Knowledge development and combination processes in action: the example of the UK National Guidance Research Forum Website

Alan Brown, Jenny Bimrose and Sally-Anne Barnes

April 2005

This paper was presented at the CEDEFOP Virtual Communities Animators' Workshop, Thessaloniki, Greece 18 -19th April 2005

Contact details:

sally-anne.barnes@warwick.ac.uk

j.bimrose@warwick.ac.uk

alan.brown@warwick.ac.uk

Institute for Employment Research, Coventry, CV4 7AL, UK

Knowledge development and combination processes in action: the example of the UK National Guidance Research Forum Website

ALAN BROWN, JENNY BIMROSE and SALLY-ANNE BARNES,

Institute for Employment Research, University of Warwick, Coventry, CV4 7AL, UK

Abstract

This paper outlines the development of a website in the UK that seeks to bring guidance research and practice closer together. The shared knowledge base underpinning the website was developed from the contextualised problems that policy makers, managers, practitioners, researchers and trainers faced. Six expert groups looked at key issues related to their expertise and provided a on-line commentary on relevant documents and research findings. The overall developmental process represents a major contribution to research capacity building within the UK guidance community because it has involved a range of prospective users on an iterative basis in the construction of the website.

Introduction

Since 1996, a team of researchers based at the Warwick Institute for Employment Research has been involved in various research projects related to the use of Information and Communication Technologies (ICT) for collaborative knowledge sharing and development. Findings have led progressively towards making links amongst innovative development agendas, network-based knowledge sharing and the construction of virtual platforms (including the development of CEDRA - the CEDEFOP Research Arena). Engaging sufficient numbers of participants with common interests (e.g. ICT teacher trainers; Vocational Educational & Training researchers) and supporting their participation in virtual communication networks emerged as a particular challenge. The guidance community in the UK posed an interesting new case. It apparently has common goals and shared practice, but represents an increasingly fragmented sector with services for adults separated from services for young people in England and further divisions created recently by the devolution of policy and practice in the four constituent countries (OECD, 2003). After working with this community for some time, it became clear that 'shared practice' is problematic because of this sector fragmentation. Increasingly, it has seemed more logical to consider guidance practitioners, managers, policy-makers, researchers, trainers and students as a 'community of interest', with much looser ties than a 'community of practice'. In this paper, the development of this shared web-based knowledge base, designed to bring research and practice closer together for the broad community of guidance in the UK, is critically examined, with some of the lessons learned discussed.

Development of a shared web-based knowledge base

An interdisciplinary team of researchers and developers from the University of Warwick, the University of Derby (Centre for Guidance Studies) and KnowNet (a small specialist collaborative software development company) are developing a major new resource for the guidance community, the UK National Guidance Research Forum (NGRF) website (http://www.guidance-research.org). The initial development phase has been funded by the Department for Education and Skills in England and the website was formally launched in September 2004, with some sections still under development at that time. 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. The objectives of this website are to:

- create and support an on-line community of interest for guidance;
- bring practice, research and policy closer together; and
- focus on the core problems of guidance practice.

A key feature of the website 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 been achieved by forming steering groups drawn from all the above groups, as centres of expertise for particular topics. These groups have looked at key issues related to their expertise and provided a commentary on key documents and research findings on-line. The process has contributed to research capacity building within the guidance community by involving a range of prospective users on an iterative basis. This methodology has both enriched the process and acted to validate the outcomes.

There are three main sections on the website, as follows:

- **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).

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

Note, however, 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 (that at one used Community Zero) are being redeveloped and enhanced making use of web-logging capabilities. Fourth, the section on work-related learning will be significantly enhanced and expanded as a top-level section of the site (that is, the site will henceforth have a dual focus on guidance and work-related learning).

The project extends the use of ICT to support knowledge development for the dispersed community of guidance practice (Brown & Bimrose, 2000). The formation of 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 knowledge was combined with new insights to create new forms of contextualised knowledge. Previously, Brown, Attwell & Bimrose (2002) had adopted the same type of interactive and collaborative approach to knowledge creation. This also stressed the importance of having 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 (Nonaka & Takeuchi,1995; Nonaka & Konno, 1998). An important feature of the new website development has, similarly, been 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 represents a social product, with the process of collaborative knowledge creation also representing a form of knowledge building where individuals (learn to) share their knowledge and create new knowledge together.

Participants in the development of the NGRF website were able to make use of online support for a community of interest that focused on the interweaving of guidance research and practice in a way that offered significant advantages. These included: being able to collaborate independent of time and space; participate in their own time and at their own pace; make contributions in different forms (e.g. text, links to documents or other notes); 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).

