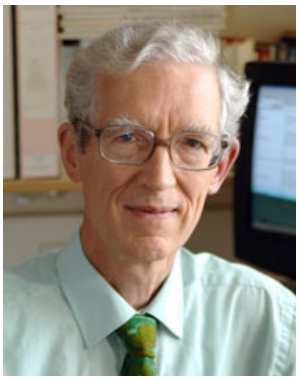
The Balance between Communities and Personal Agency:
Transferring and integrating knowledge and know-how between different communities and contexts

Michael Eraut, University of Sussex



Professor Michael Eraut is Emeritus Professor at the Sussex Institute of the University of Sussex. He is a world expert and the UK's leading researcher into how professionals learn in work place settings. His pioneering research has found that most learning occurs informally during normal working processes and that there is considerable scope for recognizing and enhancing such learning. His books include the highly acclaimed *Developing Professional Knowledge and Competence*. In 2007 he completed an ESRC-funded five-year study of how professionals learn in the early part of their careers, and Michael is working with SCEPTrE to help transfer and adapt some of this research knowledge to the professional work placement context in order to improve students' experiences. But in this conference we are inviting him to look to the life-wide dimension of learning and to see what can we learn about the process of transferring and integrating knowledge and insights gained in one context to another.

Summary

Most undergraduates are members of several communities: their family, their friends, their university, workplaces where they earn money, and other types of social groups. These all involve engagement with other people; and that engagement plays a central role in their informal learning, whether or not they are engaged in formal learning. Good relationships with other people are known to enhance such learning within the appropriate domain. However, transfer of learning from one context to another cannot be taken for granted. Such transfer is often more challenging than most people expect, because learners have both to recognise its relevance and to see how it might be used in a different context. This paper sets out to show how people learn different things in different ways; but further learning is needed to merge different types of knowledge into holistic performances. While most undergraduates want to get a good degree through learning formal knowledge, they are also concerned to find career jobs with prospects that require other, more interpersonal, knowledge; and many of them are also looking for a new balance between their participation in families, friends and communities. This participation involves access to communities, an ability to engage with those they meet and a growing ability to contribute to their goals.

The paper argues that, in a period of rapid change, the concept of competence-based goals as indicators of a person's workplace capability is far too restrictive. Lifelong learning requires the use of lifelong learning trajectories, which can offer more freedom to be holistic, attend to the emotional dimension of work, and appreciate the significance of complexity. Life-wide learning contributes to the holistic development of a person and offers the potential for individuals to develop along some of their learning trajectories through different parts of their lives simultaneously.

Good feedback needs to go beyond these simple indicators to respond to a person's overall contribution to their working group and their community; and appraisals need to discuss future possibilities as much as past performance. What are the possible relationships between people and their communities, and how do newcomers find out what works best for them? Who is responsible for helping whom? Who actually helps them? How do people find ways to develop their own agency within communities? Data from working contexts are discussed through both stories and questionnaires; but the overall context will be focussed on the issue of transferring knowledge and know-how between different communities and contexts.

Background

This paper has been written to support the exploration of the idea of life-wide learning (Jackson 2008) 'a unifying and integrating concept because it enables us to bring together, within a single framework, learning in and from different contexts.' (Jackson 2010). Over the last three years I have been involved in trying to transfer and integrate some of the knowledge I have gained from research into how people learn when they are working in a professional environment within the frameworks provided by a university and employers who develop placements to help students learn in a professional work environment. This contribution connects and integrates evidence from a number of sources, aimed at gaining a better understanding of the process of transferring knowledge and know-how between communities in the work environment. The observations may well be relevant to other social contexts and communities in a student's life-wide learning enterprise.

1. What counts as knowledge?

This section seeks to address the challenging problem of how an individual's understandings and capabilities may be represented and communicated in a social context by treating representations as mediating artefacts, whose meanings are clarified and to some extent reconstructed through the conversations they elicit.

Both knowledge and learning can be examined from two perspectives, the individual and the social. These can be considered as analogous to the particle and wave theories of light. An individual perspective on knowledge and learning enables us to explore both differences in what and how people learn and differences in how they interpret what they learn. A social perspective draws attention to the social construction of knowledge and of contexts for learning, and to the wide range of cultural practices and products that provide knowledge resources for learning.

In universities knowledge is primarily associated with publication in books and journals, and subject to quality control by editors, peer review and debate. This *codified knowledge* is then given further status by incorporation into educational programmes, examinations and qualifications. The model of knowledge creation is that of an organised, socially constructed knowledge base, to which individual authors and groups of co-authors add new contributions. Each discipline has editors and referees controlling the *acceptance of publications*, using agreed criteria. Journals use the criterion of *truth* according to the norms of the community from which they draw its readership. Some people in higher education regard these criteria as problematic, but those outside higher education are more likely to be concerned about its relevance.

Practical work in science, engineering and vocational education involves *learning knowledge* that has been shown to work, but cannot be fully described in books; and *cultural knowledge* that has not been codified, but which plays a key role in most work-based practices and activities. There is considerable debate about the extent to which such knowledge can be made explicit or represented in textual form; but the evidence suggests that its amenability to codification has been greatly exaggerated (Eraut 2000). What does appear to be generally acknowledged is that much *uncodified cultural knowledge* is acquired informally through *participation in working practices*; and is often so "taken for granted" that people are unaware of its influence on their behaviour. This phenomenon is much broader in scope than the implicit learning normally associated with the concept of *socialisation*. In addition to the cultural practices and discourses of different occupations, one also has to consider the cultural knowledge that permeates the beliefs and behaviours of their workers, suppliers and clients.

Whereas codified cultural knowledge is frequently discussed in terms of its truth and validity, uncodified knowledge is discussed in terms of its ownership, location and history. Who uses this knowledge, where and when? Both types of knowledge may be investigated for their range of meanings, and this is where

the interaction of social and individual perspectives is particularly enlightening. The theory of *situated learning* postulates that the personal meaning of a concept, principle or value is significantly influenced by the situations in which it was encountered and the situations in which it was used. Hence the personal meaning of a concept or theory is shaped by the series of contexts in which it has been used. Given today's rapid mobility, the sequence of such contexts is probably unique to each individual practitioner; and this may lead to them acquiring slightly or widely different meanings. Even codified knowledge is personalised to some extent.

