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**Synthesising Research Findings on Workplace Learning: the  
Experience of the UK Teaching and Learning Research  
Programme in linking with other workplace learning  
researchers in Europe and Australia**

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# **Synthesising Research Findings on Workplace Learning: the experience of the UK Teaching and Learning Research Programme in linking with other workplace learning researchers in Europe and Australia**

**Alan Brown and Jamie Brown      Warwick Institute for Employment Research**

## **Abstract**

This paper has a dual purpose. First, we will outline the attempts made by UK's Teaching and Learning Research Programme (TLRP) in collaboration with the Institute for Employment Research (IER) at knowledge exchange, combination, development and synthesis associated with researching workplace learning. This will trace the shift in approach from an attempt to provide a fairly comprehensive web-based repository of workplace learning research organised around ten themes to a more modest proposal of producing six web-based commentaries on contemporary topics in workplace learning research. Allied to this shift there was also a switch in focus from TLRP to trying to facilitate substantive collaboration at the level of national and European programmes to promoting more interchange at the level of projects. This links to our second purpose: we are interested in how we could link the findings from TLRP / IER research with findings from a range of other workplace learning projects drawn from across the world. So in this paper we take the themes from the other three papers in this symposium and see if we 'add value' to the discussions by considering whether TLRP / IER research can engage with their findings.<sup>1</sup>

## **1. Attempts at knowledge exchange, combination, development and synthesis**

The UK Economic and Social Research Council (ESRC) Teaching and Learning Research Programme (TLRP) is a major programme of research (2000 – 2011) that focuses on the outcomes of teaching and learning in many settings, including compulsory education, further education, higher education, workplace learning and lifelong learning. TLRP represents the UK's largest ever investment in educational research and the latest round of funding for projects on Technology Enhanced Learning brings the total investment to over 50 million Euros, a sum that will fund about 70 major awards. As far as VETNET is concerned there are twenty major projects that may be of interest to network members (for details see Appendix 1). The findings from individual projects are available from the TLRP website, with a particular emphasis being given to concise findings in Research Briefings and Summaries in addition to more conventional reports, books and articles, and many of the projects have reported at ECER or other international conferences.

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<sup>1</sup> Note of caution: we have been working solely from the abstracts of our collaborators in this symposium, so our apologies if we misrepresent how our colleagues interpret certain ideas. However, it would be good if dialogue could continue in an iterative way in any case.

International links have also been encouraged and TLRP has been involved in an informal partnership with some other countries that either had national educational research programmes and/or who were interested in the possibility of internationalising their educational research. This involved working with colleagues from Finland, France, Netherlands, Norway and Sweden in order to deepen collaboration in the field of teaching, learning and knowledge development. The partners exchanged information and good practice at the level of programmes and projects, and co-operated in activities such as the design of programmes and evaluation of project proposals. Subsequently, TLRP has become involved in links with researchers in a range of other countries, but these links are now mostly on a bilateral basis. We hope to extend and add to our links with other countries as part of the larger dissemination process of the whole programme as more projects are completed. (for details of TLRP's international links see Appendix 2).

Knowledge generation and dissemination through projects and international collaboration are familiar forms of knowledge transfer, but TLRP has also engaged in a range of activities at programme level. For example, there have also been attempts at knowledge synthesis by drawing out themes that go across the programme as a whole, and these are represented in a series of publications and programme-wide activities such as seminar series. The Programme's thematic development is intended to 'add value' to the work of projects and includes: consultancies, thematic groups, thematic seminar series, conferences, workshops, thematic meta-tagging of outputs and sectoral reviews. Cross-Programme analysis of specific thematic issues is scheduled for completion in 2007/8, with 2008/9 being devoted to meta-analysis of generic concerns. TLRP also produces analyses of the work of all projects in order to identify key themes and to produce commentaries on contemporary issues. TLRP has established a publicly accessible knowledge management system that includes a D-Space electronic repository and meta-tagging system. This is now used for deposition of all project publications as part of the annual reporting procedure, and has significantly improved the availability of outputs via the Internet and major databases.

The type of knowledge synthesis that may be of most interest to a VETNET audience concerns workplace learning. A couple of years ago we thought it might be possible to produce some fairly comprehensive overviews that represented the collective views of those involved in TLRP and complementary national programmes. However, the international dimension failed to materialise after it was ruled that ERA-NET funding was designed to be spent on talks about possible collaboration in the future rather than supporting national research programmes already in existence. So we decided to see what we could do at a national level. A group of researchers, drawn principally from TLRP, were involved in an initial clustering of issues and choice of themes in a way that was designed to support investigation of theoretical and methodological issues as well as focusing upon learning processes and allowing switching between different levels of analysis. In order to allow for different lenses with which it would be possible to view research on work-related learning the group felt that 10 branches might be about the right number for ease of organisation. After discussions in small groups the researchers agreed over a series of meetings to think about workplace learning in the following way, organised around the ten categories outlined below.

The outcomes were to include research findings from projects being presented in ways that facilitated breadth and depth of views of the research outcomes.

Additionally, the material was also presented thematically, organised around the following themes:

- Research Methodologies / Strategies
- Theoretical bases
- Learning contexts and settings
- Organisational learning and work design
- Factors affecting learning
- Learning processes
- Knowledge at work
- Strategies for enhancing learning
- Learning trajectories and transfer
- Policy (national / regional / organisational)

We started that process and had some success in developing a range of materials for a website focusing exclusively upon work-related learning, but what became apparent was that there were a number of factors that meant we were unlikely to complete the exercise as initially envisaged. First, we had massively under-estimated the scale of the enterprise, and to continue to use researchers drawn from the TLRP projects might, by drawing researchers' efforts away from their projects, jeopardise the successful completion of those projects. Secondly, even with involvement of researchers drawn from up to twenty projects this still represented a partial perspective, particularly where issues like theoretical perspectives and research methodology were concerned. Thirdly, it also became clear that even if we were able to put together a coherent and fairly comprehensive set of resources, keeping these up-to-date would be very resource intensive.<sup>2</sup>

Fourth, there is the globalisation and exponential growth of 'knowledge' in the number of repositories of electronic information appearing across the world linked by increasingly sophisticated knowledge management systems – in addition, Google Scholar, the journals databases and social bookmarking etc. mean that not only is it possible to be much more comprehensive in any Internet-based search from your desk but you can also follow trails that you find interesting and are precisely suited to your requirements. Allied to this, Internet search techniques are now sufficiently sophisticated that it was clear that many people were able to access material from the TLRP site ([tlrp.org](http://tlrp.org)), including from D-space (the Programme publications depository), and the most popular publication was downloaded over 16,000 times in 3 months (even though there had also been a much larger initial print run). Hence our fears that people would not be able to find what they wanted because of the mass of publications at project level appeared unfounded. However, there was still a need for something at a different level of aggregation of findings (findings at the project and programme level were both quite well covered) it just needed to be a little less ambitious in scope.

