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**Crossing boundaries and bridging gaps:
developing knowledge and supporting
communities of interest in vocational guidance**

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Abstract:

A team of researchers and professional associations in the UK are working together to create a comprehensive website for all those interested in career guidance and counselling research. This will both facilitate and 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 guidance to increase effectiveness'. Target groups include all those interested in guidance research and practice, including: practitioners, policy makers, researchers, guidance students and trainees, tutors and trainers

A key feature of this website development is the construction of a shared knowledge base, by working with contextualised professional problems. This will be achieved by the formation of groups with relevant expertise that will represent a centre of expertise for particular topics, including equal opportunities, and have several tasks. These include the identification of gaps, key areas or problems and the provision of a mediated commentary on key documents and research findings on-line. The process will represent a major contribution to research capacity building within the career counselling and guidance community.

The website extends the use of information and communication technologies, developed during a previous ESF funded ADAPT project to support the knowledge development of the dispersed community of guidance practice (Brown & Bimrose, 2000). Approximately 55 guidance managers, practitioners, trainers, researchers and policy makers, including Scottish representatives, have contributed to the development of a shared knowledge base that has emerged from the contextualised problems faced in practice. This was achieved by convening work groups which met to discuss issues of policy and practice and then continued their discussions on-line.

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, which represents a social product. In this way, it is hoped that we can progress our understanding of guidance issues - as existing available knowledge is combined with new insights to create new forms of contextualised knowledge.

Crossing boundaries and bridging gaps: developing knowledge and supporting communities of interest in vocational guidance

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Introduction

Since 1996, a team of researchers based at the Warwick Institute for Employment Research has been involved in various research projects on the use of Information and Communication Technologies (ICT) for collaborative knowledge sharing and development. Experience has led progressively towards making links between innovative development agendas, network-based knowledge sharing and the construction of virtual platforms. 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 has 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 the four constituent countries (OECD, 2003). After working with this community for some time, it became clear that the concept of '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 members of a 'community of interest' with fairly loose ties. In this article, the development of a shared web-based knowledge base, designed to bring guidance research and practice closer together, is critically examined, with some of the lessons learned highlighted and 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 involved in the development of a major new resource for the guidance community in the UK, the 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. Its overall purpose is to facilitate knowledge sharing and transformation for those interested in guidance research and practice, including: practitioners, policy makers, researchers, students, trainees 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. This process has contributed to research capacity building within the wider UK guidance community by involving a range of prospective users on an iterative basis, with the methodology both enriching the process and validating outcomes.

There are three main sections on the website. One section, **LMI Future Trends**, comprises information on labour market changes and skills needs in the UK. Another section comprises a database, linking directly to the **National Library Resource for Guidance**, based at the Centre for Guidance Studies (CeGS). The third section, **Making Guidance More Effective**, contains a range of synopses, links, resources and edited discussions on six inter-related themes, as follows:

- Equal Opportunities (where some complex issues surrounding the equality of opportunity and guidance are explored, together with relevant legislation);
- Impact Analysis (comprising research resources and discussions related to the impact of guidance);
- Using Research in Practice (combining an introduction to research processes with 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);
- International Perspectives (where participants can learn from international developments and contribute to a wider debate on current issues).

The project extends the use of ICT to support knowledge development for a dispersed community of interest through an interactive and collaborative approach to knowledge creation. (Brown & Bimrose, 2000; Brown, Attwell & Bimrose, 2002). The formation of the six thematic 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. This approach emphasised the importance of having sufficient time and space for face-to-face interactions which facilitated socialisation into the community; active reflection; combination of new and existing knowledge; and for the internalisation of different ideas (compare Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998). An important feature of the new website development has been the combination of opportunities to meet and talk through issues, engage in development work and link to continuing on-line discussions that facilitated collaborative knowledge creation. This process represented a form of knowledge building where participants learned to share knowledge and create new knowledge together. Those involved in the website development made use of online support that enabled them 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 contribute to discussions (which elaborated knowledge already on the website). Overall, the key to this process of knowledge development has been to provide a genuinely collaborative virtual environment for participants to: (jointly) develop, edit and modify materials; share annotation on material; facilitate the sharing of experience; promote discussion, sharing and collaborate actively. In addition to providing the technology, the project team encouraged action research; provided moderation for discussions; and offered support to particular interest groups in attempts to tackle complex problems in career guidance practice.

