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**Communities of practice, joint knowledge development and
the role of virtual support:
the case of the National Guidance Research Forum Website in
the UK**

www.guidance-research.org

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Communities of practice, joint knowledge development and the role of virtual support: the case of the National Guidance Research Forum Website in the UK

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Introduction:

An interdisciplinary team of researchers, practitioners and professional associations in the UK have worked together to create a comprehensive website for those interested in research' policy and practice in careers guidance, work-related learning and qualifications development.¹ This has been primarily funded by the Department for Education and Skills in England.² Target groups include: practitioners, policy makers, researchers, guidance students and trainees, tutors and trainers. The website is to support the development of a community of interest and has the potential to enhance practice. Its overall purpose is 'to bring together research and practice in order to increase the effectiveness of guidance'.

A key feature of this website development is the construction of a shared knowledge base, by working with contextualised professional problems. This has been achieved by the formation of groups with relevant expertise. These groups represented a centre of expertise for particular topics and had several tasks (for example, the identification of gaps, key areas or problems and the provision of a mediated commentary on key documents and research findings on-line). Approximately 55 members of the guidance community contributed to the initial development of a shared knowledge base that has emerged from the contextualised problems faced in practice. Subsequent developments have involved over a hundred individuals have contributing to the site.

An important feature of the website is that it provides the opportunity to raise issues, engage in development work and contribute to on-line discussions. This type of collaboration is necessary for active knowledge creation. In this way, it is hoped that we can progress our understanding of careers guidance, work-related learning and qualifications development - as existing available knowledge is combined with new insights to create new forms of contextualised knowledge.

Complementary initiatives have resulted in the expansion and development of different sections of the website. The UK sector skills councils have supported

1 The lead researchers from IER were supported by researchers from Centre for Guidance Studies, University of Derby and developers from KnowNet (a small specialist collaborative software development company)

2 although increasingly a range of other organisations have become involved in supporting development of the website

the development of a section on current trends in the labour market. The section on work-related learning is also being considerably expanded. This initiative has focused upon supporting research in work-related learning and is supported by the UK's Teaching and Learning Research Programme. Another area of work that is expanding relates to the equivalence of qualifications frameworks, where we are working with the qualifications authorities of England, Scotland, Northern Ireland, Wales and the Republic of Ireland.

Aims of the website development:

The aims were to:

- develop an imaginative way of linking processes of knowledge acquisition, development, transformation and creation with approaches to tackling the core problems of guidance practice;
- examine the ways in which learning to practise guidance are created and shared (beliefs, concepts, ideas, theories, actions) in the search for new understandings of effective guidance;

Development:

A key feature of the development has been the construction of a shared knowledge base (website) from the contextualised problems that policy makers, managers, practitioners, researchers and trainers face. This has involved expert groups focusing on particular topics and key issues and providing a mediated commentary on key documents and research findings on-line. This has enriched the process and acted to validate the outcomes. The website initially had two main sections:

- **LMI Future Trends** – consisting of labour market information focusing on labour market changes and skills needs in the UK.
- **Making Guidance more effective** - containing a range of synopses, links, resources and edited discussions on six inter-related themes: **Equal Opportunities** (where some complex issues surrounding the equality of opportunity and guidance are explored, together with relevant legislation); **Impact Analysis** (here, research resources and discussions related to the impact of guidance can be found); **Using Research in Practice** (which provides an introduction to research processes and contains resources aimed at both newcomers and experienced researchers); **Improving Practice** (focused both on the theory underpinning practice and the ways in which changes - to policy or in technology - can lead to the need to re-examine and possibly rethink practice); **Lifelong Learning** (where the inter-relationships between learning and guidance are explored); and finally, **International Perspectives** (which enables participants to learn from international developments and contribute to a wider debate on current issues).

The website extends the use of ICT to support the knowledge development of the dispersed community of guidance practice (Brown *et al.*, 2002). The work of the six expert work groups meant it was possible to advance understanding

through processes of knowledge combination, where existing knowledge was combined with new insights to create new forms of contextualised knowledge. New participants could then make use of online support from a community of interest that focused on the interweaving of guidance research and practice. Participants can make contributions in different forms (e.g. text, images, links to documents, html pages or other notes) and can comment on material and contribute to discussions, and in so doing elaborate the knowledge that is already in the website.

