



**Creating virtual learning environments to support a community of practice of  
careers guidance professionals**

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# **Creating virtual learning environments to support a community of practice of careers guidance professionals**

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## **1. Abstract**

A major ESF Adapt project on vocational guidance has involved the set up of a Careers Research Network to support research and development in careers guidance practice. The dialogues between practitioners, researchers and trainers have proved valuable and practitioners were active participants in the process of knowledge creation. One way to sustain such processes may be to use Nonaka and Konno's (1998) concept of 'ba' as shared spaces for emerging relationships, that act as a platform for advancing individual and collective knowledge. We have achieved the initial socialisation phase of knowledge creation where face to face experiences act as the key to conversion and transfer of tacit knowledge. The remaining challenge is to create an environment where information, ideas and materials can be exchanged to create new knowledge, through cycles of interaction between explicit and tacit knowledge. We are doing this through setting up a Web-based learning environment that has 'spaces' for collaboration and knowledge transformation. This will be an arena for communication, discourse, knowledge sharing and collaborative research and development. It will allow collaborative writing, shared annotation and 'tailoring' of material drawn from a fully searchable research resource base, in an innovative use of information and communication technologies to support the careers guidance 'community of practice'.

## **2. Introduction**

After scanning the abstract for this paper a reader might imagine that the major challenge we face in achieving our goal is technological, relating to how we build our proposed virtual learning environment. The technological challenge is indeed formidable, but the greater challenge is conceptual, relating to the need to understand how professional communities of practice operate, because without that understanding any technical solution, however elegant, will ultimately be doomed. Hence this paper will be primarily about the attempt to understand the learning and development processes undertaken by guidance professionals, because only then will we be in a position to try to mirror and support those processes through provision of a virtual learning environment. We will need to reflect upon five themes before we are in a position to think seriously about the detailed nature of the telematic support that we will seek to provide.

Therefore in this paper we will consider careers guidance in its broader context and highlight the need to focus upon the nature of the core problems facing guidance professionals in their practice. We will then reflect upon the cyclical nature of processes

of knowledge transformation; review the operation of processes of continuing professional development in dynamic communities of practice; and consider how people collaborate when using common information spaces. Issues relating to technical development and implementation will only then be briefly touched upon, as these will be more fully reported at an information systems conference later in the year (Brown et al, forthcoming). Our final introductory comment is that if anybody wishes to participate as a member of the learning community, or is just interested in seeing the system in action, then they should contact one of the authors to register their interest. The system will be fully operational by the autumn and we would particularly welcome critical comment during the development phase.

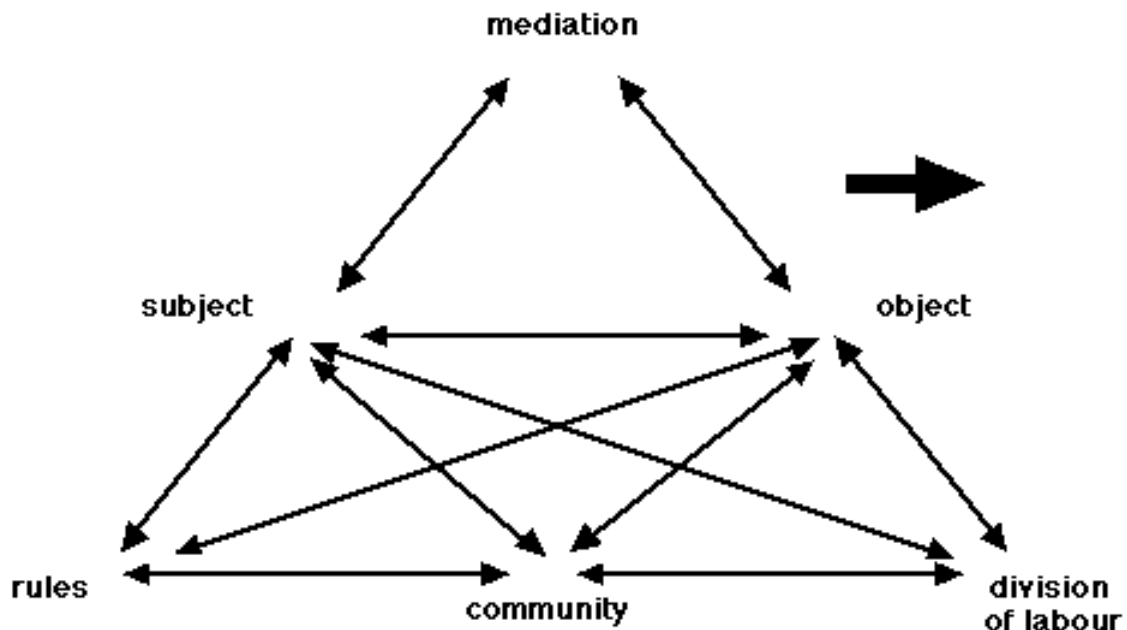
### **3. Analysis and development of careers guidance practice needs to be considered within particular social, cultural, historic and political contexts**

