

## **Bridging the Gap between Research & Practice: Development of the UK National Guidance Research Forum website**

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### **Abstract**

*This article outlines the development of a shared web-based knowledge base that seeks to bridge the gap between guidance research and practice. This knowledge base was developed from the contextualised problems that policy makers, managers, practitioners, researchers and trainers face. Six expert groups looked at key areas or problems related to their expertise and provided a mediated commentary on key documents and research findings on-line. The process represents a major contribution to research capacity building within the guidance community and has involved a range of prospective users on an iterative basis in the development of the website.*

### **Introduction**

Since 1996 we have been involved in various experiments and projects linked to the use of Information and Communication Technologies (ICT) for collaborative knowledge sharing and knowledge development. We have moved progressively towards projects that link innovative development agendas, network-based knowledge sharing and the construction of virtual platforms. We have, however, in the past, had difficulties in engaging sufficient participants in our practice. At times, we felt like Kevin Costner in the film 'Field of Dreams'. He built a baseball stadium on his farm in the prairie after hearing voices whispering 'build it and they will come.' We heard the same voices, but for a long time....we were still waiting for the people to come.

It felt at one time that we were trying to manufacture 'communities' (of ICT teacher trainers; VET researchers and so on) so that they could participate in the networks we were developing. We thought we might have more success with supporting knowledge development for a 'community of practice' (of careers guidance practitioners) in the United Kingdom with common goals and shared practice. After working with the 'community' for some time it is clear that 'shared practice' is a problematic issue. In that case, 'community of practice' too becomes problematic. Maybe it would be better to consider those researchers, practitioners and policy-makers we are working with as a 'community of interest' with much looser ties than a 'community of practice.'

We intend to do two things in this article. First, we will outline the development of a shared web-based knowledge base that seeks to bridge the gap between guidance research and

practice. Second, we will critically examine what lessons can be learned about from attempting to build a 'community of interest' focused upon bridging the divide between guidance research and practice.

### **Development of a shared web-based knowledge base**

An interdisciplinary team of researchers from the University of Warwick (Institute for Employment Research) and the University of Derby (Centre for Guidance Studies) are working in partnership with KnowNet (a small specialist collaborative software development company) to develop a major new research resource for the guidance community, the UK National Guidance Research Forum Website. This is being funded by the Department for Education and Skills (Access to Learning for Adults Division) in England and will be launched in September 2004. Its overall purpose is to facilitate knowledge sharing and transformation for those interested in guidance research and practice, including: practitioners, policy makers, researchers, guidance trainees, tutors and trainers

Specifically, the objectives of the website are:

- 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;
- to 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;
- to broaden and deepen the knowledge base of how to align processes of effective guidance practice with policy requirements across the UK.

A key feature of this development has been the construction of a shared knowledge base, not from an a priori comprehensive blueprint, but by being grown more organically from the contextualised problems that policy makers, managers, practitioners, researchers and trainers face. This has involved the formation of groups drawn from all the above groups as a centre of expertise for particular topics. These groups have looked at key areas or problems related to their expertise and provided a mediated commentary on key documents and research findings on-line. The process represents a major contribution to research capacity building within the guidance community. The development methodology has involved a range of prospective users on an iterative basis in the development of the website. This has enriched the development process and also acted to validate and ensure the relevance of the outcomes.

The website has three main sections, as follows:

- **LMI Future Trends** – consisting of labour market information focusing on labour market changes and skills needs in the UK.
- **Effective Guidance** - containing a range of synopses, links, resources and edited discussions on six inter-related themes:
  - ~ Equal Opportunities;
  - ~ Impact Analysis;
  - ~ Using Research in Practice;
  - ~ Improving Practice;
  - ~ Lifelong Learning;
  - ~ International Perspectives.

- A **Database** – linking directly to the National Library Resource for Guidance, based at the Centre for Guidance Studies at the University of Derby.