Brown *et al.* (2002) stressed the importance of having time and space for face to face interactions to facilitate socialisation, externalisation (or active reflection), combination of new and existing knowledge, and the internalisation of different types of knowledge (Nonaka & Konno, 1998). Opportunities to meet and talk through issues, engage in development work and link to continuing on-line discussions that facilitated the collaboration necessary for active knowledge creation were therefore built into the development process.

Outcomes:

The website, launched in September 2004, has been extensively used and the feedback from the target community has been very favourable. The created knowledge represents a social product, but the process of collaborative knowledge creation also comprises a form of knowledge building where individuals (learn to) share their knowledge and create new knowledge together. Consequently, a platform, grounded in the realities of guidance practice has emerged, which has enabled us to build continuing relationships with members of the community, especially those engaged in research, training or continuous professional development. The environment enables participants to: (jointly) develop, edit and modify materials; share annotation on material; facilitate the sharing of experience; and promote discussion, sharing and active collaboration.

It does this by: offering virtual (and in some cases real) spaces for debate and collaboration; supporting action research; offering active support and moderation; offering support to particular interest groups; and providing a forum for discussion of attempts to tackle complex problems in careers guidance practice. The website can be accessed at <http://www.guidance-research.org>

Processes:

By working together, participants used the collective and individual knowledge of group members, co-constructing plans of action to extend that knowledge (Scardamalia and Bereiter, 1994). In order to work together online and become used to sharing knowledge, deepen their own and common understanding and creating further insights, it is crucial for participants to be able to coordinate, clarify and regulate the discourse themselves (de Laat *et al.* 2001). We therefore adapted a model of progressive inquiry (Hakkarainen and Muukonen, 1999) that engaged participants in the development in a process of question and explanation driven inquiry. These 'team tasks'

comprised a series of particular questions, grounded in practice, relating to one of the six broad themes, and helped to scaffold the learning activities of participants, together with face-to-face sessions that provided still greater support to the process of knowledge building related to the interleaving of research and practice. The interactive features on the website are being extended through the use of web logs that can add to and deepen and broaden discussion about the substantive content. The use of social bookmarking has also led to significant enrichment of the content.

This initiative has supported the creation of a dynamic community of interest bringing guidance research and practice closer together. It has enabled us to examine the ways in which learning about guidance is created and shared as well as providing a powerful engine to assist with the search for new understandings of effective guidance.

Future plans:

The success of the website has led to major expansion plans. In the first instance this expansion has taken four directions. First, to continue to enhance and extend the LMI future trends section as this resource is welcomed as an independent and authoritative source of LMI. Second, to develop a website, through a European Leonardo project, that builds a similar capability in four other countries (Denmark, Finland, Greece and Slovenia). Third, the discussion facilities are being redeveloped and enhanced making use of web-logging capabilities. Fourth, the sections on work-related learning and qualifications will be significantly enhanced and expanded as top-level sections of the site.

Continuing collaboration:

The commitment of the project team to collaboration throughout the development process is central to how the site is now being operated – supporting the ‘community of interest’ in an interactive way³. For example, the processes of **reflection, consolidation and community development** will be supported by presenting resources in ways that are meaningful for the community at a particular time.

Resources have also been allocated to **supporting active discussions**, by organising material to support discussions and establish links between current or past discussion topics. Like the discussions that took place during the development phase, it is expected that new discussions will cross topic or

³ In this particular context, ‘our community’ (those interested in careers guidance and work-related learning research and practice) could best be described as a ‘community of interest’: a group interested in sharing a discourse; sharing thinking; and sharing values to some degree. The group identification, however, can no longer be seen as a ‘community of practice’ as there is not a single ‘practice’ that is shared.. ‘Our community’ therefore has interests in learning for practice and/or working and learning. With a community of practice you would expect a much stronger sense of mutual engagement, joint enterprise and sharing of goals with a common repertoire of shared practices.

subject boundaries, evolve and change shape over time. This 'organic growth' of discussions will continue to be supported.

For the site to be useful to both practitioners and researchers, then participants need to be encouraged **to be more explicit about their purposes and desired outcomes**. Ideally, users of the site will eventually play oracle to each other - posing questions and receiving useful answers. This is central to the future purpose of the website.

As well as supporting live discussions, extensive use of **discussion summaries** has been made, with active editing of material by members of the project team. After discussions are finished, the discussions are deconstructed so that the separate points and strands can be placed in an appropriate context where they can be framed by supporting material (with copies of the full, original discussion archived).

