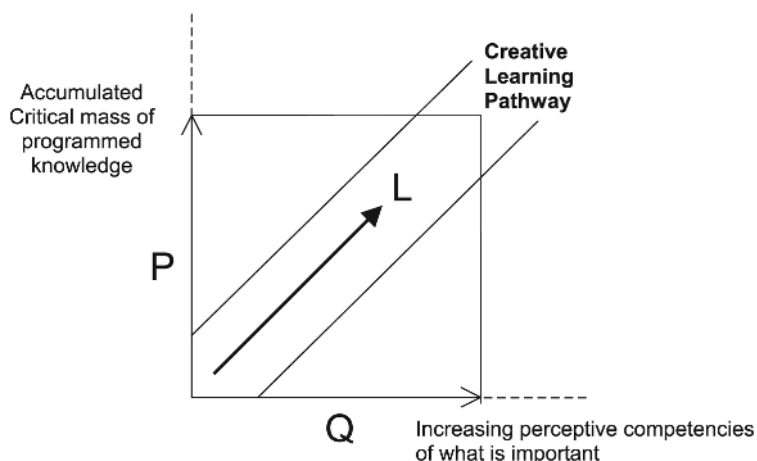
Figure 1.
Visualising a progressive-learning pathway
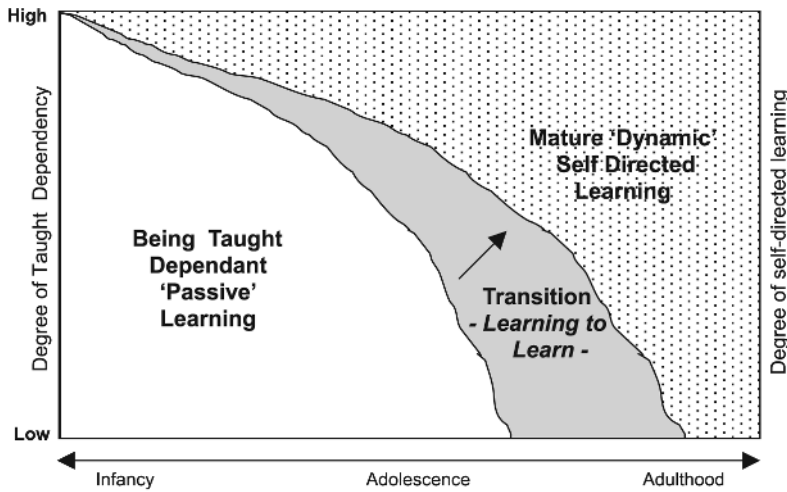
provides a framework of six strands through which they can undertake an honest and detailed review of where they came from and how they have evolved without the distraction of a particular job application in mind (see Figure 3).

When they have completed recording events in all the strands, starting at year zero, i.e. birth, and having moved progressively forward to the present time they can then identify the major decision points in time that have contributed to new directions in their lives; cross linking these decision points and noting the consequences for change events in other strands. These profiles properly prepared represent an individuals learning of life experiences over the years to the present. They can review from strand to strand just how

Figure 3.
The CV plus

self-directed they have been in the past, what their role has been in key decision areas and how this may influence their future.

Know yourself and others

Know yourself. There are a minimum of three profiles which a learner needs to have a good working perspective on if they are to effectively manage their learning to learn process experience: learning styles profile, learning diagnostics and team profile. All these inventories are well-known and at the programme process design or curriculum development stage the appropriate selection of instruments in these categories and others can be made. From the participants learning to learn point of view it is essential that they fully understand how their learning behaviours will be influenced by personal learning proclivities and how their natural preferences in group activities may affect their choice of action learning role.

Knowing others. Knowing the learning self leads to the recognition of the differences that can be expected in behaviour in those people we work with and live with. But these have to be managed in a wider set of dimensions pertaining to the dynamics of the learners learning environment. Figure 4 describes all the components of influence which must be accounted for by the learner in terms of their dynamic attributes – strengths, weaknesses, opportunities and threats – and their management of the process of learning to learn (Dealtry, 1992).