The aim of the project is to develop a learning community to enhance careers guidance practice as a key service to education and training. The focus upon enhancing careers guidance practice is particularly apposite at this time because of the massive and continuing changes in policy and practice in this area. This has left careers guidance policy-makers, practitioners, trainers, students and researchers without a coherent view of how careers guidance will develop in the medium term. The policy intention of ‘refocusing’ the careers service (Social Exclusion Unit, 1999), and the proposed development of a new multi-disciplinary Youth Support Service (ConneXions), intended to support those at risk of social exclusion through a system of personal advisers, raise questions about the relationship between these developments and the statutory requirements placed upon careers services to provide guidance to all young people up to the age of 18. Even if a clear policy direction is established, significant issues associated with delivery, practice and training remain.

This hiatus then means that this presents an excellent opportunity to engage all major players in a search for new understandings of the attempts at the contextualisation, enrichment and renewal of Careers Guidance as a key service to education and training. Another interesting twist is that, over the last decade careers guidance provision has become much more differentiated locally, regionally and nationally, and the contexts, policies and practices of careers guidance show significant differences in the four constituent parts of the UK. The development of a dispersed learning community would therefore be able to provide opportunities for mutual learning within and between the careers guidance communities in England, Scotland, Wales and Northern Ireland. A further reason for focusing upon the development of a learning community based upon careers guidance practice is because the training of careers guidance practitioners is also being extensively reshaped. This has profound implications for postgraduate diploma, Masters and continuing professional development (CPD) programmes. The processes of teaching, learning, knowledge development and utilisation in careers guidance will all need to be reshaped.

In the past careers guidance policy-makers, practitioners, trainers, students and researchers have sometimes interacted at conferences, seminars or carers guidance ‘fairs’. However, the Careers Research Network we established under our current ADAPT project was the first attempt to bring together all parties with an interest in research and development of careers guidance practice. This bringing together of representatives of a dispersed community of practice has proved very worthwhile, but our feeling was that something in addition to face to face meetings is required to turn this into a more inclusive learning community. This was the driver for us to seek to use the resources of the ADAPT project to develop prototype web-based collaboration and knowledge sharing tools to support the network. It is significant that our intention to provide a comprehensive telematic platform for interactive and focused knowledge sharing and transformation for Careers Guidance students, tutors, practitioners, policy makers, and training organisations as collaborative participants in a dynamic community of practice grew out of the experiences of participants in the initial network meetings.

From the above it is clear that any telematic support for the development of guidance practice needs to be aware of the contexts within which that practice occurs. For this reason, when seeking to develop a learning community to enhance careers guidance practice we believe the relevant unit of analysis is careers guidance practice within particular social, cultural, historic and political contexts. This fits with Engeström and Cole’s (1993) notions of cultural historic activity theory. Our design of technological support for the development of a guidance community of practice therefore uses an innovative design methodology that takes into account the social, cultural, historic and political context within which any change is to be located (Engeström and Cole, 1993: see figure 1).



**Figure 1: activity system**

Applying Engeström and Cole's (1993) activity theory framework to our study of careers guidance practice would give the following:

- Subject: careers guidance practitioners (goal-directed actions; beliefs; ideas; mental models);
- Object: careers guidance practice (patterns of behaviour; relations with clients);
- Mediation: socio-cultural ideas about guidance practice (tools; theories; approaches; historical traces and cultural meanings associated with careers, occupations and identities);
- Rules: changing frameworks for regulation of practice (focus of guidance practice; statutory entitlements; service targets);
- Community: extent to which value systems are shared (ideas about 'good practice', meeting targets, nature of professionalism);
- Division of labour: between practitioners, specialists and assistants (roles and relationships).