The project extends the use of information and communication technologies, previously developed to support the knowledge development of the dispersed community of guidance practice (Brown & Bimrose, 2000). The composition and work of the six expert work groups (one each for Equal Opportunities, Impact Analysis, Using Research in Practice, Improving Practice, Lifelong Learning and International Perspectives) meant it was possible to advance understanding through processes of knowledge combination, where existing available knowledge was combined with new insights to create new forms of contextualised knowledge. New participants could then make use of online support for a community of interest that focused on the interweaving of guidance research and practice in a way that offers them significant advantages. For example:

- It offers the chance for others to collaborate independent of time and space;
- It makes it possible for people to participate in their own time and at their own pace;
- Contributions can vary in form (e.g. they can contain text, pictures and links to documents, html pages or other notes);
- Participants are able to explore something thoroughly by commenting on material and contributing to discussions, and in so doing elaborate on the knowledge that is already in the website.

An important feature of this development, however, is that it is the combination of 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. The created knowledge can be regarded as a social product. It represents not only learning, but creating knowledge collaboratively is also a form of knowledge building where individuals (learn to) share their knowledge and create new knowledge together.

It has previously been argued (Brown, Attwell and Bimrose, 2002) that one way to build a more interactive and collaborative approach to knowledge creation was to utilise the ideas of Nonaka and Takeuchi (1995) and Nonaka and Konno (1998). They stressed it was important to ensure that there was sufficient 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. This is precisely what we did in the development phase. This has now given us a platform, grounded in the realities of guidance practice, which should enable us to build continuing relationships with members of the community, especially those engaged in research, training or continuous professional development activities.

Overall, the key to knowledge development to enhance career guidance practice has been to set up a genuinely collaborative environment for a wide range of participants. The environment will enable participants to:

- (jointly) develop, edit and modify materials;
- share annotation on material;
- facilitate the sharing of experience;
- promote discussion, sharing and active collaboration;
- offer virtual (and in some cases real) spaces for debate and collaboration;
- support action research;
- offer active support and moderation;
- offer support to particular interest groups;

- provide a forum for discussion of attempts to tackle complex problems in careers guidance practice.

### **Collaborative development processes**

Staff from many organisations involved in guidance participated in the development process. These have included careers companies; Information, Advice and Guidance partnerships; Higher Education; Voluntary/Community Sector Organisations; the private sector; various government organisations and employers. Additionally we actively engaged in continuing dialogue with representatives of those organisations with a strategic interest in the development of career guidance policy and practice and/or the development of labour market information, such as the Department for Education and Skills; professional associations for guidance; the Sector Skills Councils and the Learning and Skills Council.

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). We also followed the advice of de Laat *et al.* (2001) that in working together online in order to become used to sharing knowledge, deepening 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. We therefore adapted a model of progressive inquiry (Hakkarainen and Muukonen, 1999) that engaged participants in the development in a step-by-step process of question and explanation driven inquiry. We called these ‘team tasks’ and they comprised a series of particular questions, grounded in practice, relating to one of the six broad themes. For example, in impact analysis a lively discussion ensued around "Much of quality assessment is to do with how systems operate with an emphasis on what the organisation does, procedures and paper trials, complaints, appointment procedures and so on. There could be an inbuilt danger that quality assessment tilts too far towards looking at organisational systems and practice at the expense of enquiry into the benefits to service users." The results of this discussion, including exploration of the benefits quality standards bring to clients, can be seen on the website, framed by related discussions and links to a wide range of other materials.

de Laat *et al.* (2001) consider that by introducing a model of progressive inquiry, you develop scaffolds to structure and regulate the learning activities of the participants. Our approach by making continuing use of face-to-face sessions added still greater support to the process of knowledge building relating to the interleaving of research and practice.

### **Continuing collaboration**

Our intention is not just to have used collaboration in the development process, but also that it should be integral to how the site is used – supporting the ‘community of interest’ in an interactive way. We aim *to support processes of reflection, consolidation and community development*. This means encouraging the posting of material is a secondary function - material needs to be related to a specific purpose. To aid processes of reflection and development we need to be able to represent our resources in ways that are meaningful for the community at a particular time.

Resources have also been allocated to *supporting active discussions*. We will continue to support processes of reflection and consolidation of active discussions, organise material to support the discussions and establish links between current or past discussion topics. Like our earlier discussions we expect the new discussions will cross topic or subject boundaries and

evolve and change shape over time. We will continue to facilitate the 'organic growth' of the discussions.

If the site is to be useful to both practitioners and researchers then we should encourage *participants to be more explicit about their purposes and desired outcomes*. Initially, we tended to ask people to put up things they believe would be useful to an imagined audience. Subsequently, more effort was put into supporting discussions that 'took off'. It is our hope that when the site is fully implemented, users of the site will play oracle to each other - posing questions and receiving useful answers. This will be central to our future purpose.