So what type of knowledge synthesis would be appropriate if we were no longer looking at comprehensiveness as a key criterion and yet still wanted to build our understanding on the accumulated work of others? It may be that the very

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<sup>2</sup> and IER was already committed to doing that in relation to career guidance through the National Guidance Research Forum (NGRF) – see <http://www.guidance-research.org>

comprehensiveness of the repositories of web-based information gives us a clue to what might be a fruitful approach. A search on ‘workplace learning’, ‘apprenticeship’ or ‘learning at work’ on Google will generate many millions of hits, even using Google Scholar there will still be tens of thousands of references. These hits are, of course, organised according to popularity so you can be sure that you get a range of relevant articles and resources, but most of these tend to be at a similar level of aggregation – reporting the work of individual scholars or findings from project teams. For academics, of course, this is their landscape and, drawing upon their academic expertise and judgement, they can usually quickly find and use material for their own purposes. For example, the process of putting together a basic literature review to underpin a grant application, which may have taken several days in the past, can now be done in a few hours.

However, what if you are a civil servant and you have been asked to come up with a draft policy statement in a couple of weeks. You may still use Google as a first port of call, but you may not have the full journal access of a university and you do not have the same academic expertise and judgement, so your choices may be more arbitrary or serendipitous – you may also fall foul of the tendency for government initiatives to have been subject to less than rigorous evaluation. The initiatives were ‘doomed to succeed’ and so you may come across evaluations and, in some cases almost marketing ‘puffs’, about how well an initiative is working when the reality is rather different. Even if you overcome these problems, and have sufficient experience in an area to apply a degree of critical judgement, you are then faced with the problem of what to choose among a vast array of material, usually written at a similar level of aggregation, where the authors take different slants on the topic in question. You choose somewhere to start and maybe consult a few academics or, if you have time, maybe even set up an advisory group. We think the ‘you choose somewhere to start’ gives us the clue as to where we should start with our knowledge synthesis: WE think it might be useful if a small number of researchers (drawn principally from perhaps just two or three TLRP projects) were to produce a number of web-based commentaries that offered a ‘way in’ to a small number of topics. The level of aggregation would be above the project level (and the numbers involved would be much less than the 15 – 20 we used previously and among whom it was almost impossible to reach agreement if you were dealing with a topic upon which people had strong opinions: e.g. the future of 14 – 19 education and training!) and the intention would be relatively modest – to produce a ‘way in’ to a topic that would be useful for the non-specialist.

The intention to produce a modest ‘way in’ to a topic could be criticised for its lack of ambition – why not aim for a definitive review? This is not the place to expound at length on the limitations of ‘systematic reviews’, simply to say that the lack of the ability to use judgement in varying the criteria can often lead to potentially useful material being excluded. Systematic reviews may have a role in drawing evidence together, but then they can often usefully be supplemented by the further application of academic judgement and expertise. The growth and accessibility of new information means that reviews themselves can often be just one part of a continuing process of taking stock of accumulated knowledge.

So where does this leave us? IER and TLRP are still committed to the idea of mutual support in knowledge development, combination and representation in career

development and workplace learning. IER, in collaboration with Knownet, has developed an implementation platform that is being used to support a ‘community of interest’ in career guidance. Related to this there will be an IER / TLRP website on work-related learning (it will draw together a range of material that had already been collected on the ten original topics but the focus in future will shift to the areas outlined below) - this website will be one of a suite of sites linked through a common portal on career development and workplace learning and will also be linked to the main TLRP website.

The IER / TLRP website will seek to draw together findings from across TLRP work-related projects on a number of topics that take further the work started by the TLRP ‘sharing expertise’ group. The work will draw upon the outputs from the completed Phase 3 projects (2007-8). The development work will be of use in the site, but the final **outcomes** will be a series of web-based commentaries on key issues that will be housed on both the IER / TLRP site and the main TLRP site. At least six web-based commentaries will be produced on the following issues (note there may be some change of configuration/titles following consultations with TLRP projects):

- Apprenticeship
- Learning in the workplace
- Organisational learning (including networks)
- Identities at work
- Knowledge at work
- Strategies for enhancing learning at work

These web-based commentaries will:

- highlight substantive findings from individual projects
- produce a higher level narrative that links findings from different TLRP projects
- contain an annotated commentary that highlights links to a range of material both from within and beyond TLRP research
- also be framed in an international context with links to research undertaken in a range of partner institutions.

The advantage of web-based commentaries is that not only will they be summaries of topics that go across TLRP projects, but that they will also allow for links to a wide range of other content on each issue. The commentaries can also make links across sectors and link to TLRP’s thematic work. The commentaries can also be framed by TLRP’s thematic model and the linking of different types of information can be theoretically informed. This more modest intention also means that international collaboration can be more focused. Much educational research in the UK has tended to be ‘national’ in its orientation and is often focused on specific ‘problems’, this approach may help us to draw upon research findings from elsewhere and collaborate internationally in more particular ways. Indeed this symposium itself had its genesis following discussions about how a more topic-focused collaboration was more realistic than trying to implement a grander vision of a much more comprehensive review process. This approach may also mean that we are better equipped both theoretically and in terms of networks to produce something on these topics that is of use at a number of levels. The challenge is to bring together theoretical and

substantive analysis within an international context. As a start on this process the first challenge for us will be to link the findings from a range of other workplace learning projects, that have been linked to TLRP in some way, drawn from across the world, so that they can be incorporated in resources on 'research on work-related learning', even though this resource will principally draw upon the work of researchers working in the Teaching and Learning Research Programme.

## **2. Contributions from TLRP to discussions in this symposium on skill transfer and knowledge exchange; dispositions at work; and role of theory and how students on from different tracks approach workplace learning**

### **2.1 Skill transfer and knowledge exchange**

Vibe Aarkrog focuses in her paper in this symposium on 'transfer as workplace learning'. She argues that the increasing awareness of the possibilities of learning in the workplace has produced a greater interest on the role of the workplace in securing transfer of knowledge, skills and understanding from formal education (Tennant, 1999; Aarkrog, 2004). In recent years Danish research has focused on: practice-related competence development and on how the workplace may enhance the employees' transfer of knowledge and skills. The focus has both been on how to prepare for work while participating in formal education and securing transfer of knowledge and skills after participation while in the workplace (Bottrup and Clematide, 2005). Now this links to the discussion on the Dutch research discussed in section 2.3, but for the moment let us look at whether findings from TLRP could contribute to the discussion of this topic.

Eraut (2005) draws attention to how 'transitions between education contexts and practice contexts are generally experienced as major causes of discontinuity. This often leads to considerable scepticism towards professional educators, partly because the discourse of professional education is rarely equipped to deal with knowledge transfer, and partly because education and practice use differently defined learning trajectories. In educational contexts, learning trajectories are aligned to aspects of academic, codified knowledge or to the skills of interacting, critical thinking and learning in a formal environment dominated by assessments. In practice settings, the trajectories are aligned to types of client and how they are treated, the performance of tasks and roles, the development and sustenance of relationships with clients and colleagues, and contributions to group or organizational activities.' (p.2).