The 'value added' of applying cultural historic activity theory to the enhancement of careers guidance practice is that it gives a much richer framework for searching for new understandings of the attempts at the contextualisation, enrichment and renewal of careers guidance. In general, it can be used to highlight the value of analysis of the consequent effects elsewhere in the system of changes in one part of the system. In particular, this framework can help participants in the learning network and the researchers to generate questions for discussion. For example: what are the consequences for ideas of professionalism of proposed changes to the recognised vocational qualification?; what values do practitioners place upon innovative practice?; to what extent can an individual change practice and who else has to be involved?; how much is critical reflection valued in the system? Such questions can help ensure that the complexity and inter-relationships between issues are addressed when considering the renewal of careers guidance as a key service to education and training.

#### **4. Need to focus upon the core problems of careers guidance practice**

A major concern with the development of learning networks to support practice is that the knowledge generated may often be largely decontextualised. This may then mean it is of relatively little use to practitioners in coping with many of the problems they face in practice. One way of meeting this concern would be for certain parts of training and CPD programmes to focus much more closely upon what practitioners see as the core problems of a profession. Onstenk (1997) defines core problems as the problems and dilemmas that are central to the practice of an occupation. These problems and dilemmas will have significance both for individual and organisational performance. The problems are likely to contain characteristic combinations of organisational issues and socio-cultural problems as well as requiring fine professional judgement. For example, reporting requirements or the need to produce particular types of action plans following an interview may conflict with practitioner views about appropriate practice. How this

conflict is resolved could also have implications for the careers company and the educational institution as well as for the client.

Within the learning community it will be important that we, as designers, do not attempt to pre-specify the core problems. Rather it is vital that we identify these through a facilitation of a dialogue between practitioners and other participants of the learning community. It will then be our task to ensure that there is discussion of the situationally specific choices made in a way that contributes to the development of the profession by, in the terms of Engeström (1995), developing a new activity system. We will set up a number of small group meetings with practitioners to facilitate the identification of core problems prior to their discussion telematically.

## **5. Cyclical nature of processes of knowledge transformation**

Brown and Attwell (1999) have produced an overview of how computer-mediated collaboration and knowledge transformation processes can support a community of practice (in that case of Vocational Education and Training Researchers in Europe). The task here is to focus upon how the theoretical framework developed to explain processes of organisational knowledge creation (Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998) can be adapted to provide a theoretical underpinning for our attempt to support the careers guidance community of practice. In this case it will become clear that knowledge transformation for a learning community to enhance careers guidance practice should involve a mix of real and virtual encounters.

We are using a social model of knowledge creation and transformation. The key process for genuine knowledge transformation to occur is that knowledge has to move from the individual level into wider communities of interaction that cross organisational boundaries. Nonaka and Konno (1998) use the idea of *ba* as shared spaces for emerging relationships that provide a platform for advancing individual and/or collective knowledge and of generating collaborative processes that enable the transformation of that knowledge to other contexts. In this framework if knowledge is separated from *ba* - space for interaction and relationships - it becomes merely information.

Information can reside in networks through associated papers, but knowledge resides in the relationships of the *ba*, because it allows for possibilities for collaboration to transcend particular perspectives. In the field of careers guidance, for example, much labour market information (LMI) remains underused in practice precisely because it remains as information - few opportunities are given for practitioners to transform this into practical individual and collective knowledge.

Within a telematic environment it is possible to get contributions from a whole range of perspectives. It has great potential, although in many computer-mediated communication (CMC) environments that potential is not always realised. This may be because the analytically rational world of 'pure' CMC environments may be too 'cold' for many people: they need a richer form of engagement. Nonaka and Takeuchi's (1995) SECI

model (of socialisation, externalisation, combination and internalisation) of dynamic knowledge conversions gives insight into why this lack of engagement may occur (see figure 2).