Overall, the key to this process of knowledge development has been to set up a genuinely collaborative environment for a wide range of participants. The environment enabled participants to: (jointly) develop, edit and modify materials; share annotation on material; facilitate the sharing of experience; promote discussion, sharing and collaborate actively. This was achieved by offering virtual 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.

Reflection point: Note, however, what is particularly important for the CEDEFOP Virtual Communities debate is that the volume of contributions was so overwhelming that the Community Zero site became unmanageable. Syntheses and knowledge combination then become vital tools if participants are able to access useful material quickly.

Collaborative development processes

Individuals from many organisations involved in guidance participated in the development process for the website. They were drawn from careers companies; Information, Advice and Guidance (IAG) partnerships; higher education; voluntary and community sector organisations; the private sector; various government organisations and employers. Additionally, the project team 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. 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).

It is crucial for participants to be able to coordinate, clarify and regulate the discourse themselves (de Laat *et al.* 2001) whilst working together on-line to become used to sharing knowledge, deepen their own and common understanding and creating further insights, A model of progressive inquiry (Hakkarainen and Muukonen, 1999) was therefore adopted that engaged participants in the development in a step-by-step process of question and explanation driven inquiry. These were called ‘team tasks’ and comprised a series of particular questions, grounded in practice, relating to one of the six broad themes described above. 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 linked to a wide range of other materials.

de Laat *et al*. (2001) consider that by introducing a model of progressive inquiry, you develop frameworks, or scaffolds, to structure and regulate the learning activities of participants. The approach adopted for the NGRF website added still greater support to the process of knowledge building by making continuing use of face-to-face sessions which focused around the interweaving of research and practice.

Reflection point for the CEDEFOP Virtual Communities debate: there should be a clear focus for a progressive enquiry - the goal is not, as is sometimes the case, discussion to show that the virtual community works - participation has to be for an authentic purpose and something has to happen to the results of the discussions – there needs to be a clear outcome.

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

For the site is 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.

Finally, the website also provides a link to the related development of the National Library Resource for Guidance (NLRG) based at the Centre for Guidance Studies at the University of Derby. This library holds the UK's largest collection of guidance literature, comprising both historical and contemporary work, supplemented with examples of guidance research and practice from around the world. The NLRG supports the work of the website both by providing access to annotated materials to support discussion and research as well as providing an archive for completed discussion strands.

Lessons learned from the development of the NGRF website

Some problems

Until now, the use of ICT to support for knowledge sharing and development has often failed to deliver the promised benefits. 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 still 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, these seem to be exceptions that prove the rule. The constraints of daily work and research practice mean 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 example where, whilst not invented for knowledge development, there are signs of emergent practice in sharing knowledge (Nardi, 2004). But networked collaboration is a social activity and the use of ICT can only support social interactions.

Seizing upon this idea many people in the field (including the NGRF project team) thought that there may be 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 if they were 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 many 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 distributed learning is seldom strong enough to generate sufficient shared experience in day-to-day activities 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 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. Our ideas needed, therefore, 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 a 'boundary crossing' analogy would be more appropriate. 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. 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, as well as 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) that can describe and structure that knowledge in a way that is useful for those participating in the knowledge development process.

Supporting practice

Lave and Wenger (1991) describe how knowledge and skills of 'communities of practice' are developed and exchanged within different communities, and how the social interactions and rules by which those particular communities of practice operate evolve and change. Those communities cannot be replicated, either through face-to-face or computer mediated networks. However, processes and tools can be developed to support the different processes and practices that occur in the 'communities' the NGRF website seeks to support. It is necessary to remember, however, that members of 'our community' 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 about what practices are supported. In reality, most ICT based systems claiming to support communities of practice are technologically driven, based on what is feasible with present technologies. However, in so doing they often infringe other practices or processes that members of that 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. Flexible systems are needed that recognise the way communities evolve and allow different people to play different roles within those systems at different stages in their development. In particular, 'branching' must be allowed – in terms of new conversations or work areas branching from the main threads or even new communities breaking out.

One way forward could be to use the notion of 'boundary crossing' as a means 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 appropriate here. Instead, the ways different ideas developed within communities can branch should be examined, whilst retaining a relationship to the main stem. It is important that participants can 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

In this particular context, ‘our community’ (those 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; and 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[1]. Maybe some people involved would like at least to be able to construct a 'shared story' about what is happening in their professional field. ‘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.