The TLRP Early Career Learning Project looked at how new graduates learned in the workplace in nursing, engineering and accountancy and contributed the following ideas on issues of knowledge and skill transfer between education and workplace settings. The following extract is drawn from Eraut (2004a)<sup>3</sup>:

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<sup>3</sup> Eraut, M. (2004a) Informal learning in the workplace, *Studies in Continuing Education* 26 (2), pp. 247-273. (for a copy of the full text, see:

<http://www.tlrp.org/dspace/retrieve/226/Informal+Learning+in+the+workplace1.doc>

Note all page numbers in the text relate to this earlier draft of the article.

‘One further important conclusion from this work was the recognition that the transfer of knowledge from education to workplace settings is much more complex than commonly perceived (Eraut, 2004b). Typically it involves five inter-related stages:

- 1) The extraction of potentially relevant knowledge from the context(s) of its acquisition and previous use;
- 2) Understanding the new situation, a process that often depends on informal social learning;
- 3) Recognising what knowledge and skills are relevant;
- 4) Transforming them to fit the new situation;
- 5) Integrating them with other knowledge and skills in order to think / act / communicate in the new situation.

The whole process is much more complicated than just desituating and resituating a single piece of knowledge.

Higher education defines its interest in terms of transferring **its** knowledge, whose significance is taken for granted; and will, at most, attend to stages (1) and (3). The workplace may give some attention to stage (3) and generally takes stage (2) for granted. It expects knowledge from higher education to be “ready to use” and questions its relevance if it is not. Thus both cultures not only ignore the very considerable challenges of stages (4) and (5) but deny their very existence! Such is the common fate of tacit knowledge.’ (Eraut, 2004a: p. 10, TLRP D-space entry). Emphasis in the original.

Eraut (2004a) goes on to draw attention to the holistic nature of performance in most workplaces. This means that:

‘Even when an observed period of performance can be broken down into successive phases, each phase still requires several different types of knowledge and skill, whose relative importance may vary from one situation to another. Apart from noting occasional pauses in the action, the observer sees a fluent, unfolding sequence of events, whose most remarkable feature for those who do not take it for granted is the integrated and adaptive use of many different kinds of knowledge and skill. This raises some important questions about learning. To what extent is it possible to learn component knowledge and skills separately from the whole performance? If so, how authentic are the components, and is it the most effective approach? Then, finally, if it is possible to learn the components separately, does that constitute the major part of the learning effort; or is the integration and adaptation of those components the greater, and more time-consuming, learning challenge? In practice, there are many possible hybrid approaches, and the balance between components and whole performance will vary across different kinds of work; but the learning of holistic performance is often much less supported than components that can be learned off-the-job.’ (Eraut, 2004a: pp. 10-11, TLRP D-space entry).

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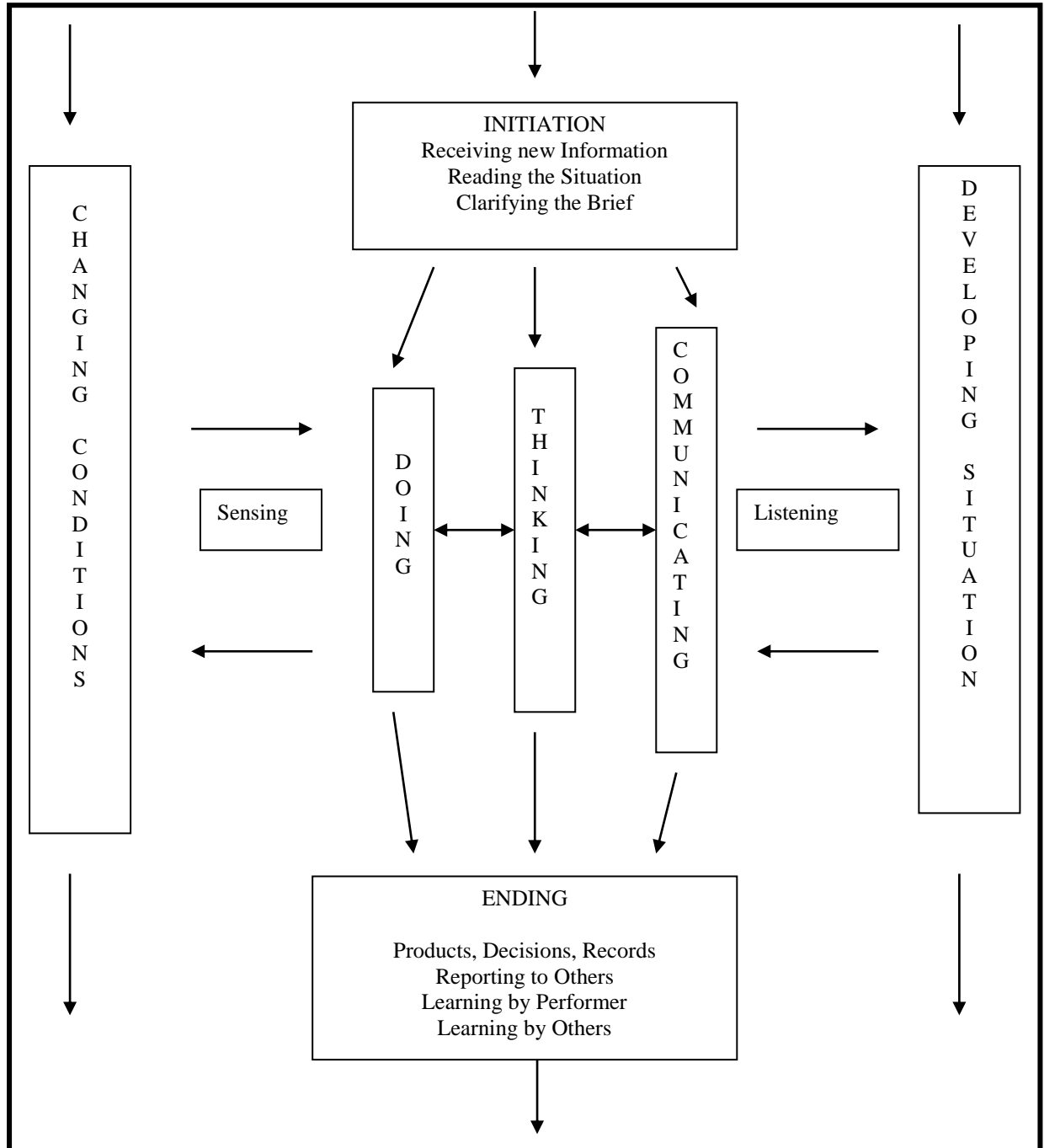
For further discussion of this topic, see also:

Eraut, M. (2004b) Transfer of Knowledge between Education and Workplace Settings, in H.Rainbird, A.Fuller and H.Munro (Eds) *Workplace Learning in Context*, pp201-221, London, Routledge.