Perspectives on gradualism

Having examined some of the main factors that will influence the ability of the individual to progress in learning to learn it is timely to start generating perspectives on what lies ahead. Figure 5 illustrates the increasing character of learning and emphasises that well-managed progression is the central dynamic.
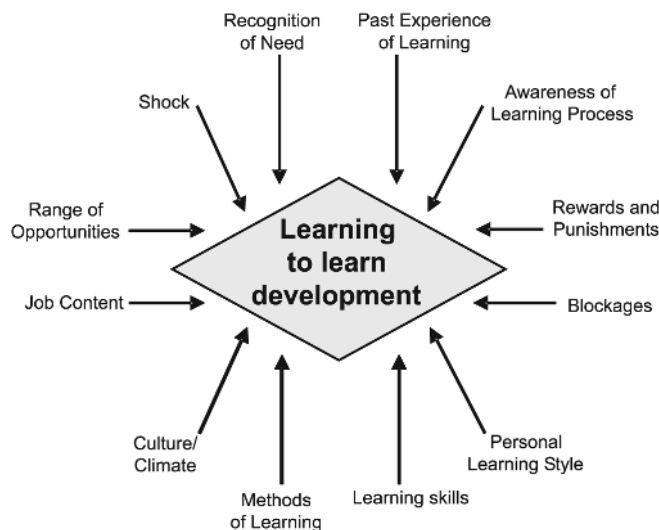
Figure 4.
Influences on learning
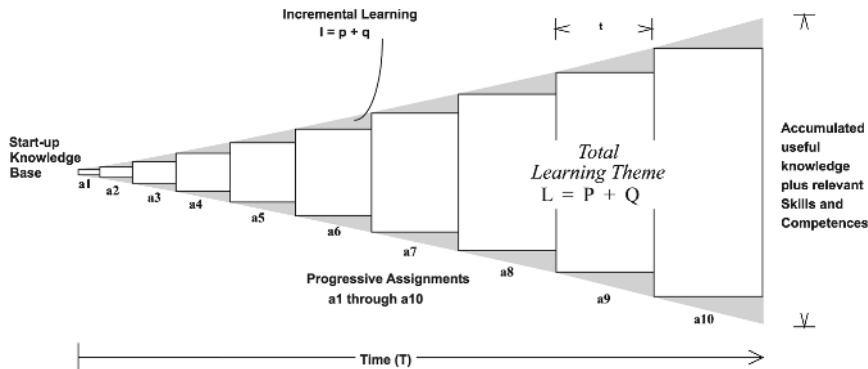
Figure 5.
An increasing process

Relationship between the learner and the organisation
In formal organisational learning programmes it is usual that the learner will
be introduced to quality assessed e-learning infrastructure resources and an
action learning infrastructure of people support in terms of a set adviser and an
understanding direct report, a mentor and a coach or counsellor will often be
established by agreement. Much of these infrastructure resources will remain
for general access. However, in the ultimate outcome of learning to learn, i.e.
that of becoming a self-directed learner, the continuing existence of both these
very different intensive supporting learning infrastructures cannot be
guaranteed. The learner needs to understand the implications of having to
set-up and maintain his or her own infrastructures to meet the demands of
higher levels of managerial learning in the future.

In the highly-supportive environment the answer to the questions relating to
"what should I learn" are well facilitated. It is, however, around these learning
choice issues that a key area of learning management competency needs to be
developed. "Who profits from learning" is where personal and organisational
learning interests can collide head-on or can be in harmony. Learning to learn is
about managing a balance between all the stakeholders involved in the learning
experience; the learner – yes; the organisation – yes; but also colleagues, family
and providers all have an interest and are touched by these events and these
relationships need to be appraised and positively managed at all times.