I chose the terms *personal knowledge* and *capability* for the individual-centred counterpart to cultural knowledge, and defined it as "what individual persons bring to situations that enables them to think, interact and perform" (Eraut 1997, 1998). This enabled me to investigate the effects of personal knowledge without necessarily having to represent that knowledge in codified form. The rationale for this definition is that *its defining feature is the use of the knowledge*, not its truth. Thus I argue that personal knowledge incorporates all of the following:

- *Codified knowledge* in the form(s) in which the person uses it
- *Know-how* in the form of *skills and practices*
- Personal *understandings of people and situations*
- Accumulated *memories of cases* and episodic *events* (Eraut, 2000, 2004a)
- Other aspects of personal *expertise*, *practical wisdom* and *tacit knowledge*
- *Self-knowledge*, *attitudes, values* and *emotions.*

The evidence of personal knowledge comes mainly from observations of performance, and this implies a *holistic* rather than *fragmented* approach; because, unless one stops to deliberate, the knowledge one uses is already available in an *integrated form* and ready for action.

I have already drawn attention to the fact that students in formal education are focused much more on learning and personalising for use codified knowledge. They have much less experience or practice of developing these other forms of knowledge that are particularly relevant in the work environment. The relevance of the idea of life-wide learning (Jackson 2008, 2010) is that they may, in other parts of their lives, in which they are interacting in more social problem solving situations, be developing and practising using these other forms of knowledge.

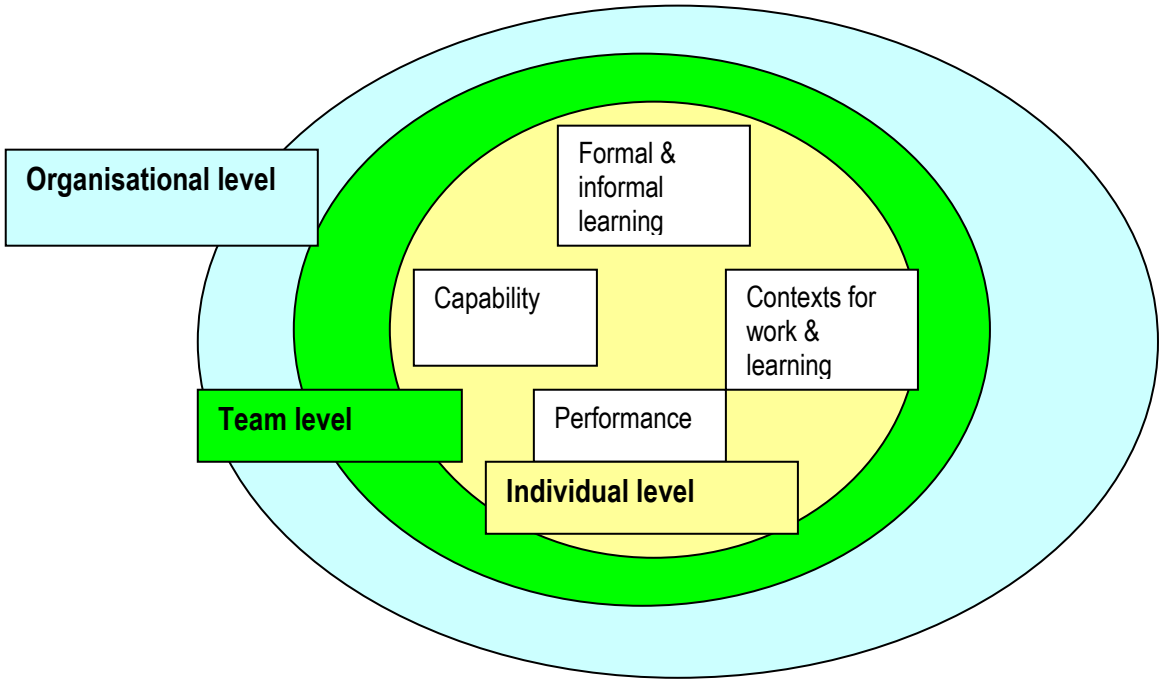
I have introduced the term capability in addition to that of personal knowledge, because it enables me to discuss the knowledge and learning of *teams* and *organisations* as well as that of *individuals*. The four factors in Figure 1 below are defined as follows:

- At the individual level I define *capability* in terms of personal knowledge, i.e. what persons bring to a situation that enables them to *think, interact and perform*. At team level, I define *team capability* in slightly narrower terms as enabling a group to *interact and perform*. I would also argue that the evidence for a team's capability has to come from *performances attributed to the team* as a whole, rather than to individuals within it, and to the *shared understandings* that create a team, rather than a group. I define *organisational capability* narrower still, limiting it to those *decisions, actions* and *understandings* that are attributed to the organisation as a whole, rather than to individuals or groups within it. In each case I would limit such attributions to *well-informed observers*, external to the entity being observed
- The distinction between capability and performance is that *capability is normally inferred from a series of performances* and should not be judged on only one performance, whereas every performance is *context dependent*. Hence performances in more complex and difficult contexts should not be expected to be as strong as those in easier contexts. This applies at all three levels.
- Learning at individual or team levels may be *formal* or *informal*, but it would be very difficult to imagine informal learning by an organisation, rather than particular members of that organisation,

especially because it would be very difficult to attribute learning that was not necessarily planned or conscious.

- The *context* for an individual could include people, events and practices at the level of working group, department or the whole organisation; but their relative significance could vary greatly both between organisations and within organisations. In general the most significant aspects of the context for an individual will be determined by those with whom they have the most contact and those who may be the most likely to exert power over them. However, it will be the understandings of the context that matter most; and in times of rapid change those perceptions may be dangerously narrow.

Figure 1 Key aspects of workplace learning



The four factors are always affecting each other. Capability is obviously influenced by learning but current capability also influences the ability to learn. Capability is required by job performance but is also developed through job performance. The context in which the individual is working and learning influences how their capabilities are perceived, how they perform and how they learn. An individual can be seen as highly effective in one setting and not another. Individuals are in a dynamic relationship with their work setting being both influenced by it and being part of it themselves and through their relationship with others.

However, this dynamic relationship is often missing from competence-based assessment, and issues related to team and organisational levels get little or no attention. If we want learners to develop a social identity and contribute to society, we have to demand more than the acquisition of knowledge and achievement of individual tasks and assignments. We also want to know about how they have used their competencies in group contexts and how they tune their work to fit the specific needs of their customers, clients or colleagues. This would involve developing their capability and working relationships as well as their required competencies.

Another problem for all students concerns the transfer of knowledge between academic and employment settings. This is usually underestimated. My research in several professions suggests that in complex situations the transfer process typically 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 (Eraut, 2004b).

None of these stages are simple and, although they are in a logical order there is usually a lot of interaction between them.

