USE OF WEB-BASED COLLABORATION AND KNOWLEDGE TRANSFORMATION TOOLS TO SUPPORT THE DEVELOPMENT OF A LEARNING COMMUNITY TO ENHANCE CAREERS GUIDANCE PRACTICE

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Abstract: This paper outlines progress towards the development of a learning community to enhance careers guidance practice, through the process of developing web-based collaboration and knowledge sharing tools. These will be used in order 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. Note some of the technical detail of the operation of the system is given in the linked paper of Attwell and Brown (2000) describing knowledge development in the CEDEFOP Research Arena.
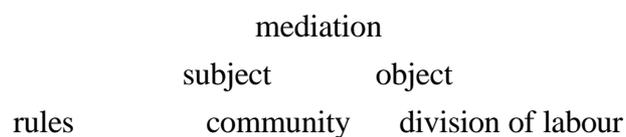
INTRODUCTION

One aim of a major European-funded ADAPT project is to seek to support the development of a learning community to enhance careers guidance practice as a key service to education and training in the United Kingdom. The focus upon enhancing careers guidance practice is particularly apposite at this time because the massive and continuing changes in policy and practice in this area have left policy-makers, practitioners, trainers, students and researchers without a coherent view of how careers guidance will develop in the medium term. This presents an excellent opportunity to engage all players in a search for new understandings of the contextualisation, enrichment and renewal of Careers Guidance as a key service to education and training. A second 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 initial training and continuing professional development (CPD) programmes. The processes of teaching, learning, knowledge development and utilisation will all need to be reshaped. The project is working with training providers in England, Scotland and Wales to develop an imaginative way of linking processes of knowledge acquisition, development, transformation and creation with approaches to tackling the core problems of Careers Guidance practice.

The different groups mentioned above sometimes interact at conferences, seminars or carers guidance 'fairs'. However, the Careers Research Network established under the ADAPT project is 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 something in addition to face to face meetings is required to turn this into a more inclusive learning community. The ADAPT project is in the process of developing prototype web-based collaboration and knowledge sharing tools to support the network. The intention is to provide a comprehensive telematic platform (or Guidance Arena) 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.

THEORETICAL FRAMEWORK

The project is dependent upon the integration of ideas from three strands of previous research. First, 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. Second, our view of how knowledge creation and transformation processes, grounded in practice, can be facilitated is developed from the work of Nonaka and Takeuchi (1995) and Nonaka & Konno (1998). Third, the investigation of the pedagogical aspects of the innovative use of telematic tools to support a professional community of practice will draw upon Kaptelinen and Nardi's (1997) activity methodology as the basis for the enquiry.

The design of technological support for the development of communities of practice calls for the use of highly innovative design methodologies that take into account the social, cultural, historic and political context that any change is to be located (Engeström and Cole, 1993 : see figure 1).

<p style="text-align:center">mediation</p>
<p style="text-align:center">subject   object</p>
<p style="text-align:center">rules   community   division of labour</p>

Figure 1: activity system

note i: each factor is influenced by each adjacent factor irrespective of level

note ii: the whole system is dynamic and changes over time

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. 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 and researchers in the learning network to generate questions for discussion. For example, what value do practitioners place upon innovative practice? 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.

For the second key strand Brown & 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). How we draw upon the theoretical framework developed to explain processes of organisational knowledge creation (Nonaka & Takeuchi, 1995; Nonaka & Konno, 1998) to provide an additional theoretical underpinning for our project is outlined in the linked paper of Attwell and Brown (2000) describing knowledge development in the CEDEFOP Research Arena. In this case knowledge transformation for a learning community to enhance careers guidance practice will involve a mix of real and virtual encounters. We are using a social model of knowledge creation, and 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.

The project will involve the spiralling of knowledge creation and transformation through and across different themes. The dynamic structure of the telematic environment will also allow material and ideas to be rapidly transferred between themes. That is, 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. Within this vision the role of the telematic platform (Guidance Arena) 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.

INNOVATIVE USE OF TELEMATIC TOOLS TO SUPPORT A PROFESSIONAL COMMUNITY OF PRACTICE

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. Professional knowledge can itself regarded as a personal synthesis of received occupational knowledge and situational understandings, derived from experimental 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. We will study the community of practice in its socio-cultural setting to uncover some of the reasons, issues and problems that 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 methodologies of systems design that are firmly based on socio-cultural activity theory (Engeström and Cole, 1993). Kapetelinen and Nardi (1997) have produced guidance that will be incorporated into the evaluation approach. As well as a commitment to the practical utility of the system being developed, we also intend to investigate some broader research questions. These questions include:

- is it possible to develop and sustain a learning community to enhance careers guidance practice as a key service to education and training;

- is it possible to provide a comprehensive telematic platform for collaboration, including interactive and focused knowledge sharing and transformation for the Careers Guidance community of practice;

- what are the pedagogical aspects of the innovative use of telematic tools to support a professional community of practice that influence how a learning community develops?

The basic infrastructure of the telematic platform is more fully described the linked paper of Attwell and Brown (2000) describing knowledge development in the CEDEFOP Research Arena. A simple Web authoring interface has been 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 have been produced through intensive collaboration with practitioners. The knowledge transformation tools allow for the contextualisation, 'tailoring' and enrichment of research results through further processes of knowledge transformation and creation. Further technical development, refinement, monitoring and reviews of electronic architecture (including the tools for knowledge transformation and collaboration) will occur throughout the lifetime of the project.

MATERIALS PRODUCTION IN THE KNOWLEDGE CREATION PROCESS

The telematic platform for interactive and focused knowledge sharing and transformation involves eleven central strands. All material will be coded in XML, allowing for varying representations of material drawn from the different strands (Attwell & Brown, 2000). The strands will not remain as discrete areas rather material will be dynamically created on a thematic basis. The eleven strands are:

Introduction to the site:

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 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; how the new system of personal advisors is operating in 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; development and implementation of the new Connexions Service

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

COLLABORATIVE ENVIRONMENT

The environment has to be used interactively and collaboratively if it is to be a genuine shared space for knowledge transformation. The interactivity within the rich evidence environment comes from the ability 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.

CONCLUSION

The process of building a Guidance Arena comprising a rich knowledge environment (accessible to all through the web), that uses telematic tools for collaboration and knowledge development, is still in the early stages of development. The intention is that this should act as an essential support for establishing a learning community of careers guidance. We are interested in extending our collaboration, and we would particularly welcome the involvement of those who are interested in the substantive issues of careers guidance practice or in how to offer virtual support to dispersed communities of practice.

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