Eraut (1994) had previously drawn attention to the scale of these problems of integration, fluency and adaptation through a schematic representation: see Figure 1 below. The period chosen for analysis can vary according to the focus and the occupation; for example one could consider a lesson, a clinic, a shift or a day.

**Figure 1: Activities During a Performance Period**



(Eraut, 2004a: p. 11, TLRP D-space entry).

Eraut (2004a) also highlights how:

‘A major aspect of professional experience is that many tasks do not get completed during a performance period, so there is the constant problem of ‘picking up the threads’ at the beginning or receiving new information that will cause a change of plan; then a need to record progress at the end and/or to hand over clients to a colleague. This is reflected in the separate boxes for *Initiation* to indicate the initial briefing and reading of the situation when the period starts, and for *Ending* to indicate what has been achieved, or left undone, by the time the period ends..... A great deal of competent behaviour depends not just on being able to do certain things (output) but also on the correct reading of the ongoing situation (input) so that the appropriate action can be taken. Nor is it only the external environment that changes of its own accord. The performer is an actor who affects that environment, not always in totally predictable ways. So another role of input is to provide feedback on the effect of one’s own performance. This applies whether one is making something and sensing it change, or talking to people while listening to their reply and observing their reaction.’ (Eraut, 2004a: p. 12, TLRP D-space entry).

What this means is that the transfer of skills and knowledge between settings (not just between education and work) is multi-dimensional – it is not a question of just transferring particular skills or specific knowledge. Similarly, even if a person is able to produce competent performance in a more or less ‘ideal’ work setting (with relaxed time and resource constraints), this can be quite a different proposition from reaching ‘experienced worker’ status. This point is reinforced by companies who build up competence inventories of their staff: they differentiate between:

- Those who are technically able to perform a task but have very limited practical experience of actually doing so (e.g. could use in an emergency or, if necessary, for a one-off activity);
- Those who have successfully performed the task on a small number of occasions (e.g. could use if wish to develop their expertise further; in a support role or if time is not necessarily a key criterion);
- Those who have performed the task many times and under a variety of conditions (i.e. experienced worker standard – completely reliable);
- Those who have substantial experience but are also able to support the learning of others (i.e. they can perform a coaching or mentoring role);
- Those who are world class, that is they are able to think through and, if necessary, bring about changes in the ways that tasks are tackled (e.g. could be chosen as a team leader for performance improvement activities).

The interesting thing here is that moving up this ladder itself requires a recontextualisation of skills, knowledge and experience and in this sense there are continuing challenges in relation to the transfer of skills and knowledge. You may also perform relatively much better at one level than another – most obviously in that coaching others and thinking in new ways require different skills sets compared to expert performance (third of the five levels specified above).

## 2.2 Dispositions at work

Stephen Billett in his paper for this symposium on 'Developing and transforming dispositions through workplace experiences' seeks to identify how dispositions are developed and transformed through workplace experiences (Billett, 1997) and what can be done to promote their development and transformation. The conceptual premise acknowledges that there are personal dispositions (e.g. values, interests, attitudes) as well as socially-derived and situated dispositions (e.g. norms, practices and values) that are central to the effective conduct of work practice. 'It is the intersection and negotiation comprising the appropriation of personal disposition, and individuals' reshaping of workplace dispositions that is central to both individual development and workplace change' (drawn from Stephen's abstract for this symposium). So let us see what evidence we have in these areas from IER / TLRP research to contribute to this discussion.

At IER we have conducted interviews with over 100 workers from telecommunications, IT, health care and especially engineering so as to be able to construct their narrative biographies in terms of how their learning, careers and identities unfolded at work. Some of the findings from this research have been separately reported, both at this conference (Barnes *et al.*, 2006) and elsewhere (Brown, 2004; Brown *et al.*, forthcoming), but what is of interest here is the schema we developed in order to portray the relationship between workers and the roles they were required to perform at work could be represented in terms of their patterns of strategic action across a range of structural, cultural and social contexts (compare Pollard *et al.*, 2000). Their experiences could be mapped in terms of their patterns of relationships, orientation and adaptive response to work and it is possible to trace the dynamic development of individuals' characteristic repertoires of strategic action - their 'strategic biographies'. This approach was most fully developed in the study of the development of engineers' work-related identities and identified four forms of strategic action that individuals may have in relation to their current work: identification; adjustment; strategic career; and redefinition (Brown, 2004).

This approach is outlined here as it could provide a frame showing the very different ways workers face view their work depending partly both upon the norms and expectations associated with their work role and their own dispositions to work, which in turn may also be influenced by factors outside work. Their careers could be mapped in terms of their patterns of relationships, orientation and adaptive response to work and it is possible to trace the dynamic development of individuals' characteristic repertoires of strategic action - their 'strategic biographies'.

**Identification** represents the 'classical' form of adaptive strategy - the individual identifies more or less completely with her or his work - both with the occupation and the employing organisation. The individual seeks to satisfy expectations (of employer, colleagues and customers, patients or clients) of how he or she should perform her or his role. These individuals generally accept the conventions of their work group, and are usually fully integrated into their occupational and organisational life. They are likely to remain in the same job for a considerable period of time. These workers may just continue to update their skills, knowledge and understanding as part of their continuing commitment to their job.

**Long-term adjustment** represents a more conditional form of adaptation - the individual may remain in an occupation and/or with a particular employer, but he or she recognises that this represents a compromise rather than an ideal situation. Typically factors from outside work (family commitments, personal networks, attachment to a particular location) may act to 'hold' an individual in place. The individual may still seek to satisfy expectations (of employer, colleagues and customers, patients or clients) of how he or she should perform her or his role, but he or she typically has some reservations about her or his work or employer. They may remain in the same job for a considerable period of time, but may willingly move on if the 'holding' circumstances change. Examples of reasons why interviewees felt 'locked into' their current work included accommodation to working patterns of a partner; a desire to be able to reach those for whom they have care responsibilities quickly (in an emergency); attachment to a particular locality ('we have lived here all our lives'); and attachment to their immediate work group. These workers may be ambivalent to any requirements to update their skills, knowledge and understanding as part of their job.

**Short-term adjustment** represents a fully conditional form of adaptation - the individual recognises that he or she only intends to remain in the job and/or with a particular employer for a relatively short time. Either because of individual circumstances, choice or long-term career plans, or because of dissatisfaction with the work, the individual may be actively seeking or intending to seek alternative employment or just 'running down the clock' until they are able to retire. These workers may be ambivalent to any requirements to update their skills, knowledge and understanding as part of their current job, but in some cases they could be looking to reskill or build a different skill set in order to get work in a different area.