From the developers’ perspective, the value of testing ideas in multiple contexts and of building understanding of the activities and perspectives of others should be emphasised. The project team share an ideal (from the perspective of 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

For the NGRF website, the intention is to support professional development that is based around research and practice grounded in the questions, concerns and enquiries of a group of practitioners. The aim is, therefore, for shared rather than individual, development. There is a role for coaching, mentoring, 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. There could also be value in collaboration on problem-oriented case-work (working on interpretations of a 'shared case'). A final issue relates to how to resolve emotional tensions arising from an inability to perform in the way you think is appropriate (for example, if you are not resourced to offer the quality of service possible).

[1] note careers advisers and personal advisers (offering a range of advice to young people at risk of social exclusion) now have different knowledge domains. It is unclear where the boundaries lay 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.

Knowledge-building perspectives

Knowledge combination remains the key challenge. In distributed (computer-mediated) discourses conversations can often dwindle, so the ‘knowledge spaces’ for ‘our community of interest’ are being supported so that they can contribute to the public life of ideas. For example, the development ideas for a research project could itself be outlined as a way of representing the research process as peer review through the public disclosure of plans. 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 the heavily mediated environment of the NGRF website can help with the transition between (to adapt Donald Schön's (1983) analogy) the cliff-top of critical analysis and the swamp of everyday practice.

One of the difficulties encountered by successful knowledge-building approaches is how ideas and contributions, together with the space they take and the time to search them, starts to increase rapidly. 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.

Scardamalia and Bereiter (1994) highlight how the growth of 'individual and communal knowledge resources' can revolve 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 link 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' (WHAT DOES THIS MEAN) sessions.

The practitioner-researcher interactions on the NGRF website have, therefore, been linked to the wider concerns of the 'community of interest'. The importance of scaffolding knowledge-building have been recognised: helping to develop models and viewpoints and overcoming problems of isolated contributions. The site can be seen as a representation of the stage that the 'community of interest' as a whole has now reached. Knowledge-building involves learning how to find different types of knowledge as well as learning how to learn together with collective responsibility for developing expertise and conceptual ideas.

Computer-supported collaborative learning

Lessons learned so far about computer-supported collaborative learning and how it can help realise the aim of bringing guidance research and practice closer together include:

- there is a need for thoughtful mediation;
- the recognition that work-related learning may figure behind other aspects of private lives and working lives;
- the relative failure of ideologies and 'big ideas' may be because they are crowded out by lots of smaller but more immediate ideas and concerns;
- the value of existence of examples of co-operation 'scripts' regarding goals, types of activities, sequences, roles, format etc.;
- that the goals regarding production of explanations, summaries, solving problems etc. should be made explicit;
- there is a need for the identification of different message types;
- the value of prompts for comments, guided questioning ('what is the difference between…'; 'how does this work in practice…')
- the recognition that there are different ways of organising messages;
- the cognitive strategies that are used in understanding relationships, etc.;
- that activities can be clustered to support collaboration;
- how information pooling: may be explanatory or questioning;
- that it may be useful to represent the same information in different ways;
- that problems may arise due to a loss of motivation; a loss of co-ordination or because of a lack of feelings of co-presence;
- the recognition that making contributions to discussions can feel rather demanding and exposing;
- there could be a number of bases for common ground in a 'community of interest': shared understandings; shared meanings; shared opinions; and shared positions;
- that participants are more likely to contribute if they have an awareness of process and what others are doing;
- how shared knowledge can build in common misconceptions;
- that abstract general lessons cannot be abstracted from the complexity, context and goals of many particular situations;
- how collective meaning making may lead to development of certain 'voices' which may depress other voices - we all have different voices in different contexts;
- that inter-textual links (where different voices meet) are rich in terms of justifications, meeting of different discourses, explanations varied according to context etc.; and
- that individuals were seeking direction, making meaning and establishing roles for themselves in their contributions over time.

Conclusion

This paper has presented ideas drawn from the practice of, and research into, the development of knowledge in communities of interest. To progress further, two types of support are required from within the community of interest in guidance. The first is for a greater commitment to the integration of research findings with practice, together with increased capacity and expertise in the use of ICT. Secondly, the processes of software design for projects and research into knowledge development need to be more collaborative. Iterative and co-design of software applications and programs require participatory design processes and at the same time informed reflections on the process.

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

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. & 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**. Cambridge: 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.

Nardi, B. (2004) **"Getting in Conversation with Each Other Electronically": Blogs as Mediating Artifacts at Work**, Learning and Technology at Work: An international invited seminar, Institute of Education, London, March 22 – 24 2004 [www.ioe.ac.uk/tlrp/technomaths/seminar04]

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.

OECD (2003) **OECD Review of Career Guidance Policies: United Kingdom Country Note**, Paris: OECD

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.