Nonaka and Konno (1998) point to the need for an originating *ba* (or space for socialisation) where individuals can share feelings, emotions, experiences and mental models. This is necessary not only to generate initial commitment (the value of which has long been recognised), but also because genuine knowledge transformation also requires a “magic synthesis” of rationality and intuition that requires a greater depth of human engagement than just thinking.

**Figure 2: Adaptation of Nonaka & Konno’s (1998) four Characterisation of Ba**

<p>Socialisation Originating Ba (Space for socialisation: face to face interactions)</p>	<p>Externalisation Interacting Ba (Space for active reflection)</p>
<p>Internalisation Exercising Ba (Space for conversation of explicit knowledge to tacit knowledge of individuals and groups)</p>	<p>Combination Cyber Ba (Space for combining new forms of knowledge with existing information)</p>

Continuous spirals occur through SECI process.

This model could therefore be implemented to support the development of a learning community to enhance careers guidance practice in the following way:

**Socialisation** (through originating *ba*):

This could take place through a series of Careers Research Network meetings open to all members of the proposed learning community, with at least one being held in each of the four ‘home countries’. The purpose would be to provide an ‘open forum’ of face to face meetings to allow for integration of new members, and reinforcement of the commitment of existing members of the learning community. Events could follow the pattern of the initial meetings of the Careers Research Network and involve a mix of plenary and workshop sessions, with particular encouragement being given to presentations by practitioners.

**Externalisation** (through interacting *ba*):

This could involve the set up of thematic groups, comprising individuals with a mix of backgrounds, knowledge and capabilities. Individuals could then share their own models, ideas and understandings, and through processes of reflection and analysis, seek to generate some common understandings of the group’s particular themes. Through focused interaction tacit knowledge will be made explicit and some new understandings of ‘knowledge’ will be created. Each thematic group will typically comprise 6 - 8 people and 2 thematic groups could meet in the same place at the same time. The work of

different thematic groups, meeting periodically, could act to 'refresh' the computer-mediated collaboration.

**Combination** (through cyber *ba*)

Each group's ideas (and explicit knowledge) would then be presented in the telematic environment, where their ideas will be combined with existing information and knowledge drawn from the telematically-supported rich evidence environment in a process of knowledge transformation. Other members of the learning community would be encouraged to contribute to and engage with this process. At least two members of the original group would be expected to facilitate the systematisation of this explicit knowledge for the learning community as a whole.

**Internalisation** (through exercising *ba*)

The exercising *ba* would be a shared space in the telematic environment to facilitate the conversion of the (newly generated) explicit knowledge into the tacit knowledge of individuals and groups. This would involve active participation of practitioners, and in particular their consideration of how to apply that knowledge in different contexts. Attention would also need to be given to the use of strategies to support this process of knowledge conversion.

This approach would then involve the spiralling of knowledge creation and transformation through continuing SECI cycles on the different themes. The dynamic structure of the telematic environment will need to allow material and ideas to be rapidly transferred between themes. The essence of the *ba* of the learning community as a whole is that it will not involve a static accumulation of different materials, documents and information, but rather it will possess the dynamism to continually create new knowledge. For example, the ability to annotate, discuss and share material will mean that documents themselves could have a wider range of social uses (Brown and Duguid, 1996). Within this vision the role of the telematic platform is to provide a rich virtual knowledge environment to support the processes of collaboration and knowledge creation and transformation in the learning community developed to enhance careers guidance practice as a key service to education and training.

**6. Consideration of models and strategies for effective continuing professional development for communities of practice in careers guidance**

We are attempting to align pedagogic processes and a web-based knowledge environment to support the processes that lead to the development and use of new knowledge in an innovative way. But for this to happen we need a deeper understanding of the ways in which individuals and communities of practice communicate and the ways in which communication leads to knowledge development. Hence it is important that we consider models and strategies for effective Continuing Professional Development (CPD) for communities of practice in careers guidance that take account of the possibilities of combining use of telematic platforms with other types of support. Attwell and Brown (1999) identify that the CPD of professionals needs to be reflective, forward-looking and



dynamic within a culture that acknowledges the importance of developing practice, expertise and a research capability in an inter-related way so as to be able to support the generation of new forms of knowledge. The CPD of professional communities of practice needs to incorporate current concerns, but also have the ability to look beyond these.