**Strategic careerists** see their current occupational position and/or organisational attachment as one phase of a career that involves relatively frequent changes in the nature of work they do. They are committed to 'moving on' and see their careers as something that they actively construct. Their attachment to their current role may be partly influenced by the knowledge that they are only 'passing through'. Their careers may have involved a number of promotions and they may be used to having to adapt and update their skills, knowledge and understanding in new roles.

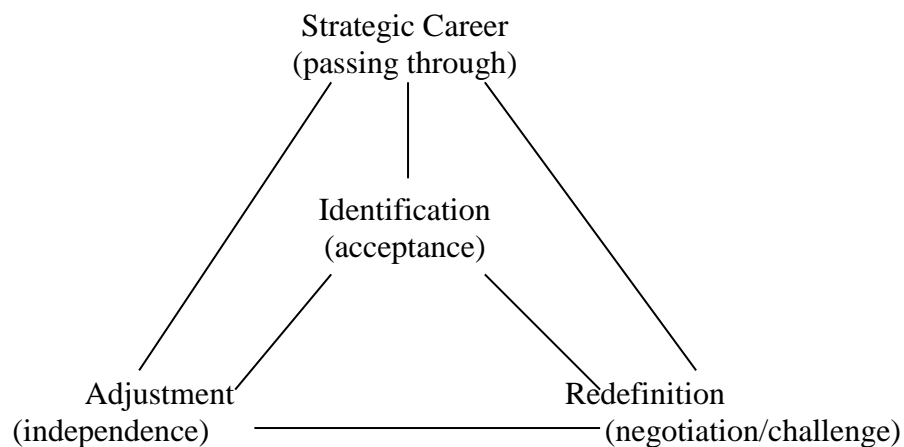
There were also some individuals who identified with their work, but who were also much more active in **re-defining**, rather than passively accepting, work-related roles. **Re-definition** is associated with the same mainstream patterns of achievement and cultural norms as those exhibiting more passive forms of **identification** (Pollard *et al.*, 2000). However, those using **re-defining** strategies are operating at the cutting edge of norms and expectations, pushing at the boundaries of expectations of employers, colleagues and others, typically negotiating, challenging and leading their peers in some respect. This strategy is often only viable for those who are recognised to have particular expertise, and/or formal authority and/or high social status. Some 'change agents' in engineering had both the formal

responsibility and social influence to achieve this - sometimes they were influential in reshaping the identities of others as well as that associated with their own role (Brown, 2004). Reshaping could come from 'within' a role and sometimes from 'outside' (or above).

The second form of **re-definition** occurred when an individual sought to change their occupation and/or employer, because they wanted (or saw themselves forced) to change direction. A number of workers interviewed had changed career direction quite radically. The development and utilisation of a new skill set in these cases was sometimes experienced as exhilarating – almost literally giving some people ‘a new lease of life.’

The above forms of strategic action could and did change over time (an individual may become disillusioned leading to a change from identification to adjustment, or an individual may follow a strategic career path for part but not all of their working life) or in response to particular events (most notably redundancy, but also ill-health, divorce or other major changes in life circumstances). The forms of strategic action do help us give meaning and shape to our interviewees' career histories by outlining some typical and relatively coherent repertoires of strategic response to the challenges posed by the development of work-related learning, careers and identities of older workers. It is possible to construct a model of how individuals could respond to the challenge of how they related to their work over time: they could move to different positions within the tetrahedron outlined below (see Figure2).

**Figure 2: A model of the forms of strategic action of individuals in relation to their work**



The research highlighted two dimensions of how workers responded to challenges of development of their learning, careers and identities: the first was the extent of their attachment to work (whether they identify with their work or offer more constrained commitment) and the second was the nature of the opportunities they had for, and their approach to, learning and development. Both these dimensions link both to personal dispositions (e.g. values, interests, attitudes) as well as socially-derived and situated dispositions (e.g. norms, practices and values) that are central both to

effective performance and development of work practice.<sup>4</sup> Many of our interviewees were active in their own learning and development, and although this was partly dispositional it also depended on context: it was much easier if development was directly linked to learning while working (Barnes *et al.*, 2006).

Another striking aspect of an examination of individual career trajectories is that, for a variety of reasons, many people are adjusted to their work rather than identify with it. What those making policy often assume is that identification and strategic career development are the states that can ‘normally be expected’ from those working in a particular sector: for example, sector skill councils focus upon getting people into and progressing within their sector, without any acknowledgement that in some cases most employees are just ‘passing through’. In practice, for a variety of reasons, many workers will see themselves as adjusting to work, over a shorter or longer time frame, rather than identifying with it. Any form of state-supported learning and development should therefore recognise the need to give the individual a significant ‘voice’ in choosing the direction in which their career should go, rather than assuming development should be aligned to their current work.

Another comment on this issue from looking across individual strategic biographies is that dispositions towards work were very often very changeable across the life-course. This has particular consequences for those seeking to promote work-related learning and development, as it is often a question of finding ways to engage people rather than assuming that apparently negative attitudes towards work translate into opposition to all forms of learning and development. Indeed one aspect of the longitudinal tracking of clients who had received (adult) career guidance was how this not only helped people with how they approached upskilling, reskilling or the management of a range of career transitions but also how it made a dispositional difference in how they viewed themselves, including in relation to how they viewed work. This meant that individuals often had a much more positive self-image, and were often able to maintain a positive self-image even when transitions were not working out favourably (Barnes *et al.*, 2006). It follows that the measurement of the impact of guidance needs to take account of ‘distance travelled’ by clients, in a way that focuses on the process of effective guidance as well as its quantifiable outcomes.

Overall, when we did find people who had drifted downwards in the labour market it was interesting that in some cases they did not feel they had an active occupational identity any longer rather they were still locked to a previous identity, for example, as a ‘former computer maintenance technician.’ We had examples of where personal disposition had had a positive role in changing norms and expectations at a particular workplace, but there was something poignant about how in the former cases where (loss of) work could almost appropriate personal disposition to such an extent that people could feel they lacked any sense of purpose or direction. This was the territory so well charted by Sennett (1998). However, it is important to acknowledge the positive dimension of this linkage of personal dispositions and work too; so we think we agree with Stephen (although at the time of writing we have only read his abstract) that ‘the intersection and negotiation comprising the appropriation of personal disposition, and individuals’ reshaping of workplace dispositions that is central to both individual development and workplace change’ (abstract for this symposium).

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<sup>4</sup> see Stephen Billett paper in this symposium.

### 2.3 Role of theory and how students from different tracks approach workplace learning

Cindy Poortman and Loek Nieuwenhuis in their paper for this symposium examine how VET students learn to perform at work, what role is played by theory in this process and how school-based pathway students' workplace learning (WPL) processes differ from work-based pathway students' WPL processes. Some IER work on the nature of expertise may be relevant here and the TLRP Early Career Learning Project again has some interesting things to say on this topic too.<sup>5</sup> Their focus on how new graduates learned in the workplace in nursing, engineering and accountancy meant there was a contrast between the predominantly education-based pathways of the first two professions with the predominantly work-based training pathway of the trainee accountants.