As well as supporting active discussions, we also facilitate reflection and review. We have made extensive use of summaries and there has been active editing of material. This means that, after they are finished, the discussions are deconstructed such that the separate points and strands can be placed in an appropriate context where they can be framed by supporting material (although copies of the discussion as a whole will be archived).

We will also seek to add value to key documents over time. For example, we had requests for help in learning how to do research from a number of practitioners. The site has useful support material on this, but this could be even more useful if we could add value to documents over time with examples of how people fared when they tried to put these ideas into practice, plus a record of discussions on this topic.

The website provides a link to the National Library Resource for Guidance (NLRG) based at the Centre for Guidance Studies at the University of Derby and its development has been closely linked to that of the website. It holds the UK's largest collection of guidance literature, comprising both historical and contemporary work - over 10,000 books, journals, published reports and a variety of unpublished materials on the subject of guidance within the United Kingdom, supplemented with examples of guidance research and practice from around the world. A section of the collection is of historical interest, though the greater part consists of contemporary material that is continually being developed through new acquisitions. The NLRG will continue to support the work of the website by providing access to annotated materials to support and facilitate discussion and research.

## **Lessons learned from the development of the website**

### **Some problems**

First up, it has to be said that, until now, the use of ICT support for knowledge sharing and development has often failed to deliver the promised benefits. It is like the start of the film 'The English Patient' from afar the landscape looks spectacular but close up you see it is mainly a desert with occasional oases of success. Whilst email has become the preferred method of communication for academia and business, and the web spawns technical, academic and leisure bulletin boards, web sites and list servers, there is a marked lack of collective and collaborative knowledge development. What spaces there are for sharing knowledge tend to be used as collective file repositories or areas for shorter discussion. There are of course, exceptions. Technical and software developers use the Internet as a means for co-development of software, especially in the growing Open Source Software Community. The public Human Genome project was largely made possible through intense networked collaboration using computer-based communication. Yet, it is the exception which proves the rule: the limitations in daily work and research practice of networked collaboration, even amongst those involved in dispersed communities and engaged in common international projects is limited. Of course,

software development, despite the inertia of the larger companies, remains a dynamic and innovative industry, with new developments appearing all the time. It is possible that the software industry will produce a 'killer application' for knowledge sharing. The recent upsurge in web logs (blogs) is an interesting case where, whilst not invented for knowledge development, there are signs of emergent practice in sharing knowledge. But networked collaboration is a social activity and the use of ICT can only support social interactions.

Seizing upon this idea many of those in the field (including us) thought that there may be some value in adopting and/or adapting ideas about 'communities of practice' to the notion of developing ICT support for knowledge development. However, many researchers appear to have forgotten Lave and Wenger's (1991) original assertion that communities are always emergent. ICT based solutions often appear to approach communities as being monolithic and time bound. Support for knowledge development and collaborative practice lacks the flexibility for changing group membership or for changes in the roles, authorities and actions of members of a group. This difficulty is compounded by the problematic understanding of 'group' by computer software developers (at least in the way in which a group is expressed or represented in their software). Furthermore, and more critically, at some point the idea emerged of communities of learners. That learners may form a community is neither here nor there. The problem is that they do not form a community of practice. Practice in learning is not strong enough in generating shared experience and day to day practice to develop a community of practice. The very word 'community' has become devalued in relation to discussions of collaboration and the use of ICT. It has become a synonym for any group sharing a common space through the Internet.

From the above it is apparent that we often have problems with both 'community' (who are they and what goals, values and practices do they share?) and 'practice' (what is the practice being shared?) when considering ICT support for knowledge development. If that is the case, then maybe our ideas need to be informed by something other than 'communities of practice'. The difficulty in this work, and the attraction, is that it is interdisciplinary, involving a wide range of knowledge and skills drawn from a wide range of different disciplines and more importantly practices. Maybe we should stick with the 'boundary crossing' analogy? We need to evolve and develop new forms of collaboration in order to support collaborative processes and to realise new forms of knowledge sharing and we feel we need some representation to help that process!