Salomon and Perkins (1998) made a distinction between forward-reaching and backward-reaching kinds of transfer. The *forward-reaching approach* anticipates that certain kinds of knowledge will be useful in the future, and is most likely to occur in education and training contexts. Nearly all the taught components of professional and vocational education are intended for future use at work; but the evidence that this happens as intended is often disappointing. *Backward-reaching transfer* is required when one faces a new situation and deliberately searches for relevant knowledge already acquired. This is very likely to occur with knowledge previously used in fairly similar contexts, when its relevance is quickly recognized; but committing time to searching for previously taught knowledge is rare unless someone has a memory trace that they can follow up quickly. The discourse and culture of the workplace are so different from most education and training environments that persistent searching for what is perceived as *past knowledge* is very unusual. A major reason for this lack of commitment to exploring knowledge from one's past is a general failure to understand that transfer is a learning process, which often requires a lot more time than most people expect.

In the following sections I examine evidence for the nature of learning and the transfer of knowledge in work contexts based on evidence from studies of students on, or recently returned from work placement and the research I have done on early career learning.

2. Evidence from stories of work placement

Over 50% of University of Surrey undergraduates complete a work placement that is relevant to their area of study. In 2008 SCEPTrE organised a competition to gain feedback from students returning to the university after their placement inviting them to explain what their process of learning to become a professional involved. 28 students participated in the competition and their stories were compiled and analysed by Riley (2010).

Student A started his degree with ***Mathematics & Management*** and got a placement as a statistical programmer with a small company doing drugs trials. For most of the time he worked with the same senior programmer and one statistician; but it was a small company and there was plenty of mutual consultation. What helped him at that stage was that, because the company had very rigorous Quality Control (QC) procedures, everything had to be checked twice. This enabled him to contribute as a checker well before he could participate in other ways. That helped to 'pay his way', and was a very useful way to 'learn the ropes'. He was tremendously unproductive at the beginning. For example, what took him one and a half days near the beginning of his placement took him only one hour at the end. They normally let him try something if they thought he could handle it. Then after Christmas they asked him to lead his own sub-studies (a technical term in Quality Control) in a new project.

To improve efficiency all programmers were encouraged to take other people's programmes and modify them. This ensures that you become familiar with what other people have done. If you get to see a trick

that is quite neat, you recognise it as an efficient way of doing that job. In general you start many programmes by looking at what others have done for a similar task; then during the course of the project you modify it, sometimes extensively, sometimes just a little. Over time you learn your own style through observing everybody else's work. This maintainability is very important for the integrity of our work. They encouraged him to develop his own style. He was always improving his approach to programming as a result of first seeing other people's work, then seeking to improve it.

Everyone was involved in Quality Control, and end results were extensively reviewed. They all worked in the same office, they had a spreadsheet of issues for each project, and everybody was expected to contribute to it. Their system was for everyone to engage in informal chats on specific issues as and when they arose. As he became more experienced, he developed more contacts with other departments and this gave him "a whole new layer". They did different things, used different software and presented their data differently. He had to be very open minded to see where they were coming from. He had to understand what it meant to them.

> *"You learn by practice, I can remember a couple of occasions when I went bumbling in without being sufficiently conversant with their work. It's important to listen before you speak. It's similar to learning through observing other people's programming work."*

Student B was a ***Chemical Engineer***, who chose to do multiple placements with a contracting company. She started with a very busy senior consultant, who gave her nothing but filing. For her first three months she had very little interaction with other people, learned very little about the company, and "hardly grew as a person". Her second placement was challenging and entailed a lot of responsibility. Her manager was very good, intelligent and thorough; and she learned a lot from him. However, she still felt too scared to ask for help when she needed it. She had a personal project as well as contributing to the team as a whole. This involved sizing a line using a software package, a sudden jump in responsibility. Although she was shown how to use the software, "in my head I couldn't do it". She should have asked more questions at the time, but was too scared to do so. So she went to her friend from Surrey, who was in the same building, and got her to take her through it.

Her third placement was in a petrochemicals project, which she was part of a Systems Team supporting a Process Team. This was more like management work, and she had to communicate a lot with the process engineers. The process team was in Reading, while the drawings were done in Chenai. This was good management experience in how to set deadlines and make sure that other people meet them. She had to work with the X department as well. For example she had to set a deadline for a metallurgist of about 45, who always left things for the very last day. So she made the deadlines earlier, in order to be sure that the "real" deadlines were reached. She felt that she grew most as a person in that group, because of what she had to deal with. For example, she had to bring metallurgists and process engineers together in order to do material selection diagrams. But this metallurgist didn't come to meetings or, if he did come, would sit talking on the phone. She thinks that she did well in getting him to contribute.

Her manager for the final placement was very clever in getting her a Process Role. First he brought her into the project as a Systems Engineer to cover for someone on holiday. This worried her at first, because she did not want to do any more Systems Engineering. But his plan was for her to get to know the group, so she could be more easily accepted in a Process role. Thus after two weeks she was moved to a process role to do chemical engineering.

Student C was from ***Tonmeister***, Surrey's department for Music and Sound Recording; and her placement was with Chapel Recording Studios in Lincolnshire. The studio manager had been in the music and recording industry for many years before buying the Chapel and converting it into a recording facility. The other permanent staff comprised just two in-house engineers and a small group of

administrative staff. Most of the work is done by incoming bands, who use the recording equipment and generally get help when they need it. She was put in charge of safety, which involved following the bands round when they were putting down cables and fastening them down before anybody could trip over them. It also helped to get to know them, and later in her placement she was often the only Chapel person there.

> She "*found that the two in-house engineers worked very differently: one engineer liked to do most of the technical running of the session himself after everything was rigged; and consequently most of her learning with him was through observing his techniques and asking questions. However, I slowly built up a rapport with him and he was eventually comfortable to leave me working alone tracking to Pro Tools, and later entirely in charge of a session. As the placement went on, he began to ask for my opinions on things such as how edits and microphones sounded as well as about instrumental tuning issues and recognising if microphones were in or out of phase. In contrast, the other in-house engineer allowed me to run Pro Tools on the night of my arrival and subsequently increased my creative and technical possibilities. My choices of microphone techniques and ideas for getting around technical problems were used as well as compositional suggestions during tracking. On several final mixes, I was involved as an equal partner for decisions and shared controls of the outboard, plug-ins and faders."*

She then began to expand her sound repertoire as far as possible. It wasn't just the equipment. She saw different bands using the equipment in different ways and making different sounds, because there was a wide range of music coming in. So she picked up a lot of background knowledge about how to produce different sounds and what was appropriate for different occasions, She also learned how to relate to the bands, as they all had different personalities. This included helping some of the singers. One man had a throat problem, and she suggested an exercise she knew from her own study of singing, which cured it for him. She also introduced morning warm-ups to some visiting singers.

Josephine had recorded students at Surrey but not professionals. They're quite different in the way they play and what they are trying to do, so she tried to adapt her recording to the cues she picked up from them. There is no common vocabulary, so you have to assess both what they are trying to achieve and what they are actually doing. Some are quite good about expressing what they want to hear, or what they feel about what they were currently doing. You have to interpret what they are saying and try to get the sound they want. She doesn't use technical words like "more bass", but descriptive words like "Do you want it more meaty or lighter?" They may not use the same language, but it's something they can understand.