Collaborative developmental processes

Individuals from many organisations involved in guidance participated in the development process. They were drawn from career organisations; Information, Advice and Guidance (IAG) partnerships; higher education; voluntary and community sector organisations; the private sector; various government organisations and employers. The project team also engaged in continuing dialogue with representatives of 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 in order to extend that knowledge (Scardamalia and Bereiter, 1994).

It is important for participants to be able to coordinate, clarify and regulate the development process themselves (de Laat *et al.* 2001) whilst working together on-line to become used to sharing knowledge, deepening 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 referred to as '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 an exploration of the benefits that quality standards bring to clients, can be seen on the website, framed by related discussions and linked to a wide range of other materials. The approach adopted for the website development 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.

Continuing collaboration

The commitment of the project team to collaboration throughout the initial development phase is central to its current operation, with an emphasis on supporting the guidance community interactively. For example, presenting resources in various ways that are meaningful at a particular time for the community is facilitating *reflection, consolidation and community development*. Additionally, *active discussions* are being supported by organising relevant material and establishing links between current or past discussion topics. It is expected that new discussions will change shape over time and cross topic or subject boundaries, just like the discussions that took place during the initial development phase, and that the 'organic growth' of discussions in this way will continue. To maximise the value of contributions, participants need to be encouraged *to be explicit about their purposes and desired outcomes*. Ideally, users of the site will eventually play oracle to each other - posing questions and receiving helpful answers. This is central to the future purpose of the website. *Adding value to key documents* over time is also a goal. For example, the project team have received requests from a number of practitioners for help in learning how to undertake research. 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. As well as supporting live discussions, there has been extensive use of *discussion summaries*, with active editing of material by members of the project team. When discussions have finished, they are deconstructed, with particular topics and strands that have emerged placed in an appropriate context where they can be framed by supporting material.

Lessons learned from the development of the NGRF website

Some problems

Until now, the use of ICT to support knowledge sharing and development has often failed to deliver the promised benefits. Whilst email is widely used and the web spawns technical, academic and leisure bulletin boards, web sites and list servers, there is still a marked lack of collaborative knowledge development. What spaces there are for sharing knowledge tend to be used as collective file repositories or areas for shorter discussions. 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 some 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 their use in sharing knowledge (Nardi, 2004) and the website is also experimenting with their use too.

Networked collaboration is a social activity and ICT can be used to support social interactions. Seizing upon this idea, many (including the NGRF project team) have considered that there would be value in adopting and/or adapting ideas about 'communities of practice' to the process of developing ICT support for knowledge development. However, Lave and Wenger's (1991) contention that communities are always developing has often been overlooked, with the result that many ICT based solutions appear to regard communities as static, monolithic and time bound. Support for knowledge development and collaborative practice can, therefore, lack the flexibility to respond to changes, either regarding group membership or the roles and actions of group members. This difficulty is compounded by the way many software developers understand 'group' (at least in the way in which a group is expressed or represented in their software). They often seek to support 'communities of learners', even though distributed learning as a form of learning is seldom strong enough to generate sufficient shared experience to develop a real sense of community.

One other problem relates to the concept of 'community'. Indeed, 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. Indeed, with this project it quickly became apparent that there are problems with both the concepts of 'community' (who are they and what goals, values and practices do they share?) and 'practice' (what exactly is the practice being shared?) when considering ICT support for knowledge development. In this particular context, the 'community' (that is, 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, is not always strong, with members having fairly loose ties. 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 fragmenting¹. Maybe some of its members would like to be able to construct a

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

'shared story' about what is happening in their professional field. However, whilst there may be shared interests in learning with 'our community', their practices are diverse. In contrast, 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. The project team's ideas were therefore informed by the idea of a 'community of interest', focusing upon the interaction of guidance research and practice, and linked to a series of on-line and face-to-face activities and events designed to foster a sense of a 'community of interest'. That is, we did not believe it would just happen as a result of developing the website - it had to be actively promoted – and this process is ongoing.