Adding value to key documents over time is also a goal. For example, the project team received requests for help in learning how to undertake research from a number of practitioners. Whilst the website already has useful support materials for this, it could be rendered even more useful if examples were added of how users managed when they tried to put these ideas into practice, together with a record of discussion on this topic.

This initiative represents an exciting opportunity to create an inclusive and dynamic community of interest bringing guidance research and practice closer together. It will increase our understanding of how learning about guidance is created and shared (beliefs, concepts, ideas, theories, actions) as well as providing a potentially powerful engine to assist with the search for new understandings of effective guidance to benefit all clients. Please join us in our endeavour: visit: <http://www.guidance-research.org>.

References

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Appendix 1: Example of collaborative development of a framework to structure the work-related learning branch of the site

[The ten categories](#)

06-Jan-2005

The categories agreed at the January meeting.

The group agreed at the meeting on the 6th January to revise the chosen categories. After further discussions the group as a whole came up with the following ten categories:

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



Posted by **Alan Brown** on *06-Jan-2005 15:01* /

[Outcomes of January meeting](#)

06-Jan-2005

Discussion on three categories (Learning contexts and settings; Organisational learning and work (re)design; Strategies for enhancing learning) at the meeting on January 6th resulted in the following agreement.

Learning contexts and settings

Materials which analyse the social practices oriented towards learning within different settings. Topics include opportunities for learning, spaces for learning, expectations for learning and creating supportive learning contexts. Other key areas include:

- use of and access to artefacts, information, knowledge
- pressure of work
- expectations, rewards and punishment
- availability and nature of feedback
- challenge and value of work
- organisation and nature of work
- group learning: culture of setting; relationships

Additionally, contexts for learning include schools and colleges, workplaces, training centres, networks, communities and families.

Contexts for learning at work include:

- meeting context
- ‘on the job’ context
- ‘working alongside’ context
- ‘work encounter’ context

Organisational learning and work redesign

- relationships/ culture
- flows of people and work
- experiences and engagement (of individuals and groups)
- organisational policies and influences
- couplings between learning and work
- 360 degree learning
- learning as an organisation
- roles and influence of tools and technology

materials which examine how organisations learn and for example respond through the design of work. Topics include how job and task design are orientated towards workplace learning, how organisations and systems accommodate new tools, how organisations are managed as environments for learning by enhancing productivity through knowledge development.

Strategies for enhancing learning

This section focuses on and develops our understanding and knowledge of the ways in which learning can be improved. This includes understanding individual approaches to learning, learner needs and engagement in activities that allow them to learn,

learning resources including ICT, the role of feedback and assessment to support learning together with the ways the curriculum can be developed.

Pedagogies for developing learning and learning identities. Topics include modes of interactive support, for example direct teaching and more informal mentoring.

- Addressing factors that hinder learning
- Developing capabilities (of learners and those who support them) for enhancing learning
- Creating contexts that facilitate learning.
- organisational policies and influences
- couplings between learning and work
- 360 degree learning
- learning as an organisation
- roles and influence of tools and technology



Posted by **Alan Brown** on *06-Jan-2005 16:26 /*

Appendix 2: Example of chunking of key content

Informal Learning

Eraut's (2005) deconstruction of the concept of informal learning

The formality of learning is a continuum "informal learning is simply learning that comes closer to the informal end...Characteristics of the informal end of the continuum of formality include implicit, unintended, opportunistic and unstructured learning and the absence of a teacher. In the middle come activities like mentoring, while coaching is rather more formal in most settings." A typology of Informal Learning (Eraut, 2005), slightly modified from Eraut's (2000) version, is reproduced in Figure 1 below.

Time of Focus	Implicit Learning	Reactive Learning	Deliberative Learning
Past Episode(s)	Implicit linkage of past memories with current experience	Brief near-spontaneous reflection on past episodes, events, incidents, experiences	Discussion and review of past actions, communications, events, experiences
Current Experience	A selection from experience enters episodic memory	Noting facts, ideas, opinions, impressions Asking questions Observing effects of actions	Engagement in decision-making, problem-solving, planned informal learning
Future Behaviour	Unconscious expectations	Recognition of possible future learning opportunities	Planning learning opportunities Rehearsing for future events