Learning to achieve the satisfactory management of all the stakeholder
interests in the learning experience is a central skill in effective learning to
learn. There are always immediate learning event issues to be considered but in
the context of lifelong learning all parties need to develop a new understanding
of the demands and commitments that are implicit in this way of working.

Praxiology of learning
Figure 6 describes a four dimensional learning domain framework for making
learning choice. It indicates the inherent risks in choosing to "stretch" or "play
it safe" in present situation and knowledge areas of new learning. This

Situation

		Familiar	Unfamiliar
Learning task	**Familiar**	A A learning task in an area you know well - Low Risk -	B A familiar learning task but applying it to a new situation - Moderate Risk -
	Unfamiliar	C An unfamiliar learning task but in a familiar work situation - Moderate Risk -	D New learning in a new part of the organisation - High Risk -

Figure 6.
Strategic learning choice

perspective, combined with the perspective on gradualism above, assists in the learner learning to learn in formulating a personal learning strategy. Some people prefer the adventurous "change agent role" whilst others prefer a more middle-way or cautious approach.

The nature of the internal and external portfolio of learning opportunities also influences people into active and non-active choices of learning. For example there are very significant differences in learning attraction between core management disciplines or introductory learning subjects, organisational systems understanding and intervention action orientated skills, and innovative or evolutionary leadership challenges. Each of these levels of challenge require the learning of new managerial capabilities that in-turn require different styles of learning management and infrastructure relationships for success.

The outcome of choosing to address the learning issues that will satisfy most stakeholders and achieving good learning-to-learn process practice, learning behaviours and competencies, ensures the attainment of high levels of learning relevancy for all the stakeholders in each learning experience. This discipline is the basis for acquiring sustainable business acumen.

You savvy?
Learning to become an effective self-directed learner is probably the greatest intellectual and psychological challenge that an individual can face in a lifetime.

The transition to taking personal responsibility for one's own learning confronts each person with their own inherent thinking and behavioural tendencies in terms of strengths and weaknesses. It is about personal strength

of character, leadership and achieving social co-operation in a competitive and often selfish world. And it is within that context that they have to take very important decisions about their future learning. Awareness for the responsibility and the quality of new learning experiences and accountability for outcomes suddenly arrive at a crucial meeting point.

Some people never attempt to acquire the competencies of serious learning to learn as they are addicted to the deferential prescriptive approach, or they are never told how important it is, or they are simply not aware that there is a need to do it. Whilst others have to do it by force of circumstances.

At the person level the pivotal role of the corporate university is to ensure that both the need-to-know, the process knowledge and the cultural environment is in-place in organisations so that each individual can make a quality and sustainable transition from prescriptive to the ownership of self-directed learning.

The test of success in learning to learn has many different and diverse dimensions including the level of personal satisfaction achieved. However, if the individual can say upon serious reflection that the learning-to-learn experience they have gathered along the way from each experience of their real-time learning selections has been priceless then they will have succeeded. They will have by stealth, by use of intellect, by making sure that they are in the right place at the right time, by the acquisition of the qualities and attributes of being savvy and in their firmness and acute presence of mind have demonstrated that they can effectively manage their personal learning-to-learn process.

They will eventually own their very personal and unique learning processes and will have become accountable for their learning efficacy. They will be on the road to releasing their full potential.

References

Dealtry, R. (1992), *Dynamic SWOT Analysis – The Developer's Guide*, Dynamic SWOT Associates, Birmingham.

Dealtry, R. (2002), "Managing the issue of learning relevance in the formulation of corporate learning strategies", *Journal of Workplace Learning*, Vol. 14 No. 5, pp. 209-14.

Knowles, M. (1990), *The Adult Learner, A Neglected Species*, Gulf Publishing Co., Houston, TX.

Further reading

Dealtry, R. (2000), "Strategic directions in the management of the corporate university paradigm", *Journal of Workplace Learning*, Vol. 12 No. 4, pp. 171-5.