One final problem should be acknowledged. Discussion based facilities for knowledge sharing can become divorced from the formal knowledge base. 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 to facilitate interaction between the informal knowledge generated in the communities with more traditional forms of knowledge. Web based books, manuals or formal training courses are useful but not sufficient. Good search engines are essential, but it is also necessary to develop new ecologies and taxonomies (or even ontologies) that can describe and structure knowledge in a way that is useful for those participating in the knowledge development process.

Supporting practice

Lave and Wenger (1991) describe how the knowledge and skills of different 'communities of practice' are developed, 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 of interest' that the website seeks to support. Since members of 'our community' belong to a variety of very different 'communities of practice' with each having evolved different cultural and historical practices, there is a degree of choice about which 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. As already discussed above, the idea that communities are dynamic and fluid has escaped the designers of many computer based support systems. Since this dynamism covers a number of different spheres – membership, activities, rules and practices - flexible systems are necessary that recognise the way communities evolve and allow different people to play different roles within those systems at different stages of their development. To accommodate this, 'branching'

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.

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 knowledge development 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 can branch, which are developed within communities, 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 new knowledge can be created as part of the process of defining the relationship of such schisms to the original main 'idea set'

Professional development

A primary purpose of the NGRF website is to support professional development that is based around research and practice grounded in the questions, concerns and enquiries of practitioners. The aim is, therefore, shared development. There is a role for coaching, mentoring, supervision and observation by colleagues (knowledgeable others) with examples of how practitioners can engage with research. For example, a journal article could be annotated to help practitioners 'break the research code' and show how to make judgements about the conclusions. There could also be value in collaboration around 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).

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 be outlined as a way of representing the research process as peer review through the public disclosure of plans. Perhaps just a few members of the community can develop ideas and concepts in public space, but then with the wider community benefitting. 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, and they highlighted the value of sessions designed to 'rise above' the constraints of practice.

The practitioner-researcher interactions on the website have, therefore, been linked to the wider concerns of the 'community of interest'. The importance of supporting knowledge-building has 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 they can help bring guidance research and practice closer together include:

- the need for thoughtful mediation of contributions and discussions;
- the recognition that work-related learning may be a lower priority than other aspects of private and working lives;
- acceptance that the relative failure of 'big ideas' for development and collaboration may be because they are crowded out by lots of smaller but more immediate ideas and concerns;
- the importance of making goals explicit regarding production of explanations, summaries, solving problems etc.;
- the need for the identification of different message types;
- the value of prompts for comments, guided questioning (e.g. 'what is the difference between...'; 'how does this work in practice...');
- the recognition that there are many different ways of organising messages;
- the need to respect the differences in the cognitive strategies that are used in understanding relationships between ideas etc.;
- that clustering of activities can be used to support collaboration;
- the recognition that information pooling may be explanatory or questioning;
- the same information can usefully be presented in different ways;
- that problems may arise due to a loss of motivation; 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;
- that there could be a number of bases for common ground in a 'community of interest', including: 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 often general lessons cannot be abstracted from the complexity, context and goals of many particular situations;
- how collective meaning making may lead to the development of certain 'voices' which may depress other voices – since 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.; and finally,
- 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. The first is for a greater commitment from the UK guidance community to the value of the integration of research findings with practice, together with increased capacity and expertise in the use of ICT. Second, the processes of software design for projects and research into knowledge development need to be more collaborative. Iterative, co-design of software applications and programs require participatory design processes with informed reflections on those processes. This initiative represents an exciting opportunity to create an inclusive and dynamic community of interest that brings guidance research and practice closer together. It will increase our understanding of how learning about guidance is created and shared (covering beliefs, concepts, ideas, theories, actions) as well as providing a potentially powerful engine to assist the search for new understandings of effective guidance to benefit all clients. Please join us in our endeavour: visit: <http://www.guidance-research.org>

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