One of the organisational innovations Josephine introduced was a Recall Sheet. When you are recording, people often want to go back to an earlier version; and there can be a lot of versions being tried out, any one of which someone might want to recall. So recorders were asked to make notes of each sound set up in case they were needed later. She found this quite difficult using lots of scribbled noted; so she designed a sheet with appropriate headings which both reduced the amount of writing and made it easier to find the relevant parts of the set up. This made recalls quicker and more reliable.

Josephine also asked to assist the maintenance engineer on one of his fault-finding days. This enabled her to see the inside layout and how the bits fitted in together. She picked it up quite quickly, but had to ask lots if questions about what was going on. This additional know-how proved very useful. One day when she was doing a session on her own, something broke down, and she was able to fix it. Otherwise the whole session would have come to a halt. The band just took it for granted!

> *"I learned the importance of maintaining the correct atmosphere in the studio and it was interesting to observe how producers communicated with the musicians to earn their respect and encourage them to get their best performances. As the hours were very long, there were occasional stresses and irritations among the band members and, where I could, I found ways of diplomatically diffusing these situations, either by listening to an individual's complaint or simply by saying 'I'll stick the*

kettle on'! This greatly developed my confidence and interpersonal skills and helped me cope with difficult people in awkward situations."

These three examples of Surrey students in their third year demonstrate a number of key points. It takes some time for most people to adjust to new working contexts, even those with more experience than the Surrey undergraduates. As temporary employees, they rely on the good will of their organisations, who in turn try to help them learn. However, these three examples (and nearly all the others) show that two factors are crucial to the learning potential of placements: the support from those who work with them; and the challenges of the work they are asked or permitted to do.

Those organisations that seek to properly support and develop the capabilities of students on placement, enhance the reputation of their organisation and probably find some excellent potential recruits as well. Within that broad vision, many students learn in different ways and in different places, known only to those around them. However, students on placement also have to take the initiative themselves and look for suitable opportunities within their current placements. The balance between placement students joining communities of practice and showing personal aptitude and agency is also very important. Evidence relating to this aspect of placements is presented below.

3. Evidence from 125 third year students' responses to a questionnaire on learning during their placement year (months 7-8)

The responses to the competition led me to investigate the experiences of the next cohort of placement students by devising an appropriate questionnaire. This began with a short survey of previous work experience, as we felt it important to recognise all forms of work experience, not only those on formal placements. This showed at least 29 full time jobs lasting at least 3 months and at least 31 more people who had experienced full time work for at least a month. The number of part-time jobs was 112 lasting at least 3 months. At least 77 of the 3+ month jobs and 43 of the 1-3 month jobs involved learning something useful. The impact of such experiences should not be neglected when considering life-wide learning, especially in the area of human relations.

Before presenting any data, I should note that we subdivided our respondents into twelve departments or 'combined' departments; and looked for means 20% above or below the average for the whole cohort. This indicated that there were very large differences across subjects. Some may derive from the central nature of those subjects, some from the size of the placement organisations, and some may be connected with the way in which these subjects tend to work. In choosing data from six tables, I will be trying to look at these responses and their significance for life-wide learning, not trying to deny the gains described by a large majority of placement students.

The first table (not shown) focuses on student participation in a wide range of activities by asking them to judge the importance and the frequency of each of 18 activities. In most activities the importance was higher than the frequency; and 12 of the activities had a highest department important score of 100%. The widest gaps were from Evaluation of situations (58 frequency v 89 performance), Presentations/performances (42 frequency v 81 performance), and Management of people (22 frequency v 71 performance).

Table 1 shows the University means for each of 10 Placement Quality ratings and 5 Career Outcome ratings. The University means for the ***Very Good*** quality ratings (5 on a 5 point scale) include six between 43% and 51% and four between 29% and 39%.

Table 1: Student views on Quality and Career Outcomes from their placements

Questions using *Very good* on a five point scale and *Low* for points 1+2	**University Mean in % 126 students**		**Number of departments 20% above the mean (if more than 3)**	**Number of departments 20% below the mean (if more than 3)**	**Highest and lowest scores**
	Low	**VG**	**VG**	**VG**	**VG**
Physical environment	2	45			83-20
Access to tools and facilities	5	44	6	4	83-20
Quality of relationships	6	50	4		70-30
Access to appropriate expertise	10	51	6		100-29
Supervision	9	45			67-20
Induction to the job	9	30	4	5	83-10
Informal support	5	43	4	4	83-00
Challenging opportunities	13	39	6	4	67-17
Allocation of appropriate work	8	31	4	4	62-10
Opportunities to be creative	18	29	4	5	50-09
Awareness of your strengths and potential	3	24	6	5	50-00
Awareness of what you need to achieve in your final year	7	41	5		75-20
Quality of what you achieved in your placement	5	29	5	4	50-10
Awareness of kind of work You want to do in the future	9	29		4	50-14
Awareness of the work you do not want to do in the future	5	24	5	6	50-00

The highest 2 headings were *Quality of relationships* (50%) and *Access to appropriate expertise* (51%); and the lowest 3 headings were *Induction to the job* (30%), *Allocation of appropriate work* (31%) and *Opportunities to be creative* (29%). In contrast, the three highest ratings for points 1 and 2 combined are 10% (*access to appropriate expertise*), 13% (*challenging opportunities*) and 18% (*opportunities to be creative*).

The University means for the ***Very Good*** ratings concerning Career Awareness were quite low. Four were between 24 % and 29% and the fifth (*awareness of what you need to achieve in your final year*) was 41%. However, none of these five ***Low*** headings was higher than 9%; so most responses were ***OK*** or ***Fairly Good.*** The wide range of departments scoring at least 20% above the university mean is notable.