For those workers, such as nurses, from a predominantly education-based pathway transfer into a fully operational work setting can be traumatic. Eraut (2003) recalls how the first round of interviews with newly qualified graduate nurses produced an apparently gloomy picture:

"The nurses have already qualified but still have a difficult transition, caused by their sudden assumption of a great deal of responsibility and immersion into a highly demanding, pressurised environment with a very high workload. Critical features of this transition are:

- learning to manage their time, to prioritise the numerous demands upon them, and to recognise when patients need urgent attention
- being given immediate responsibility before the above has been achieved
- learning how to handle a whole range of challenging communication tasks and relationships with doctors, colleagues, other professionals, patients and relatives
- taking responsibility for the administration of drugs according to a wide range of schedules and using several different methods, while still attending to the needs of a considerable number of patients
- coping with shifts when they may have very little support
- learning a range of new procedures with varying levels of help
- peripheral learning is limited by the urgent demands on their attention, often limited contact with other members of their peer group, varying levels of support from more experienced nurses
- access to relevant short courses is often constrained by staffing shortages.

**They are all quite critical of their training, especially the disjunction between theory and practice, the lack of attention to scientific knowledge, and the pattern of work placements. Most of them are thinking about their next move, often to a more specialist ward in the same hospital"** (Eraut, 2003, p. 4).  
Emphasis added

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<sup>5</sup> Note this is one of the few TLRP workplace learning projects to have been completed so far.

This looks catastrophic but the longitudinal tracking of the nurses' throws up this example just eighteen months later. This is the case of one nurse, but is representative of their rapid general learning and development once they are in work:

“After 20 months, she continued to emphasise her need to be in control and finish her writing. **Her time management was better and she needed less support. She had stopped receiving supervision, after 8 months and had started self-directed reading on relevant issues.** She had become IV trained and had been on several short courses - basic life support, advanced life support, pain management, central lines. **She wanted to start taking a degree** by stages over a long period. **She had begun to mentor students, and had taken on management responsibilities when people hadn't turned up.** She had quite enjoyed it, and had ‘picked up aspects of what is expected of a co-ordinator or team leader’, but wasn't seeking that role yet. She gets significant support, both socially and at work, from a group who joined the unit at the same time as her and have ‘gelled.’ This was also recognised by her manager.

There are many tasks in which she is now more confident. **She is more aware of her learning through practice without noticing it at the time.** Dealing with very ill people is becoming more routine. She is prepared to do fewer observations than requested if she realises it is not necessary to do them so frequently. She is about to go on a High Dependence Unit course and expects to get a better ‘scientific’ understanding of ‘what is actually happening’ with things like blood gasses. She believes that novices need clear protocols **but more experienced nurses develop a more holistic awareness**” (Eraut, 2003, p. 6). Emphasis added.

So rather than a negative attitude towards theoretical learning this nurse now wants to build up her theoretical understanding both in formal education and in work. She also wants to support the learning of other students. Thus it is not that the knowledge and understanding has little value, it is rather that at the point of transition, and shortly afterwards, the former students wish they were better prepared for their immersion into the demands of work. In practice, this may be less an issue of how they were prepared than in how they are supported in the transition period.<sup>6</sup> Also a more work-based transition may not address the real sources of stress – nurses even on education-based pathways spend a good deal of time in hospitals, on wards and with patients: it is the transition to having direct responsibility for patients and having to think about what you are doing all the time that provides the pressure. The latter point is important in that nurses fully trained on the job would still feel the latter pressure – they might handle some cases better because they had greater practical experience and thereby recognized what was required, but they could struggle in other areas because the lack of a theoretical understanding meant that it was harder to recognize analytical patterns in their work: for example, under what conditions is a change in patient readings problematic and so on.

That is, work-based training routes may help learners with their intuitive pattern recognition of types of problems because of their greater exposure to a range of

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<sup>6</sup> This links back to the concerns of the Danish researchers discussed in section 2.1 above. See also Vibe Aarkrog's contribution to this symposium.



situations, but if a situation requires a more considered response then those that have greater theoretical and analytical understanding may have an advantage, at least when they are not feeling overwhelmed by all the other aspects of the situation. Eraut (2004a) argues that people may assess situations almost instantly by pattern recognition, less rapidly by drawing on their intuitive understanding of the situation, and finally more deliberately by using reflection and analysis. Intuitive understanding signifies some familiarity with most or all aspects of the situation. Such a failure to make a rapid decision could be either because no sensible option readily came to mind, or because the consequences associated with the outcome suggest that the original understanding should be checked before taking any further action.

This is probably why there has been the shift towards more education-based training for nurses – more practically trained nurses could probably be trusted to make the right decisions in most cases based on experience and intuition, but we, as patients, feel safer if they also know why those decisions are correct and can also recognise when intuition may be an unreliable guide. Additionally, intuitive understanding is often not fully challenged until somebody is forced to deliberate between two or more options, and consequently expresses a strong preference for one particular option because they suddenly feel that it fits the situation much better than the alternatives (Eraut, 2004a). Those that rely almost exclusively upon intuitive understanding may not recognise there are alternatives, whereas those who have a deeper theoretical understanding not only do so, but in the early stages of their practice are slowed up by thinking of possible alternatives even when a quick intuitive action would be sufficient.

Interestingly, in circumstances where the consequences of mistakes by trainees are largely reversible and retrievable, such as in accountancy, then a work-based training route does have distinct advantages in getting trainees up to practical competence as quickly as possible. This is because of the value of almost continuous exposure to real practice. Reber (1993) demonstrated that implicit learning occurs as episodes that are not recalled may nevertheless affect later performance. Eraut (2004a) therefore argues that it is reasonable to assume that information can be used without a person being aware of doing so, even if the episode from within which that information was obtained is itself being explicitly recalled. Such implicit use of information can be cumulatively aggregated in memory across the perceptions of many previous episodes and so lead to an intuitive understanding of a situation. In accountancy training the sheer volume of practice and the constrained variety of situations with which trainees have to deal (all similar but different) means that trainees get to instinctively ‘know’ whether particular actions are appropriate so rapidly, that more senior trainees are used to train more junior trainees. Explaining when you have accumulated sufficient evidence of a particular type within an audit for you to move on is partly intuitive, even if many other aspects of the audit are based on clear rubrics and formalised procedures.