Initial competence as a professional is often associated with the ability to ‘survive’ and gradually assume a full position within a particular ‘community of practice’ (Lave, 1991). However, practitioners need to have a continuing commitment to explore, reflect upon and improve their professional practice (Schön, 1987). The initial key to going beyond competent practice lies in the ability to transfer skills, knowledge and understanding from one context to another (Eraut, 1994), so CPD has to be able to support this process, including through helping practitioners to perform effectively when they work with colleagues and in groups with different kinds of expertise (Engeström, 1995). It should also be noted that understanding and, if appropriate, application of theory has a role to play within developing expertise. While the value of practical theory or ‘theorising’ in the sense of reflecting upon his or her own practice is central to the process of becoming an experienced professional (Schön, 1987), this on its own is insufficient. Rather because practical theory is locked into current modes of practice, it is important that ‘theoretical learning’ is also developed (Guile and Young, 1996).

Theoretical learning provides the concepts for analysing the problems that arise for professionals at work and for making explicit the assumptions underlying existing practice (Guile and Young, 1996). This conceptual knowledge can then be used to underpin reflection upon practice at a deeper level than just ‘theorising’ practice. Such conceptual knowledge can have both explanatory power and be applied to (changes in) practice. It therefore complements the development of practical learning, based upon reflection on practice. Crucially, however, the development and application of theoretical learning also facilitates a forward-looking perspective: enabling thinking about how practice might be developed in future. Practitioners have a key role to play in how new knowledge is generated and applied in practice (Engeström, 1995), and this could be linked with an attempt to create wider communities of practice that embrace research as a guide to both policy and action. The ability to design and carry out authoritative research into aspects of professional practice individually or as part of a team is an integral part of practitioners developing a research capability. However, possession of research skills will also be valuable in helping professionals analyse, interpret, evaluate and, if appropriate, apply the research findings of others.

Professional knowledge can itself be regarded as a personal synthesis of received occupational knowledge and situational understandings, derived from experiential learning, which are capable of being further transformed through a process of critical reflection. As expertise develops, and new contexts are utilised in the performance of practice, so the processes of research, review and reflection can lead to the creation of new forms of knowledge (Engeström, 1995). Continuing professional development can play a role in making these processes explicit such that others too can share in the

developmental process. Eraut (2000) points to how practitioners also have to deal with contextual variables, such as the time available and the crowdedness of the situation in terms of the volume of information to be processed, that mean they have to produce appropriate responses in situations where the conditions for 'good practice' are not present.

From the above it is clear that in order to promote effective learning and development then the approach to CPD, in the virtual learning environment and through other Network activities, ideally should facilitate the:

- exploration of, reflection upon and improvement of professional practice;
- development of skills, knowledge and understanding (of critical reflection) necessary to evaluate and review professional practice;
- need to understand processes of change (as practice increasingly takes place in complex and dynamic contexts);
- ability to create new knowledge;
- development of theoretical knowledge to underpin and complement reflection upon practice;
- study of the interplay between theory and practice;
- need to be able to transfer skills, knowledge and understanding from one context to another;
- the generation of expertise through research;
- ability to handle complexity and inter-connectedness of issues (including through the formulation of mental models, schemas or networks);
- development of contextualised understandings;
- translation of understanding into action, as appropriate;
- attempt to create a wider community of practice that embraces research as a guide to both policy and action;
- ability to design and carry out authoritative research into aspects of professional practice;
- ability to analyse, interpret, evaluate and, if appropriate, apply the research findings of others.

## **7. How people collaborate when using common information spaces**

A community of practice, by its very nature, depends upon collaboration about professional practice, learning and development (Lave, 1991; Brown, 1997). This collaboration will be dependent upon extensive sharing of knowledge and information. Additionally, careers guidance practice itself involves practitioners in collaboration with colleagues in using a variety of common information spaces that may be company-specific, local, regional or national. The success of the guidance process itself is also partly dependent upon the extent to which practitioner and client are able to construct a common information space about opportunities available in the labour market. This is not to argue that guidance is principally about the transfer of information, but rather that this is one component of the process. The significance of this being that guidance

practitioners are at least aware of the idea that their practice is partly dependent upon the construction of common information spaces. All collaborative work is so dependent, but within careers guidance practice some of these processes are more explicit than in many other work settings, as guidance processes are so clearly shaped by actions and interactions within social worlds (Strauss, 1993). This should mean that it should be possible to build upon these understandings such that the idea of a computer-supported information space as a support for guidance practice is readily accepted, at least in principle.