Table 2a: Support for Learning Tasks and Projects

Questions using 1+2 (*low*) and 4 (*top*) on a four point scale 120 students	University mean in %		Number of departments 20% above the mean (if more than 3)	Number of departments 20% below the mean (if more than 3)	Highest and lowest scores
Tasks	Low	Top			
How much learnt from consulting others	10	66			91-46
Extent task choice allowed progress in taking responsibility	13	45		4	87-20
How much help did you have in learning assigned tasks	18	49	6	4	83-19
How much learnt from sharing tasks with others	23	40	6		83-15
Extent to which others listen to your comments and suggestions	18	31	4		67-14
Extent to which task choice allowed progression:	20	35	6		50-10
in your range of assigned tasks	23	36	5		62-17
in task difficulty					
Projects					
To what extent have you been challenged by project work?	24	43	4	5	100-20
How much responsibility have you been given in project work?	21	44			100-17
To what extent has participation in projects helped you to learn:					
more about its content?	12	54	5	4	100-17
new skills?	12	54	6	5	100-36
how to work with people on a focussed piece of work?	23	42		5	82-24
how to handle uncertain situations?	26	38	6	5	67-20
how to keep to deadlines?	19	46	4	5	78-17

Table 2a shows the University means for each of 14 questions: 7 concern Learning Tasks, and 7 concern Project Work. The University means for the top quality rating (4 on a 4 point scale) are headed by *learning from consulting others* (66%), followed by using Projects to learn both *new skills* (54%) and *content* (54%). Seven ratings were in the 40s (three on tasks, four on projects) and four ratings were in the 30s (three on Tasks, and one on Projects). The means for the two lowest ratings (1 and 2 on the scale) were seven between 10 and 19, and seven in the 20s. The 'highest' five of these lower options was *how to handle uncertain situations* in Projects (26%).

Table 2b: Support for roles

Questions using 1+2 (*low*) and 4 (*top*) on a four point scale 120 students	University mean in %		Number of departments 20% above the mean (if more than 3)	Number of departments 20% below the mean (if more than 3)	Highest and lowest scores
Roles					
If you were given a responsible role, were you expected to:					
develop initiatives or projects?	32	35	4	4	67-17
monitor progress?	27	31			83-10
evaluate outcomes?	35	26	5	5	78-05
manage people?	65	15		6	67-00

The last entry confirms the low score for opportunities to *manage people* in Table 1; and indicates that six departments were below even that rating, probably zero. The evaluation of outcomes appears to have been used in five to seven departments at most.

Table 3a below shows which of the types of people listed in the Left Column were chosen as the "most influential" by their placement students.

Table 3a: Roles of people selected by students as being the most influential for them

Most influential people	Person N	Person P	Person R	Total
Your supervisor	61	12	4	77
Your manager	20	34	9	63
Another senior person	4	27	28	59
Recent graduate	5	9	14	28
Experienced worker at graduate level	3	7	8	18
Experienced worker not at graduate level	2	4	11	17
Another student on placement	4	5	6	15

Table 3b below shows the quality of the support given by each of the three most influential people cited by each student. This is based, as noted above, by noting the percentage of ratings (+2 and +3 combined) given by each type of influential person listed for each type of help.

Table 3b: Help from individual influential person's N, P & R

The data used is the sum of the two highest percentages of a 7 point scale. The column heads show the number of responses given for each type of support	N 85-95	P 77-89	R 63-72
Helped you to accomplish your tasks	75	45	44
Helped you to understand situations	82	33	47
Helped you with collaborative working	63	52	50
Helped you with joint problem-solving	53	52	51
Guiding/introducing you to people who could be helpful	67	48	46
Guiding you on how to handle people	43	51	33
Guiding you on accessing relevant information	60	51	46
Encouraging you to take initiatives	60	38	35
Gave you tasks that offered learning opportunities	66	42	43
Gave you, or included you in, challenging project work	56	39	41
Gave you challenging roles that required initiative	55	44	33
Helped you to choose your work	40	61	28
Helped you to prioritise your work	41	58	29
Gave you constructive feedback on some of your work	74	43	41
Gave you constructive feedback on your work in general	69	47	32
Gave you constructive feedback on your mistakes or work below par	52	57	27
Gave you constructive feedback on your strengths and weaknesses	47	63	27

In most cases the Person Ns were the most appreciated, but in the 5 underlined cases Person Ps were more appreciated. This matches the higher proportion of managers selected as Person P. Person Rs came from a wider range of positions, and secured 40-59% (the two middle columns in Table 3c) on nine of the 17 modes of support. Although the percentages drop significantly from N to P and from P to R, a significant number of all three chosen persons appear to have covered a wide range of support roles.

Table 3c: Number of entries in each column for each interval of 10%

	20-29	30-39	40-49	50-59	60-69	70-82
Person N	0	0	4	4	6	3
Person P	0	3	6	6	2	
Person R	4	4	7	2		

Student views on taking personal initiatives

Table 4 below was designed to investigate the nature and level of personal agency used by students on placements. Each question shows how possible forms of personal agency are used or not used by the responding students. The pattern we chose is unusual, because for each form of possible student Initiative, we offered four possible outcomes. Two involve no action (N), and two involve taking some action (A) by approaching another person for help. In either case, the outcome can be positive (POS) or negative (NEG). The first column, *No Need*, is regarded as doing nothing but still a *positive* outcome. Those students don't need to ask, because it is already happening. However the second column, *Not Tried,* is regarded as a *negative* outcome, because it suggests that the students choosing this option would like to engage in the suggested intervention but are either shy or intimidated. If they do try, they may have a successful outcome - *Yes, success* - or an unsuccessful outcome - *Yes, but no success* – which suggests a reluctance to help the student.

Table 4: Personal initiatives demonstrating agency *(104 students)*

Line 1: University highest, mean, lowest (%) Line 2: Number of departments 20% above & below the mean	**No need**	**Not tried**	**Yes, but no help given**	**Yes, success**

(if more than 4)				
Exploring the situation	High Mean Low	High Mean Low	High Mean Low	High Mean Low
Have you asked if you could visit other sections, sites or departments?	60 22 0 5 5	50 20 0 5	22 11 0 5 6	83 47 17
Have you asked anyone about the different kinds of work in your organisation?	40 14 0 7 5	33 8 0 7	11 3 0 9	100 76 44
Have you asked anyone to introduce you to someone you would like to meet	50 22 11 5	56 33 0	20 6 0 7	71 39 17 5
Have you overtly asked people for feedback on your work?	17 3 0 9	50 27 0	20 6 0 9	87 66 40
Seeking variety of experience	High Mean Low	High Mean Low	High Mean Low	High Mean Low
Have you asked to move to a different section or department?	86 52 20 5	50 27 0 5	22 11 0 5	40 11 0
Have you asked for new tasks in your current load?	40 12 0	40 15 0 6 5	23 9 0 7	83 65 40
Getting what you want	High Mean Low	High Mean Low	High Mean Low	High Mean Low
Have you asked to work with a different person or group?	80 34 11	56 24 0 6 6	22 9 0 6 6	60 33 11 5
Have you asked to work on a particular project?	40 21 0	56 26 0 6	33 9 0 6 6	71 44 17 5
Have you asked to be given more responsibility?	56 25 0 5	44 28 0	17 6 0 7	71 41 0 5
Have you persuaded others to back any of your initiatives?	44 24 14	50 25 0 5 6	40 9 0 5 6	67 42 11

We start our discussion with variations in the university means for the ten questions. Four questions come under the title "Exploring the situation", two came under "Seeking variety of experience" and four were under "Getting what you want". The same data can be found in the first column of each table, so the mean is always available for comparison. The presentation has been changed to accommodate both the four optional answers and the key information provided in other tables by using two lines of figures for each entry. The first line gives the highest score, the university mean and the lowest score; and the second line gives the number of departments which are 20 % above or 20% below the mean.