Application of these ideas do not just apply to accounting, however, as Eraut (2004a) points out how ‘throughout our lives we make assumptions about people, situations and organisations based on aggregated information whose provenance we cannot easily recall and may not even be able to describe. We instinctively ‘know’ that a particular action is appropriate’ (p.7) (even if sometimes this ‘knowledge’ lets us down). However, because the aggregation process has not been under our conscious

control, there is a danger that our selection and interpretation of information from these episodes is biased: in any occupation it is possible to ‘misread’ situations and take inappropriate action even when we intuitively felt that action was right, and even when acting in that way has proved appropriate in the past.

It is only when the ‘misreading’ does not lead to any reflective action that we should really be concerned. Eraut (2004a) argues that these tacit readings of situations could be construed as personal knowledge or ways of handling situations and they become problematic when they are used uncritically. Their uncritical use could be because people either believe that it works well for them, they do not know of any alternative, ‘or lack the time and/or disposition to search for anything better – the latter being a common feature of situations where people are overworked or alienated. But in more technical areas, or where more strategic decisions are involved, tacit knowledge is more likely to be used for generating hypotheses or possible sources of action, which are then checked out against other evidence or discussed with other people. This behaviour is characteristic of medical diagnosis and decision-making in a wide range of naturalistic settings (Klein *et al.*, 1993, Eraut *et al.*, 2004)’ (Eraut 2004a, p.7).

Eraut (2004a) points out that tacit knowledge does not arise only from the implicit acquisition of knowledge but also from the implicit processing of knowledge. Doctors remember large numbers of individual cases and it is only on a few occasions that they deliberately stop to think about a particular kind of case; but then ‘they cannot explain how that accumulated experience enables them to instantly address a new case by recognising a pattern and activating a readily available script, which they never consciously attempted to compile. Indeed, the research literature on expertise consistently finds that the distinguishing feature of experts is not how much they know, but their ability to use their knowledge, because that knowledge has been implicitly organised as a result of considerable experience for rapid, efficient and effective use (Schmidt and Boshuizen, 1993)’ (Eraut, 2004a, pp. 7-8).

Professionals often find that the most important workplace tasks and problems require the integrated use of several different kinds of knowledge, and this can be particularly challenging for those just 'starting out' in their careers. This is the real challenge: predominantly education-based routes and predominantly work-based routes will lead to the development of different types of knowledge, but in many occupations either will be insufficient as it is the combination and integration of different types of knowledge that is often the major challenge. From this perspective looking at the transition from one form of training to work is really focusing upon the wrong transition – the key transition is not from training to work, but from training to experienced worker status. This shift of perspective would enable people to look at immediate post-qualifying period as a time in which a great deal of learning takes place and to recognise that the degree of support an individual receives at that time could have more significance for their ultimate success than the type of pathway they followed in training. People early in their careers learn a great deal from challenges at work, provided that they receive support as required, because without this they feel overwhelmed and may start to lack confidence in their own abilities. Eraut *et al.* (2004) highlight how people learn most effectively when a virtuous circle of confidence, support and challenge is created.

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## **Appendix 1: TLRP projects of relevance to those with an interest in work-related learning**

Overall TLRP website: <http://www.tlrp.org/dspace/index.jsp>

TLRP publications repository with hundreds of publications on work-related learning

(tagged for ease of searching) <http://www.tlrp.org/dspace/index.jsp>

### **Workplace Learning Projects**

<http://www.tlrp.org/proj/Workplace.html>

[Improving Incentives to Learning in the Workplace](#): Rainbird, Evans, Hodkinson & Unwin (2000-03)

[Early Career Learning at Work: LINEA](#): Eraut, Maillardet, Miller & Steadman (2001-04) (formerly: Learning During the First Three Years of Postgraduate Employment)

[Learning as Work: Teaching and Learning Processes in the Contemporary Work Organisation](#): Felstead, Ashton, Bishop, Fuller, Jewson, Lee & Unwin (2003-08)

[Understanding the System: Techno-mathematical Literacies in the Workplace](#): Hoyles & Noss (2003-07)

[Enhancing 'Skills for Life': Adult Basic Skills and Workplace Learning](#): Wolf, Evans, Bynner & Jupp (2003-07)

[Learning in and for Interagency Working: multiagency work in Northern Ireland](#); Gallagher, Daniels, Kilpatrick (2005-2007)

[Globalisation and Skill Formation Strategies of MNCs: A Comparative Analysis](#); Brown, Lauder, Ashton

### **Professional Learning Projects**

<http://www.tlrp.org/proj/cpd.html>

[Competence-based Learning in the Early Professional Development of Teachers](#): McNally, Boreham, Cope and Stronach (2003-07)

[Vicarious Learning and Teaching of Clinical Reasoning Skills](#): Cox, Lee, Varley and Morris (2004-06)

[Learning in and for Interagency Working](#): Daniels, Edwards, Creese, Leadbetter and Martin (2004-07)

### **Lifelong Learning Projects**

<http://www.tlrp.org/proj/lifelong.html>

[Learning Lives: Learning, Identity and Agency in the Lifecourse](#); Biesta, Field, Goodson, Hodkinson and MacLeod (2003-07)

[Identity and Learning](#); Pollard (2005-2007)

[Older people and lifelong learning: choices and experiences](#) ; Withnall and Thompson

### Further and Post 16 Education Projects

<http://www.tlrp.org/proj/Further.html>

[Transforming Learning Cultures in Further Education](#); Hodkinson, Gleeson, James & Postlethwaite (2001-05)

[Using Research to Enhance Professionalism in Further Education](#); Goodrham (Research Training Fellow) (2001-06)

[Learning in Community-based Further Education](#); Gallacher, Crossan & Mayes (2003-05)

[Literacies for Learning in Further Education](#); Ivanic, Barton, Edwards & Breen (2003-06)

[Policy, Learning and Inclusion in the Learning and Skills Sector](#); Coffield, Hodgson & Spours (2003-06)

[Bilingual Literacies for Learning in Further Education](#) ; Martin-Jones, Ivanic, Chandler (2005-2007)

[Learning and working in Further Education in Wales](#) (Dr Martin Jephcote, Dr Jane Salisbury, Mr John Roberts, Prof Gareth Rees)

**Publications are also available from project homepages on the TLRP programme website (plus in some cases linked project websites)**

So, for example, the following publications are available from the completed Early Career Learning at Work project <http://www.tlrp.org/proj/phase11/phase2d.html>

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

Blackman, C., Miller, C., Steadman, S., Eraut, M., Maillardet, F. & Ali, A. (2003) Interim Report - Early Career Learning: Nursing Sector, (London, Teaching and Learning Research Programme).

Eraut, M., Furner, J., Steadman, S., Maillardet, F., Miller, C., Ali, A. & Blackman, C. (2003) Early Career Learning - the LiNEA project. Interim report for Accountancy, (London, Teaching and Learning Research Programme).

Eraut, M., Steadman, S., Maillardet, F., Blackman, C., Furner, J., Miller, C. & Amer, A. (2004) Learning in the professional workplace: relationships between learning factors and contextual factors, (London, Teaching and Learning Research Programme).