One final problem should be acknowledged and that is that discussion based facilities for knowledge sharing can become divorced from the formal tenets of (vocational) subject based knowledge. That there is a corpus of knowledge around different practices seems clear, even in these days of rapid change. A challenge is how to present and interpret that body of formal knowledge in an accessible way relevant to the practices of different communities and to facilitate interaction between the informal knowledge generated in the communities with more traditional forms of knowledge. Web based text books, manuals or formal training courses are useful but not enough. Good search engines are essential. But, we also need to develop new ecologies and taxonomies (or even ontologies) which can describe and structure that knowledge in a way that is useful for those participating in the knowledge development process.

### **Supporting practice**

The ideas outlined by Lave and Wenger (1991) in relation to 'communities of practice' describe how knowledge and skills are developed and exchanged within different communities, and how the social interactions and rules by which those particular communities of practice operate and how communities evolve and change. We cannot replicate those communities

either through face to face or computer mediated networks. We can, however, develop processes and tools to support the different processes and practices which occur in the 'communities' we seek to support. We need to remember, however, that members of 'our community' may belong to a variety of very different 'communities of practice' with each community having evolved different cultural and historical practices.

There is therefore a degree of choice as to what practices we decide to support. In reality, most ICT based systems claiming to support communities of practice are technologically driven, based on what is seen as feasible with present technologies. However, in so doing they often infringe other practices or processes that members of 'our community' see as important. Similarly, the idea that communities are emergent and dynamic has escaped the designers of computer based support systems. The idea of emergence covers a number of different spheres – membership, activities, rules and practices. We need to develop flexible systems that recognise the way communities evolve and change and allow different people to play different roles within those systems at different stages in their development. In particular we need to allow branching – in terms of new conversations or work areas branching from the main threads or even new communities breaking out. We also need to allow those communities and branches spaces and mechanisms to re-enter the original trunk.

One way to move forward, suggested above, was to use the notion of 'boundary crossing' as a way of supporting the development of knowledge within 'our communities'. So far, most approaches pursuing this line have looked at how communities can be introduced or confronted with practices drawn from different communities, in order to promote reflection and knowledge development. This may not be the best approach. Instead, we should look at how different ideas developed within communities can be allowed to branch, whilst retaining a relationship to the main stem. The importance of this has become clear through our project with the Careers Guidance Community in the UK, where we have been asked to provide functionality for groups of members to develop and follow ideas outside the mainstream of the discussion, whilst remaining in the 'system'. It may well be that it is in the process of defining the relationship of such schisms to the original main 'idea set' that new knowledge can be created.

### **Community of interest**

For us, 'our community' (interested in careers guidance research and practice) could best be described as a 'community of interest': a group interested in sharing a discourse; sharing thinking; sharing values to some degree. Group identification, however, may not be strong. They have fairly loose ties. Indeed perhaps one reason why people may value a 'community of interest' in this area is that the 'community of practice' associated with careers guidance in the UK is fragmenting<sup>1</sup>. Maybe some people involved would like at least be able to construct a 'shared story' about what is happening in their professional field. Our community has interests in learning or practice 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.

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<sup>1</sup> note careers advisers and personal advisers (offering a range of advice to young people at risk of social exclusion) now have different knowledge domains. We, and they, are not sure where the boundaries are between different types of practitioners involved in giving Information, Advice and Guidance in different settings - are the boundaries clear, fuzzy or contested? How far do they share at least some domains of knowledge? Also, since devolution, the four constituent parts of the UK are now following very different agendas as to how they deliver careers guidance.

From the developers' perspective we could emphasise the value in testing ideas in multiple contexts and of building awareness and understanding of the activities and perspectives of others. We could see an ideal (from our perspective as site developers) where we seek progress from passive awareness to engaged interaction of participants. However, we also need to recognise that for some participants the ideal is passive awareness.

### **Professional development**

On our site therefore the intention is that professional development around research and practice should be grounded in the questions, concerns and enquiries of a group of practitioners, such that the aim is shared rather than individual development. There is a role for coaching, observation by colleagues (knowledgeable others) and examples of how practitioners can engage with research. For example, a journal article could be annotated to help practitioners 'break the research code' - how to make judgements about the conclusions or 'warrant'. There could also be value in collaboration on problem-oriented case-work (working on interpretations of a 'shared case'). One other issue relates to how to resolve emotional tensions arising from inability to perform in the way you think is appropriate (for example, if you have insufficient time to offer the quality of service you believe you should);.