Three of the ten questions had a more than 50% response of *Yes, success*:

- Have you asked anyone about the different kinds of work in your organisation? (76%)
- Have you overtly asked people for feedback on your work? (66%)
- Have you asked for new tasks in your current load? (65%)

The next four questions had means over 40%, two were over 30% and one was only 11%.

The least popular choice was *Yes, but no help given* where the mean percentages of were between 3% and 11%, the two highest (questions 1 and 5) being linked to *visiting or moving to other sections or departments.* The lowest score for all ten questions was zero; and seven of them had more negative responses than positive responses. The numbers are too small to attempt any further analysis.

Question 5 also led to the highest *No Need* response of 52%. The next highest *No Need* was Question 7 with 34% wanting *to work with a different person or group,* while most others were between 20% and 30%. There are six questions with at least one zero response; and questions 3, 4 & 6 clearly have several departments with very few No Need responses. The question *Have you overtly asked people for*

feedback on your work? has the lowest mean of 3, and nine departments had zero responses for the No Need option. This demonstrates that feedback can only rarely be treated as sufficient.

The *Not Tried* option is of particular concern, because it suggests that a significant minority, 8 out of 10 questions with means between 20% and 33%, either lack personal initiative or feel that their concerns would not be treated seriously. These students could probably be better supported if their reluctance was known to those responsible for their progress. Two questions, *Have you asked for new tasks in your current load?* and *Have you asked to work with a different person or group?*, have 6 departments at least 20% above their means, and three questions have 5 departments in that position.

Preparation and support before and during your placement

Until now, the main tables have centred on the activities and environment in placement workplaces. However, Table 5 below is specifically concerned with the university's own contribution to placements. The issues addressed are those over which the university and its students have the most influence. The fourteen questions were divided into four groups:

- Opportunities to meet students who have just returned
- Choice of placements,
- Support at department, faculty or university level
- Support during your placement year so far.

This group of questions used a four point scale: *None, Little, Quite good, Very good*. In order to limit the size of this report, Table 5 is based on our students' responses to the top two options alone: first through the combined scores of options 3 & 4, and second through option 4 on its own. Data from the other options will be introduced when helpful.

My discussions with students and faculty before the questionnaire was even suggested often raised the question of opportunities to meet students who had recently returned from their placements; and it emerged that some departments organised this, while others did not. The questioned not only confirmed this but gathered information about the quality and usefulness of current practices. 20% of our respondents reported no opportunities to meet returning students, and 32% reported little help from this source. Although some departments had a lot of students working from home who found their own placements, it could still have been helpful to them to have met a few returning students in order to get their advice on what they should look for when choosing a placement.

Table 5 Preparation and support before and during your placement

Questions using *top half* of a four point scale (3+4) [** X is used when 20% above	University means in %; 103 students	Number of departments 20% above	Number of departments 20% below	Highest and lowest department

the mean goes beyond 100%]			the mean (if more than 3)		the mean (if more than 3)		scores	
	3+4	4	3+4	4	3+4	4	3+4	4
Opportunities to meet students who have just returned								
From placements in your own subject/ department	47	18	4	4			71-20	57-00
From organisations to which you might apply for a placement	40	12	4	5		5	75-20	33-00
From particular parts of those organisations	33	8	4	6	6	6	67-13	22-00
Choice of placements								
Understanding the advantages of placements for your future career	89	40	X**	4			100-71	71-14
Help in deciding what placements would best meet your needs	66	22	5	4		5	100-36	57-00
Help in finding a placement	68	40	4	5		4	100-21	83-14
Support at department, faculty or university level								
General briefings on placements	83	23		6		5	100-53	50-00
Seminars focused on the nature and quality of placement learning	68	15				5	88-53	50-00
The work of the careers' service	54	13		5	4		87-20	43-00
Advice from administrative staff	53	13	4	7		4	100-20	33-00
Support during your placement year so far							100-33	
Through visiting tutors	67	30	4	6		4		50-13
Through contacts with other staff	41	15	4	5	4	6	68-20	50-00
Through discussing your placement report(s)	42	14		6	4	4	84-00	33-00
Making good use of your placement experience in future job applications	60	35	5	4		5	100-20	75-00

The most positive scores for (3+4) in the other three rows of data were 89% for *Understanding the advantages of placements for your future career* and 83% for *General briefings on placements.* Five responses had (3+4) percentages in the 60s, two in the 50s and 4 in the 40s. One department had four 100% ratings, and another very different department had two 100% ratings.

Finally, we compare the number of activities with average ratings 20% above or below the university mean. Two department groups with very high profiles at level 4 had 10 ratings 20% above the university mean, and a third had 13 ratings 20% above the mean. All three were in different faculties. This was mirrored by three departments with high ratings below the mean, two with 10 ratings and one with 13 ratings below the mean. This time only two faculties were involved. When we examine Table 5 more generally, we get a very large range of departmental ratings, which suggests that the university has both good expertise and opportunities to improve the quality of placements over time.

4. Evidence of learning in the first three years after graduation

My previous ESRC project on the Early Career Learning (ECL) of accountants, engineers and nurses developed three very useful tools. The first of these tools was developed from watching how ECL

graduates were learning in workplace contexts; and our team discovered that 80 to 90% of the events we witnessed were best described as "working with learning as a side-effect". This explained why interviews on their own failed to notice most of the learning, because the learners didn't recognise it as learning. By starting through observation in the workplace, we could develop a discourse of description which could gradually be developed to include activities when we were not even present; as long as we did not fall back into asking "interview questions" that prompted a discourse of justification. We ended up with working processes on one side of our tool and learning processes on the other side. Activities like asking questions went in the middle, because they could be used on either side.