"The columns distinguish between three levels of intention. Implicit learning was defined by Reber (1993) as "the acquisition of knowledge independently of conscious attempts to learn and in the absence of explicit knowledge about what was learned". Eraut later argues that awareness of explicit learning does not necessarily exclude the possibility of implicit learning occurring simultaneously, and consequently most learning from experience has some implicit aspects. "Moreover, outside formal education and training settings, explicit learning is often unplanned." Hence Eraut divides explicit learning into two distinct types; reactive or opportunistic learning that is near-spontaneous; and deliberative learning that is more considered. Eraut "uses the term "reactive learning" because, although it is intentional, it occurs in the middle of the action, when there is little time to think. In contrast, deliberative learning includes

both “deliberate” learning (Tough, 1979), where there is a definite learning goal and time is set aside for acquiring new knowledge, and engagement in deliberative activities such as planning and problem solving, for which there is a clear work-based goal with learning as a probable by-product. Because most of these latter activities are a normal part of working life, they are rarely regarded as learning activities, even though important learning often occurs.”

“The three rows indicate the possible temporal relationships between a learning episode and the experiences that gave rise to it. Schon (1983) distinguished between reflection during an action and reflection after an action, but tended to confuse the context of reflection with its focus (see Eraut, 1995). In Figure 1 the context in which learning occurs is always the present, but the focus of the learning can be in the past, present or future. While the planning of future learning opportunities is often informal, the opportunities themselves could be either formal or informal.” Eraut acknowledges that aspects of his terminology are open to challenge because he focused on finding appropriate terms to describe reactive learning as a consequence of its previous absence from the literature. For example, he concedes where ‘discussion’ and ‘review’ are used to describe deliberation on the past, the term ‘reflection’ could have instead been employed, in the form advocated by Dewey (1933).

Appendix 3: Example of use of video to provide a context for discussions and commentary

A case study of a Dutch Bakery undergoing the process of computerising their 'bun line'

This case study of a Dutch bakery demonstrates different aspects of the organisation of work before and after the introduction of computerised control of one of the company's bread-making lines.

Before computerisation:

1. This clip discusses the relationship between bakery suppliers and the bakery retailers; transport, location, timing, network and power issues are all considered. [Click here.](#)
2. This clip discusses the response of the Small-Medium-Sized Enterprise (SMEs) bakery suppliers to the power of the large retail chains: strength in numbers. Also considered is how the response is in fact a symbiotic one, and what other benefits there are to the formation of this network, such as improved purchasing and marketing for the suppliers. [Click here.](#)
3. This clip provides a detailed description and demonstration of the first phase of the bread manufacturing process: dough making. Particular reference is made to the variety of dough, the necessarily small scale and the automation of aspects of the process. [Click here.](#)
4. This clip provides a detailed description and demonstration of the second phase of the bread manufacturing process: bread making. Particular reference is made to

the humidity and temperature, the repeated raising and knocking down of the dough, the holing of the bread and the size of the bread. [Click here.](#)

5. This clip provides a detailed description and demonstration of the third phase of the bread manufacturing process: the baking. Particular reference is made to the time and temperature of the baking, the unavoidable length of cooling, the removal of the loaves, the packaging, the labelling, the slicing, the crating, the order picking, the scale of customer assortment, the specialisation to individual customers, the loading, the transport, and the total time and scale of the whole production. [Click here.](#)

After computerisation:

1. This clip hopefully provides a relatively interesting and entertaining interlude; showing robots from the bakery in action set to stirring music. [Click here.](#)

2. This clip provides an overview of the computerisation of the bakery's bunline. Particular reference is made to the increased capacity and reduced workforce, the same basic principles of bread-making being utilised, its rarity in Holland, and its limitations (usually works below capacity because need to change the variety of bread being produced). A worker is then interviewed who expresses his contentment at the changes because it has made his work easier: in principle he no longer has to touch the trays and has fewer jams with which to deal. [Click here.](#)

3. This clip explains aspects of the computerised bread manufacturing process (the phases following the dough making) in great detail. How different machinery and products are represented on the computer, the different robots, the procedure the different robots follow and spatio-temporal hierarchies/priorities that the robots respect are all expanded upon. The explanation is interspersed with footage of the robots in action. [Click here.](#)

4. This clip describes the bakery's motivation for computerising their bun line. It is explained that they were competing in a very difficult market and thus unable to change their prices. Instead they were forced to address their costs by improving the line's "capacity per hourly employee cost"; they achieved this by computerisation which both improved the line's capacity and reduced the number of workers required on the line. Although in the short term this increased costs (in terms of money and time of implementation), in the long term they have reduced their average costs. They remain convinced it was the right idea not only in terms of costs but also because of an improved product.