### **Knowledge-building perspectives**

Knowledge combination is the key challenge for us. In distributed (computer-mediated) discourses conversations can often dwindle, so we are supporting the 'knowledge spaces' for our 'community of interest' so that they can contribute to the public life of ideas. For example, the evolution of a research project could itself be outlined as a way of representing the research process through public disclosure of plans, summaries, development etc. Ideas and concepts can be worked on by perhaps just a few members of the community in a public space, but then the wider community may benefit.

The inter-linking of discourses, and the facilitation of different 'views' of material, can help build (or highlight the disjunctions in) coherence, comprehensiveness and links between theory and practice within and between different areas. The use of summaries, syntheses, reflections and annotations in our heavily mediated environment can help with the transition between, to adapt Donald Schon's (1983) analogy, the cliff-top of critical analysis and the swamp of everyday practice.

One of the difficulties incurred by successful knowledge-building approaches is that ideas and contributions, and the space they take and the time to search them, starts to increase rapidly. We are pleased we have encountered this problem (to return to the Field of Dreams analogy at least the players have turned up and are actively participating, even if the crowd is not yet in sight.) Hence it is important that representations show relationships between topics and that these representations are to some degree under the control of participants in the 'community of interest'. Sharing of individual representations of knowledge relationships and how these relate to individual 'stories' may facilitate collaborative knowledge development and combination of different types of knowledge.

Our approach could be compared with the ideas of Scardamalia and Bereiter (1994) on the growth of 'individual and communal knowledge resources', although our environments and resources are much more complex than those with which they were working. Their ideas revolved around the development of 'improvable ideas'; cultivating the abilities of synthesis and reflection as the basis for a 'disposition' towards knowledge-building; and building a discourse aimed at knowledge transformation. They also sought to use linking narrative



accounts of participants' learning goals, achievements and self-reflections with accounts of practice through activity reports and learning logs (on a daily or monthly basis); and they highlighted the value of 'rise above' sessions.

Our practitioner-researcher interactions are linked to wider concerns of the 'community of interest'. We have recognised the importance of scaffolding knowledge-building: helping to develop models and viewpoints and overcoming problems of isolated contributions. Maybe we have gone a little too far in this respect, and the clear sense of direction and development we have subsequently imposed upon the existing contributions may prove to be a little daunting for future prospective contributors. The new site we are currently building can be seen as a representation of the stage the 'community of interest' as a whole reached. Knowledge-building involves learning how to find different types of knowledge; and learning how to learn together with collective responsibility for developing expertise and conceptual ideas.

### **Boundary crossing**

The emphasis of activity theorists is that there is value when working in a boundary zone of working on a 'shared object' leading to expansive learning and developmental transfer: e.g. a joint development project (Engeström et al., 1999). In the context of the careers research and practice site the challenge may not be to develop something jointly, but rather whether we can stimulate more 'information brokers' at the edge of their existing communities. Also in this context, 'activity systems' like 'communities of practice' may represent an over-socialised model where the communities and systems are quite large and distinctive. Our individuals belong to quite a large number of groups and communities, and from that perspective crossing boundaries (and coming back to a new reconfigured position) may be of value precisely because there is not a single community – except our 'community of interest.'

Benedict Anderson points out that all communities by their nature have initially to be 'imagined' and then people and ideas have to be mobilised to give the community a concrete existence (Anderson, 1983). So maybe our 'community of interest' imagined as a much looser association with weak ties is a model to which we should aspire. Maybe we can keep the 'field of dreams' analogy too. Not everyone has to play, some people can come, be relatively passive but still get what they want – the spectators are important and involved even if they make only limited contributions.

### **Computer-supported collaborative learning**

So what can we, drawing upon our most recent experiences, say about how computer-supported collaborative learning interacts facilitates the aim of bringing guidance research and practice closer together:

- Need for thoughtful mediation;
- Recognition that work-related learning may figure behind other aspects of private lives and working lives;
- Relative failure of ideologies and 'big ideas' may be because they are crowded out by lots of smaller but more immediate ideas and concerns;
- Value of existence of examples of co-operation 'scripts' regarding goals, types of activities, sequences, roles, format etc.;
- Goals regarding production of explanations, summaries, solving problems etc. should be made explicit;
- Identification of different message types;
- Value of prompts for comments, guided questioning ('what is the difference between...'; 'how does this work in practice...')
- Different ways of organising messages;