Jacques, D. (1984), *Learning in Groups*, Croom Helm, London.

Mumford, A. (1997), *Action Learning at Work*, Gower Publishing, Aldershot.

Revans, R. (1975), *The Theory and Practice of Action Learning*, The Action Learning Trust, IFAL, Lancaster.

Sotto, E. (1997), *When Teaching Becomes Learning*, Cassell Publishing, London.

Weiner, L.R. (1993), *Digital Woes: Why We Should Not Depend on Software*, Perseus Publishing, Boulder, CO.

Internet editorial
Workplace learning: contextual factors 2

The previous editorial (in Volume 15, Issue 7/8) examined contextual factors that may affect workplace learning. Here the issue is further explored with some suggestions for positive action.

Keele University 24 × 7 survey
www.24-7survey.co.uk
You can order a free pdf copy of the latest 24-7 survey at this site. The report contains a fascinating look at attitudes to work, its effects on family life and individual health. The report clearly demonstrates the complex role work has in our lives through being a source of both stress and challenge, illness and fulfilment. It examines the impact of recent UK legislation on working practices and seeks to find answers to some of the work life balance problems encountered in the modern workplace.

The organizational health framework
www.ifoh.nl/gba_enos.html
This paper by Dr Maurice de Valk examines pressures on organizations and the individuals who work within them. These pressures include:

- globalization;
- pressure to improve productivity and be more responsive;
- changing role of government at all levels;
- competing corporate priorities;
- increasing impact of technology;
- move towards virtual organizations;
- onerous working hours with more organizations operating 24 hours;
- decreasing power of unions and diminishing awards;
- changing community values;
- multiple careers.

The author then examines four factors that support organizational health; leadership, management, valuing human capital and a supportive environment, offering suggestions for enacting change.

HR.com interview with Peter Frost on toxic workplaces
www.workopolis.com/servlet/Content/hr_com/20030529/hr_com_ toxic?section = hr_com

This Canadian site offers an interview with Peter Frost, who is an organizational behaviour professor at the University of British Columbia and author of *Toxic Emotions at Work*. David Creelman speaks to him about the toxic workplaces and the toxin handlers who help contain the damage. This site also offers links to other useful articles on a broad range of human resource topics.

Work-life balance
http://labour.hrdc-drhc.gc.ca/worklife/work-life-balance-en.cfm
This Canadian site has been created to help employers, unions, managers and human resources practitioners and professionals find the most pertinent and recent information on work-life balance. It offers links to research, case studies, management tools and programs relating tot his issue.

ACIRRT working papers
www.acirrt.com/research/papersframe.htm
This is an Australian university site that researches a range of issues relating to work. There are two working papers that particularly relate to the topics discussed here, "Bullying and harassment in the workplace" and "Work-family balance: international research on employee preferences". These papers can be viewed or download in pdf.

The Andrea Adams trust – workplace bullying
www.andreaadamstrust.org/publications.htm
This site discusses the UK legislative framework on bullying in the workplace and offers resources, including a free download fact sheet to combat bullying.

The Center for Corporate Culture and organizational health
www.wisdomatwork.com/BUSINESS/center/cccoh.html
The Center for Corporate Culture and Productivity Management is coordinating an inquiry to identify the key qualities and characteristics necessary to develop and sustain a "healthy corporate culture". The factors examined include:

- life-work balance;
- work stress reduction and self-optimization skills;
- the costs and dangers of workplace violence;
- the role of quality work-life and relationships on employee morale, health, and productivity;
- developing human health capital: the best management practices, organizational learning, values, norms, rewards and incentives; and
- the role of spirit, vitality, community, and social responsibility in corporate health.

Workplace spirituality

www.workplacespirituality.info/article1025.html

Following from the final point in the above site I present one that reflects the growing movement towards meaning at work. Workplace spirituality need not have a specifically religious basis but those available appear to be informed by a more religious and Christian ethos. This site is comprehensive within that genre.