Table 6 A typology of early career learning

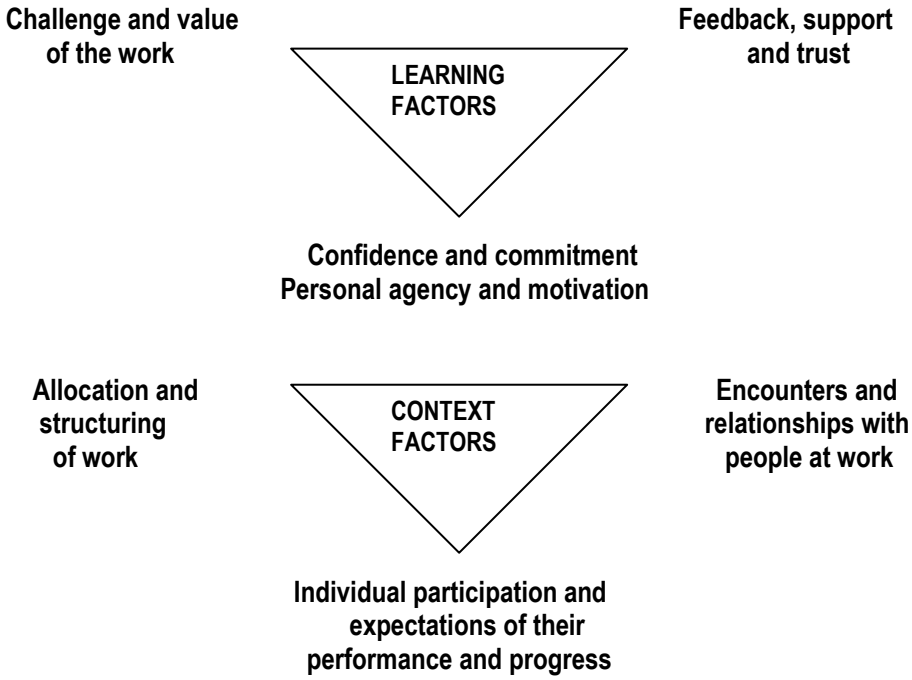
Work Processes with learning as a by-product	Learning Activities located within work or learning processes	Learning Processes at or near the workplace
Participation in group processes Working alongside others Consultation Tackling challenging tasks and roles Problem solving Trying things out Consolidating, extending and refining skills Working with clients	Asking questions Getting information Locating resource people Listening and observing Reflecting Learning from mistakes Giving and receiving feedback Use of mediating artefacts	Being supervised Being coached Being mentored Shadowing Visiting other sites Conferences Short courses Working for a qualification Independent study

Four of these work processes have to involve other people and the other four could also involve other people. Thus there are good theoretical reasons for workers to mainly learn from other people, but not always recognise much of it as 'genuine learning' (Eraut, 2007b). One rarely noticed advantage of this manner of learning is the benefit for those with expertise. When they are working alongside a lesser expert, they can mention points or encourage them to ask questions as often as they can, without having to go into long explanations; because their colleague already knows much of the context including visual and auditory aspects that could be quite difficult to explain. Consider, for example, the clues to be noticed from the comment or question of a client. Moreover, engagement with some clients may enable some novices to learn things not picked up their own experts.

Our second tool was Figure 2, our Two Triangle Model for addressing both Learning Factors and Context Factors which we developed to show how the direction and amount of learning was influenced by key aspects of the workplace itself. This model is presented below, and has been explained in detail elsewhere (Eraut, 2007ab; Eraut & Hirsh, 2007); and examples of it were developed for the first three professions we researched for the ESRC project. Some of the complex interactions conveyed by the model need some explanation.

Our evidence from this project confirmed that both confidence in one's ability to do the work and commitment to the importance of that work are primary factors that affect individual learning. If there is neither *challenge*, nor sufficient *support* to encourage a novice professional to seek out or respond to a challenge, then *confidence* declines and with it the motivation to learn. *Commitment* was generated through *social inclusion* in teams and by appreciating the *value of the work* for clients and for themselves as novice professionals. Moreover, concerns about career *progress* that arose from inadequate *feedback* of a normative kind tended to weaken novices' motivation and to reduce their *commitment* to their organisation. Finally, we recognised the importance of novice learners' *personal agency*, which recognises participants' own sense of choice, meaningfulness, competence and progress (Thomas 2000), which is not necessarily aligned with their employer's priorities.

Figure 2 Factors affecting learning at work: the Two Triangle Model



The *allocation and structuring of work* was central to our participants' progress, because it affected (1) the difficulty or challenge of the work, (2) the extent to which it was individual or collaborative, and (3) the opportunities for meeting, observing and working alongside people who had more or different expertise, and for forming *relationships* that might provide feedback and support. For novice professionals to make good progress a significant proportion of their work needed to be sufficiently new to challenge them without being so daunting as to reduce their confidence; and their workload needed to be at a level that allowed them to respond to new challenges reflectively, rather than develop coping mechanisms that might later prove to be ineffective.

Using these two tools provides a useful guide to both placement students and those who support them. As far as we can tell, most of the language used is readily available to current trainees; and the two tools suggest ways in which they might better understand their progress so far and find ways to discuss their experience to date with those they thought would listen. Connecting evidence relating to both the questionnaire and the two tools described above would help to prepare and support placement students, departmental advisors and employer supervisors.

5. Lifelong and Life-wide Learning Trajectories

Our third early career learning (ECL) project tool was a new approach to describing what is being learned on placements; because academic criteria cannot cover the full range. The main arguments for Learning Trajectories are to improve the representation of Personal Knowledge and to incorporate the principles and practices of Lifelong Learning. In particular, it seeks to include changes in context, variations in practice and changes in practice, and to ease the unreasonable burden placed on criterion-based assessments. Table 7 shows the generic typology of learning trajectories used to map the knowledge progress of the three ECL professions. At any point in a career, according to their roles, responsibilities and portfolio of work, professionals will be moving along a learning trajectory, either developing new expertise or allowing themselves to withdraw from parts of their portfolios. Willis (2009) demonstrates that the learning trajectory model is also valid for students on their work

placement in her analysis of the same 28 stories described in section 2 above, using the learning trajectories framework as an analytical tool.

The added value of the life-wide learning dimension (Jackson 2010) is that development that is relevant to a particular trajectory may be taking place at other sites in a person's life without them recognising that it might also be useful in their professional role. This proposition remains to be evaluated but there is good evidence from student self-reports (Jackson unpublished data, Barnett 2010) that students are developing themselves in all sorts of ways that are relevant to these learning trajectories in different parts of their lives, while they are studying at university.

Careful attention to this third tool will show that many important features are incorporated, which are rarely considered in the practice of helping students learn to become a professional, in spite of their significance. Our list of trajectories was developed during successive research projects on early and mid-career professional learning, which enabled us to classify our findings on what was being learned under eight main headings: task performance, role performance, awareness and understanding, personal development, academic knowledge and skills, teamwork, decision making and problem solving, and judgement (Eraut and Hirsh, 2007).