Additional effort is usually required to put information held in common to practical use in particular contexts and there is a tension relating to how much detailed information should be provided in common information spaces. Where greater detail, including commentary and interpretation (and information about the context) is transmitted with the substantive information this can be particularly useful if people are not sharing a physical work context. On the other hand, as expectations about submitting more contextual information rises this may act as a potential barrier to people contributing material. One way this may be resolved is where practitioners share similar, but remote, contexts, for example when acting as personal advisers or when running group sessions, and they are able to package just sufficient information about the context to make the substantive information understandable for other experienced practitioners. This too highlights the importance of feedback from practitioners about how well the common information space does allow a shared interpretation of actions, events and information (Schmidt and Bannon, 1992).

Bannon and Bødker (1997) argue that the construction of a common information space needs to consider how multiple interests may be temporarily reconciled; how information can be coupled with material on local contexts when being submitted and then be transformed so as to be capable of being applied in other contexts of use; and how information can maintain its open and malleable character in a variety of contexts. We believe that the fact that our proposed virtual learning environment will allow multiple representations of the material held in the common information space does mean that different groups would be able to construct their own representations that address their particular requirements as they define them for themselves. For example, policy-makers, managers, practitioners, trainers and researchers may all want certain aspects of their information spaces presented in different ways, even if they want to share representations of other aspects.

This approach would also allow for separate countries, regions, training institutions or even careers service companies to build information spaces tailored to their own requirements. This accords with the views of Clement and Wagner (1995) on facilitating the fragmentation and regionalisation of communication spaces, and the need to pay attention to boundary management and, particularly, to who falls within and outside the space for different types of communication. Indeed the technical facilities of our proposed system will allow participants to vary the boundaries to their own communication space. This means that, for example, an experienced practitioner

transferred into the role of a personal adviser could keep a narrow focus on issues directly related to the implementation of the service. Alternatively, an LMI specialist, with much wider responsibilities, may wish to keep as broad a scope as possible. Similarly, the focus could be varied to match changing personal circumstances, depending upon the extent an individual was faced with pressing concerns at work or was about to engage in CPD activities and so on.

## **8. Technical development, materials production and establishing a collaborative environment to support processes of knowledge creation and transformation**

### ***8.1 Technical development and materials production***

From the foregoing we hope we have established that we have reached a point in our thinking about practice, learning and development within the careers guidance community to make it meaningful to move on to consider some of the technical and operational issues we face in creating virtual learning environments to support the community of practice of careers guidance professionals. In order to operationalise our approach we are dependent upon technical development, materials production and the establishment of a collaborative environment to support processes of knowledge creation and transformation. We will now briefly consider each of these issues in turn.

The basic infrastructure of the prototype telematic (DHTML) platform is being developed. A simple Web authoring interface is being developed that will allow users to render and annotate documents. This means all users will be able to produce structured documents. The prototype communication and knowledge transformation tools will be produced through intensive collaboration with practitioners. The knowledge transformation tools will allow for the contextualisation, ‘tailoring’ and enrichment of findings from research, development and other work activities through further processes of knowledge transformation and creation. Further technical development, refinement, monitoring and reviews of the electronic architecture, including the tools for knowledge transformation and collaboration, will occur as the system develops.

Our initial idea, subject to review and development through discussions with practitioners, is that the telematic platform for interactive and focused knowledge sharing and transformation shall involve eleven central strands. All material will be coded in DHTML, allowing for varying representations of the material drawn from the different strands. The strands will not remain as discrete areas, rather material will be dynamically created on a thematic basis. The eleven strands are:

#### **An introduction to the site:**

comprising material relating to the purpose of the site; aims, objectives and project description; invitation to collaboration; opportunity for general comments;

#### **Material from direct practitioner experience:**

this could relate to the identification of core problems of guidance practice; ‘good practice’; project work; critical reflection upon experience; implementation of special programmes; use of ‘tailored’ tools; evaluating practice;