Michelle Wallace
Internet Editor

Note from the publisher

During 2003 Emerald developed its corporate publishing philosophy. We did this through discussion with readers, contributors and editors and we would like to share it with you. We believe that our approach to quality makes us different and unique amongst scholarly publishers. It is based on six core principles, which together form our distinctive philosophy:

(1) *We put quality at the centre of our approach to scholarly publishing.* All papers published by Emerald go through a quality-assured peer review system; in all but a few practitioner-focused journals, this takes the form of double-blind peer review. All papers published by Emerald are expected to make, in some way, an explicit original contribution to the existing body of knowledge. All papers published by Emerald are accessible to a wide range of students, scholars and practitioners in the fields in which we publish. All papers published by Emerald are beneficial in some way – to researchers, practitioners, or both:

 • In 2001 we were audited and certified as "Committed to Excellence" following a European Foundation for Quality Management self-assessment exercise.

 • We retained our status as an ISO 9000 certified organisation, and our Investors in People (IIP) certification.

 • More than 30 Emerald journals are listed in the ISI Citation Index.

(2) *Continuous improvement of reader, author and customer experience.* We continue to invest in enabling technology to increase efficiency and effectiveness in content provision, customer service and management. We benchmark against others and against our own standards. We are as clear as possible in our policies, measures, targets and achievements and we do not hide shortfalls, but confront and learn from them:

 • Emerald papers go through a further post-publication "review" which assesses them on readability, originality, implications for further research and practice. We publish this information, and it can be used as search criterion, on the Emerald database.

 • In 2002 we were judged as providing Best Customer Support by the scholarly library publication *The Charleston Advisor*.

 • We provide high levels of dissemination of our authors' work – nearly 1 million papers per month are downloaded and read by subscribers to the Emerald online portfolio.

 • In 2004 we will be introducing an online submission and peer review system which will speed up the publication process.

(3) *Internationality.* We operate in a trans-national world of scholarly ideas and we believe that this should be reflected within our publications. Working with our authors, we set targets for international representation of authors and editorial team members, and measure against them:

- In the past six months we have published more than 50 themed issues with a specific international focus.
- In the first half of 2003, papers from 60 different countries were published.

(4) *An interdisciplinary approach*. We set targets, and ask for, papers and special issues on interdisciplinary approaches, and new/emergent themes. This gives us better, stronger, and more vibrant journals, and a clear leadership position in our industry:

- In the first half of 2003 we published more than 20 themed issues dealing with interdisciplinary approaches to a subject or industry.
- We encourage themed issues on leading edge and innovative research topics, and in the past six months published 35 such issues.

(5) *Supporting scholarly research: the Literati Club*. We help remove the barriers to publication. We conduct workshops for researchers on publishing issues. We provide help and advice to new researchers. We offer a service for authors whose first language is not English. Our staff regularly present papers at conferences on scholarly publishing themes:

- Our scholarly community Web site, the Literati Club, disseminates information about how to write for publication more successfully – we seek to make the process more transparent.
- The Emerald Research Register, an online forum for the circulation of pre-publication information is designed to help researchers gain advanced recognition among their peers by publicising their research at the earliest opportunity.
- Each year, we distribute grants to researchers working on improving the scholarly publishing dissemination process, and to encouraging scholarship in the developing world.
- We conducted research workshops at 11 universities and conferences, had papers accepted at nine academic and other conferences, and supported six academic conferences worldwide.

(6) *Integration of theory and practice*. We ask editors and review board members to focus where applicable on application, and beneficial implication for practice. We do so because this gives a clear message to our core supplier and consumer markets – the applied researcher, the reflective practitioner, the students of business and their teachers, the business and management school:

- All of our journals will publish a majority of papers that have a direct application to the world of work.
- More than 1,000 university libraries worldwide subscribe to the Emerald portfolio, including 97 per cent of the *Financial Times* top 100 business schools.

John Peters
Director of Author Relations