- What cognitive strategies are used in understanding relationships etc.;
- Activities could be clustered to support collaboration;
- Information pooling: may be explanatory or questioning;
- May be useful to represent the same information in different ways;
- Problems may be due to a loss of motivation; a loss of co-ordination or because of a lack of feelings of co-presence;
- Recognition that making contributions to discussions can feel rather demanding;
- Could be that there are a number of bases for common ground in a 'community of interest': shared understandings; shared meanings; shared opinions; and shared positions;
- Awareness of process and what others are doing;
- Shared knowledge may build in common misconceptions;
- Cannot abstract general lessons from the complexity, context and goals of the particular situation;
- Collective meaning making may lead to development of certain 'voices' which may depress other voices - we all have different voices in different contexts;
- Inter-textual links (where different voices meet) are rich in terms of justifications, meeting of different discourses, explanations varied according to context etc.;
- Individuals were seeking direction, making meaning and establishing roles for themselves in their contributions over time.

### **Further research and development**

This paper has tried to weave together ideas drawn from research and from our own practice in supporting the development of knowledge in communities of interest. For us to go further in this direction we need support in two ways. The first is the need for a more focused research approach on collaboration and knowledge development in communities of interest that are underpinned by complex relations to a variety of work-related practices. We need much more experience of the use of ICT to support practice and to support communities that are interested in a range of practices, some shared, some competing practice, some within and some outside the participants' conventional occupational boundaries. We need a more profound understanding of the nature of practice and community and how ICT might support the evolution of both. We need to understand more of how communities emerge, evolve and change. We need to understand the different roles within our computer-supported communities and how these roles evolve and are passed on. We need to know more of the nature of informal learning and its relationship to knowledge sharing and development.

Secondly we need to look at the processes of collaboration and software design for software for projects and research into knowledge development. As should be clear from the paper, we believe in the value in this context of forms such as action research, participatory research or accompanying research. The development process is very rapid in this field, but more importantly we need the research to feed into development. Research and development processes need to be modelled in common. Iterative and co-design of software applications and programs require participatory design processes and at the same time informed reflections on the process. This is itself a process of collaborative knowledge development and also of boundary crossing. It implies the development of a new community (or communities) sharing (or perhaps exchanging) languages, practices and purposes.

This initiative represents an exciting opportunity to create an inclusive and dynamic community of interest bridging the gap between guidance research and practice. It will enable us to examine the ways in which 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 [www.guidance-research.org](http://www.guidance-research.org)

## References

- Anderson, B. (1983) **Imagined Communities: Reflections on the Origins and Spread of Nationalism**, London: Verso.
- Brown, A. Attwell, G. and Bimrose, J. (2002) Utilising Information and Communication Technologies for dispersed communities of practice, in Lally, V. and McConnell D. (eds) **Networked collaborative learning**, Sheffield: School of Education, University of Sheffield.
- Brown, A.J. & Bimrose, J. (2000) Establishing a virtual forum for collaboration and knowledge transformation to support careers guidance practice, in **Careers Guidance: Constructing the Future. A global perspective**, Institute of Career Guidance & Trotman: Stourbridge
- de Laat M., de Jong F. and Simons R-J. (2001) **Supporting self-regulation of learning activities in online communities of practice**, Nijmegen: Department of Educational Sciences, University of Nijmegen.
- Engeström, Y., Miettinen, R., Punamäki, R.-L. (Eds). (1999). **Perspectives on activity theory**. New York: Cambridge University Press.
- Hakkarainen, K. and Muukonen, H. (1999) **Collaborative technology for facilitating progressive enquiry: future learning environment tools**, Paper presented at the Computer-supported collaborative learning (CSCL '99) conference, Paolo Alto, California.
- Nonaka, I. and Konno, N. (1998) The Concept of “Ba”: Building a Foundation for Knowledge Creation, **California Management Review**, 40, 3, 40-54.
- Nonaka, I. and Takeuchi, H. (1995) **The knowledge creating company. How Japanese companies create the dynamics of innovation**, Oxford: Oxford University Press.
- Scardamalia, M. and Bereiter, C. (1994) Computer support for knowledge-building communities, **Journal of the learning sciences**, 3, 3, 265 –28.
- Schön, D. (1983) **The Reflective Practitioner. How professionals think in action**, London: Temple Smith.