There is also an interview with an employee who, once he had "learnt bit by bit" both by trial and error and from two employees that had been on a course, prefers the computerisation because it is more advanced, faster and more flexible. [Click here.](#)

5. This clip describes the changes to workers' responsibility as a consequence of the computerisation of the bakery's bun line. For example if the dough is not patterned correctly, according to the computerised settings, on the trays, the product does not look for the customers and it slows the packaging of the bread. This slowing of packaging slows the line, and while there are buffers (resulting from the variable cooling times of the different products) which can absorb this slowing without stopping the line, they cannot do so indefinitely. At this point, production has to be halted. If it is not stopped, the ovens become overfilled and the bread burnt, and/or the

proofing persists for too long and the bread is bloated. So the bakery now has workers with the responsibility of preventing this from happening, both in terms of ensuring the dough patterning is correct and watching the buffers and halting production if the buffers are too full. A worker is briefly interviewed about what the changed responsibilities are. [Click here.](#)

6. This clip explains why, in spite of the computerisation of its bun line, the difficulties that brought, and its bid to cut costs in a competitive market, the bakery retained its government rewarded policy of promoting the Accreditation of Prior Learning (APL). The answer lies in the bakery's belief that people are its most important commodity and so should be motivated and trained all the time: 'untrained people cause a lot of waste and trouble, which results in unsatisfied, and therefore the loss of, customers', whilst trained workers have a better attitude, take more pride in, and are more aware of, their work. There are also comments from the workers about how the APL is a little more generic than the learning they undertake in their own workplace and how they also receive many benefits from the accreditation. The clip also notes that some workers are a little hesitant to apply and that some who one would expect to be able to achieve an accreditation extremely easily have to in fact work hard to verbalise and structure the knowledge that makes them so able in the workplace. A worker notes that this is a result of the hectic production process which affords them little time to reflect and order whatever knowledge it is that they are learning. [Click here.](#)

7. This clip describes some of the criteria candidates have to meet to be accredited under the APL scheme. For example, they must demonstrate a good knowledge of computers through a show of competency in both regular, everyday programs, and programs specific to the computerised bun line. The underlying principles behind the specialist programs are also tested to probe their understanding of the programs and the role the programs fulfil in ensuring the efficient functioning of the line. Applicants' problem solving is also evaluated: they will be presented with equipment from the line with which they are not overly familiar, and then some aspects of it are tampered with so that when they begin production everything is not as it should be, and they have to find out what's going wrong and why. They must also perform one practical, on the job, task. [Click here.](#)

8. This clip explains how dependent the bakery is on its newly acquired and complex hardware and software, and how they try to temper this dependency. The bakery is so dependent on its hardware and software not breaking down because their line is almost completely serial and there is almost no room for delay within their production; their product must be fresh for every single day (in contrast with the motor industry where time can be made up with overtime over several weeks). Consequently, they require an excellent maintenance service. However, when the maintenance service is unavailable (for example holidays) or unable to help sufficiently quickly, the bakery has another contingency: it is a member of a bakery support network, bake five. Bake fives' members all own family-owned SME bakeries, and have agreed that whenever one of the member bakeries has a failure in its production line to the extent it is unable to produce a significant amount of its desired quantity for a given day that all the other members will step in and make good the short-fall. [Click here.](#)

9. This clip explains further benefits of the APL scheme to the bakery. It argues that it is important for the workers to be able to understand the underlying principles of the software and the machines. This is achieved by the APL scheme together with keeping the software's logic relatively simple. By having workers that understand these principles this affords the bakery workers that can overview their production line with the insight to make predictions and judgements to prevent problems from even beginning to happen. It is very difficult to get a machine to perform like this. Meanwhile, the workers believe the bakery benefits from the reassurance, to both themselves and their customers, that the machines are operated and products made by well-trained workers who can cope with their work. They also believe it improves attention, communication and consultation (for example separating the waste more thoroughly) which improves the efficiency of the line. [Click here.](#)

10. This clip briefly describes the change in the employees' attitudes as a consequence of the APL scheme. They are more willing and able to learn new things and to adapt themselves to changes that occur in the workplace. Equally, they are now at ease with being assessed and being asked to think about their job and why they are doing it. Finally, they are more aware of the consequences of their actions/job to their workplace and are more appreciative of, and receptive to, co-operation and communication within their workplace. [Click here.](#)