Maillardet, F., Ali, A., Eraut, M., Steadman, S., Miller, C., Blackman, C. & Furner, J. (2003) Early Career Learning - the LiNEA project. Interim report for Engineering, (London, Teaching and Learning Research Programme).

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- Eraut, M., Steadman, S., Maillardet, F., Miller, C., Ali, A., Blackman, C. & Furner, J. (2003) Learning during the first three years of postgraduate employment - the LiNEA Project, Padua Conference Paper, (Padua, Italy, August).
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- Eraut, M., Steadman, S., Furner, J., Maillardet, F., Miller, C., Ali, A. & Blackman, C. (2004) Learning in the professional workplace: relationships between learning factors and contextual factors, AERA Conference (Division I Paper Session), (San Diego, April).
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- Steadman, S., Eraut, M., Maillardet, F., Miller, C., Ali, A., Blackman, C. & Furner, J. (2002) The LiNEA Project (Learning in Nursing, Engineering and Accountancy), Society for Research into HE Conference, (Glasgow, December).
- Steadman, S. (2005) Methodology and theoretical frameworks, Symposium on Early Career Professional Learning, AERA Conference, (Montreal, Canada, April).

## **Appendix 2: TLRP international links**

International links have also been encouraged and TLRP has been involved in an informal partnership with some other countries that either had national educational research programmes and/or who were interested in the possibility of internationalising their educational research. This involved working with colleagues from Finland, France, Netherlands, Norway and Sweden in order to deepen collaboration in the field of teaching, learning and knowledge development. The partners exchanged information and good practice at the level of programmes and projects, and co-operated in activities such as the design of programmes and evaluation of project proposals. Subsequently, TLRP has become involved in links with researchers in a range of other countries, but these links are now mostly on a bilateral basis. We hope to extend and add to our links with other countries as part of the larger dissemination process of the whole programme as more projects are completed.

### **Canada**

Many of the universities in Canada are now hosting research around teaching and learning, since the interests of many Canadian scholars also lie in understanding questions of educational quality, learning processes and pedagogical practices. Since the TLRP has a stronger focus on teaching and learning outcomes through personalised learning, we wish to develop a broader basis for understanding by drawing on North American scholarship. This would enhance our current research profile and thematic development on social diversity and achievements in learning. Miriam David is going as a Visiting Fellow in the Spring of 2007 to promote and enhance the analyses and disseminate the findings of the TLRP, specifically on the theme of Social Diversity in Teaching and Learning: new understandings about closing the achievement gaps across the life course. The North American emphasis has a complementary focus on achievement gaps primarily in relation to poverty and ethnicity/race and aspects of diversity through changing demographic patterns, migration and family forms.

The biggest Canadian research institute in education is The Ontario Institute for Studies in Education, University of Toronto (OISE/UT) with two departments that do most of the work in this area, namely Sociology & Equity Studies and Theory and Policy Studies. Miriam will be visiting OISE on the invitation of the Dean (Professor Jane Gaskell), to work with Professors Acker (SES) and Nina Baskia (TPS).

**Finland** Programme Website: <http://www.aka.fi/Learn>

Finland too has a national educational research programme that is broadly complementary with TLRP. The Academy of Finland's 'Life as Learning' (LEARN) Research Programme started in 2002. The programme focused upon the reinterpretation of lifelong learning and the reinterpretation of work-related learning.

**France** INRP research portal: [http://www.inrp.fr/internet\\_en/recherche/](http://www.inrp.fr/internet_en/recherche/)

The Institut National de Recherche Pédagogique (INRP) has engaged with TLRP in a range of collaborative activities. INRP works in partnership with a wide range of organisations in order to contribute to the development of research in education on a national scale. INRP's current research activity is particularly focused upon learning processes; changes in the education system; and the development of teaching knowledge and professionalism.

**Netherlands** Programme website: <http://www.nwo.nl/nwohome.nsf/>

The Program Board for Educational Research (PROO) of the Dutch Research Council (NOW) co-ordinates programmes on educational research. The latest programme focuses upon preschool and early school learning; innovative learning; vocational training; staff competence development; the school as a learning context; and schools and social cohesion.

**Norway** Programme Website:  
<http://www.forskingsradet.no/servlet/Satellite?cid=1088802022079&pagename=utdanning%2FPage%2FHovedSideEng>

Norway has a national educational research programme that is broadly complementary with TLRP. The Norwegian Research Council Division for Culture and Society programme is on 'Knowledge, Education and Learning'. The programme focuses on research on learning in education, the labour market and society in general. One of the projects in the Norwegian programme (PROLEARN) was explicitly designed to mirror the approach of the TLRP Early Career Learning project and, as such, is an example of purposive bilateral co-operation. The PROLEARN project traces the early career development of nurses, teachers, accountants and engineers. Project website: <http://www.pfi.uio.no/prolearn/index.html>

## **USA**

Many of the universities in the USA are now hosting research around teaching and learning, since the interests of many American scholars also lie in understanding questions of educational quality, learning processes and pedagogical practices. Since the TLRP has a stronger focus on teaching and learning outcomes through personalised learning, we wish to develop a broader basis for understanding by drawing on North American scholarship. This would enhance our current research profile and thematic development on social diversity and achievements in learning. Miriam David is going as a Visiting Fellow in the Spring of 2007 to promote and enhance the analyses and disseminate the findings of the TLRP, specifically on the theme of Social Diversity in Teaching and Learning: new understandings about closing the achievement gaps across the life course. The North American emphasis has a complementary focus on achievement gaps primarily in relation to poverty and ethnicity/race

and aspects of diversity through changing demographic patterns, migration and family forms. This is a major feature of the work of scholars at the Harvard Graduate School of Education (HGSE), Cambridge, Massachusetts 02138 and the Faculty of Education University of Wisconsin-Madison. HGSE has many scholars researching issues of social diversity in teaching and learning, but Miriam David will be working with particularly Professor Wendy Luttrell, Nancy Pforzheimer Aronson Associate Professor in Human Development and Education. Gloria Ladson-Billings of the University of Wisconsin-Madison addressed these issues in her Presidential address to the American Educational Research Association (AERA) meeting in spring 2006 raising the question of understanding the achievement gaps in US schools. Clearly there is much to be learned from this approach to understanding social diversity in achievement gaps in learning. Ladson-Billings is one of several scholars in the Department of Curriculum and Instruction and Education Policy Studies at the University of Wisconsin-Madison, and others include Professors Michael Apple, Marianne Bloch, Michael Fultz, Michael Olneck, Tom Popkewitz and Amy Stambach.

**Sweden** CES website: <http://www.vr.se/responsibilities/researchpolicy>

The Swedish Government set up the Committee for Educational Science (CES) as a special expert body of the Swedish Research Council with a focus on research on learning, knowledge formation, education and teaching. The CES has a temporary mandate up to year-end 2008.