**Material relating to policy development and implementation:**

key elements of policies; commentary, analysis and discussion; range of stakeholder perspectives; development of evidence-based policy; policy and programme evaluation;

**Reference material:**

labour market information, analysis, forecasts and intelligence; skills observatory; education, training and employment pathways;

**Research material:**

on guidance practice (interviewing; group-work; ethics) and related issues (social exclusion; refugees; labour market transitions; identity formation processes; completion rates in education and training; equal opportunities). Research findings will be drawn from pure and applied research. Practitioner research will be particularly encouraged;

**Training material:**

changing contexts and curricula for training; training exercises; video material on interviewing; ‘good practice’ exemplars; moderated discussions; assignments;

**Tools:**

supporting the development, testing and evaluation of tools and materials for use in careers guidance;

**Signposting material:**

reference to other sites and sources of information;

**Student material:**

project work; assignments; sharing of experiences; developing expertise;

**Evidence of continuing professional development:**

evidence of reflection upon practice; professional model of regular supervisory practice; portfolio creation;

**Evaluation material:**

responses to use of telematic tools and environment; links to practice; critical reflection; dynamics of interaction; continuing feedback.

**8.2 *Establishing a Collaborative environment to support processes of knowledge creation and transformation***

The virtual leaning environment has to be used interactively and collaboratively if it is to be a genuine *ba* or shared space for knowledge transformation. The interactivity within the rich evidence environment will come from the ability of participants to:

- (jointly) develop, edit and modify materials;
- share annotation on material (annotation will be available alongside the material, not simply as a ‘thread’ as with existing CMC systems);
- facilitate the sharing of experience;
- promote discussion, sharing and active collaboration;
- offer virtual (and real) spaces for debate and collaboration;
- support action research;
- offer active support and moderation;
- offer support to particular interest groups (e.g. managers; those assembling evidence of continuing professional development; students etc.);
- contribute to a forum for discussion of attempts to tackle complex problems in authentic contexts.

### **8.3 *Evaluating the success of collaborative technologies to support processes of knowledge creation and transformation in careers guidance***

It is important that we evaluate the extent to which our innovative approach is successful in establishing a virtual learning environments to support a community of practice of careers guidance professionals. To achieve this we propose to study the community of practice in its socio-cultural setting to uncover some of the reasons, issues, problems and so on which make the use of these technologies successful or unsuccessful. This is intended to be a formative and iterative approach as the management of the system will change in reaction to the evaluation. We will adapt systems design methodologies that are firmly based on socio-cultural activity theory (Engeström and Cole, 1993). Kaptelinin and Nardi (1997) have produced outline guidance that will be incorporated into the evaluation methodology.

Kaptelinin and Nardi’s checklist, for the application of activity theory to human computer systems design, is a conceptual tool for identifying the most important factors influencing the use of computer technologies in a particular setting. The process from their perspective follows a clear sequence. The first phase involves starting from observational data to indicate potential problems, then formulating requests for further analysis, and providing some suggestions on how the ‘problem’ can be solved. In the second phase an Activity Checklist is introduced. The general structure of the Checklist corresponds to the four main perspectives on the use of the technology to be evaluated:

- focus on the structure of the user's activities - that is the extent to which the technology facilitates and constrains attaining the user's goals and the impact of the technology on provoking or resolving conflicts between different goals;
- focus on the structure of environment - that is how far the integration of technology to support a community of practice aligns with the requirements, tools, resources, and social norms of practitioners in their environment;
- focus on the structure and dynamics of interaction - that is upon the internal and external components of the activity and support for their mutual transformations by the use of systems to support and build communities of practice;

- focus on development - that is upon the developmental transformation of all the above components as a whole.

It is proposed to undertake this as an iterative activity. The developments we propose are at all stages dependent upon the collaboration of and feedback from participants. We will be able to set up a Web-based learning environment that has 'spaces' for collaboration and knowledge transformation, and acts an arena for communication, discourse, knowledge sharing and collaborative research and development. However, the extent to which we are ultimately successful will depend upon the extent to which we can engage careers guidance professionals in processes of continuing professional development and in the development of guidance practice. That process is essentially social, even if it will be technologically supported.

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