This approach enables future learning to address both further development along trajectories and whether the right trajectories were chosen and combined in the most appropriate way. Within this overall framework it is still possible, indeed desirable, for different types of representation to be used for different trajectories and at different career stages. Hence another advantage is that learning trajectories problematise the role of occupational qualifications as signifiers of learning. Occupational qualifications are a very public rite of passage, which symbolises generic competence in an occupation; and this claim is backed by the use of apparently clear and specific criteria for assessment. In practice, however, these qualifications require both a specified amount of practical experience and the demonstration of competence in certain aspects of performance by successful candidates. The assessment process may require either that a particular level of competence is reached in each aspect, or that the performance as a whole is satisfactory, or both. However, variations in candidates' strengths and weaknesses are inevitable, because trainees are allocated to one or more placements, whose learning opportunities will differ in kind if not also in quality. So there are bound to be *significant differences in the performance profiles of trainees at the point of qualification*.

The main advantages of learning trajectories around the time of qualification are that:

1. They track aspects of trainee performance before, during and after qualification; and this should avoid the pretence that workers with the same qualification perform at a similar level across the range of occupational activities.
2. They enable continuity of learning by providing profiles of candidates' strengths and weaknesses at the time of qualification, and at appropriate intervals thereafter, which can then be used for planning some of their further learning.
3. Mapping progress over time also measures the ability to learn from experience, which is probably a better predictor of future performance than a single mammoth period of assessment.
4. They incorporate the principles and practices of Lifelong Learning by including both formal and informal learning

Table 7 A Typology of Learning Trajectories

Task Performance	**Role Performance**
Speed and fluency	Prioritisation

Complexity of tasks and problems Range of skills required Communication with a wide range of people Collaborative work **Awareness and Understanding** Other people: colleagues, customers, managers, etc. Contexts and situations One's own organization Problems and risks Priorities and strategic issues Value issues **Personal Development** Self evaluation Self management Handling emotions Building and sustaining relationships Disposition to attend to other perspectives Disposition to consult and work with others Disposition to learn and improve one's practice Accessing relevant knowledge and expertise Ability to learn from experience ***Teamwork*** Collaborative work Facilitating social relations Joint planning and problem solving Ability to engage in and promote mutual learning	Range of responsibility Supporting other people's learning Leadership Accountability Supervisory role Delegation Handling ethical issues Coping with unexpected problems Crisis management Keeping up-to-date **Academic Knowledge and Skills** Use of evidence and argument Accessing formal knowledge Research-based practice Theoretical thinking Knowing what you might need to know Using knowledge resources Learning how to use relevant theory (in a range of practical situations) **Decision Making and Problem Solving** When to seek expert help Dealing with complexity Group decision making Problem analysis Formulating and evaluating options Managing the process within an appropriate timescale Decision making under pressure **Judgement** Quality of performance, output and outcomes Priorities Value issues Levels of risk

One important problem remains to be solved. In the opening section of this chapter we noted that most occupational activities require that several types of knowledge are integrated into a holistic performance. How then can we reconcile the use of learning trajectories depicting changes in aspects of performance over time with recognizing the holistic nature of most kinds of performance? Returning to our earlier discussion about the domain in which performances have been judged as competent or proficient, we decided that points on our learning trajectories should be treated as windows on episodes of practice, in which (1) the aspect of learning portrayed by the trajectory had played a significant part, and (2) the current domain for the trajectory had been sustained or enhanced. This could only be achieved if each window included the following information about the performance:

- The setting in which it took place, and features of that setting that affected or might have affected the performance
- The conditions under which the performance took place, e.g., degree of supervision, pressure of time, crowdedness, conflicting priorities, availability of resources
- The antecedents to the performance and the situation that gave rise to the performance
- The other categories of expertise involved
- Any differences from previously recorded episodes
- Indicators of expertise in the domain of the trajectory having been maintained, widened or enhanced

This last point draws attention to the complexity of learning and performance in most professional, technical and managerial jobs. It is unusual for a performance to use knowledge from only one trajectory, and the seamless integration of personal knowledge from several trajectories may itself be an important learning challenge that goes beyond progress in several separate trajectories. The holistic nature of any complex performance should never be neglected. Within this overall framework it is still possible, indeed desirable, for different types of representation to be used for different trajectories and at different career stages. There is no one best way for describing complex knowledge in use.

The key concept behind this approach is that:

1. Entries are based on complete episodes of practice;
2. The data displayed in each entry represents a whole performance, involving not only the relevant trajectories but also the ways in which they interacted;
3. Each trajectory contains a sequence of entries which show how its particular track has progressed over time.

References

Barnett, R (2010) Life-wide education: A new and transformative concept for higher education? in Jackson, N J and Law, R K (eds) *Enabling A More Complete Education: encouraging, recognizing and valuing life-wide learning in Higher Education,* online at: http://lifewidelearningconference.pbworks.com/E-proceedings

Eraut M (1997) Perspectives on defining 'The Learning Society', *J. Education Policy*, 12(6) 551-558

Eraut M (1998) Concepts of Competence, *Journal of Interprofessional Care*, 12(2), 127-139

Eraut, M (2000) Non-formal Learning and Tacit Knowledge in Professional Work, *British Journal of Educational Psychology*, 70, 113-136

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

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

Eraut M. (2007a) Early Career Learning at Work and its Implications for Universities. In Entwistle N & Tomlinson P (Eds), *Student learning and University Teaching*, British Journal of Educational Psychology, Monograph Series II no.4, 113-133.

Eraut M. (2007b) Learning from Other People in the Workplace, *Oxford Review of Education,* 33 (4), 403-422.

Eraut M. & Hirsh W. (2007) *The Significance of Workplace Learning for Individuals, Groups and Organisations,* SKOPE Monograph 6, Pembroke College, Oxford.

Jackson, N J (2008) A Life-Wide Curriculum: enriching a traditional WIL scheme through new approaches to experience-based learning, *Proceedings of the WACE Symposium Sydney 2008,* online at http://www.acen.edu.au/images/resources/conferences/wace_conference_08/e-proceedings.pdf

Jackson, N.J. (2010) Enabling a more complete education. N J and Law, R K (eds) *Enabling A More Complete Education: encouraging, recognizing and valuing life-wide learning in Higher Education, o*nline at: http://lifewidelearningconference.pbworks.com/E-proceedings

Riley, L. (2010) Learning to be Professional: student stories of learning through work. In Jackson, N J and Law, R K (eds) *Enabling A More Complete Education: encouraging, recognizing and valuing life-wide learning in Higher Education, o*nline at: http://lifewidelearningconference.pbworks.com/E-proceedings

Salomon, G. & Perkins, D. (1998) Individual and social aspects of learning, *Review of Research in Education*, 1-24

Thomas, K.W. (2000) *Intrinsic Motivation at Work: Building energy and commitment,* San Francisco, Berrett-Koehler

Willis, J (2009) In Search of Professionalism. In N J Jackson (ed) Learning to be Professional in Higher Education. On-line at: http://learningtobeprofessional.pbworks.com/In-Search-of-Professionalism