

A knowledge management approach to developing communities of practice amongst university and college staff



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The Higher Education Learning Partnerships Centre for Excellence in Teaching and Learning (HELP CETL) supports staff involved in the delivery of higher education level Foundation degrees through a network of nineteen further education colleges. This is managed centrally through the University of Plymouth's partnership's faculty but raises the challenge of making best use of the vast amount of knowledge and expertise about teaching and related issues which is held by a range of people who are displaced by geographic location and are disconnected from other practitioners in other institutions.

A mechanism by which this expertise might be shared was required and to achieve this, a knowledge management system using a Community of Practice (CoP) framework was investigated and then employed as the key HELP CETL communication and information sharing tool. The Tomoye Ecco Knowledge Management System was used to create the *Knowledge Exchange Network* (KEN), which provides a set of features designed to enable community members to become involved and share ideas and experiences.

This paper reflects on experiences of selecting, implementing, evaluating and further developing KEN for a large scale deployment.

Keywords: knowledge management; communities of practice; HE in FE

Introduction

The Higher Education Learning Partnerships Centre for Excellence in Teaching and Learning (HELP CETL) is part of a national network of 74 CETLs which are funded by the Higher Education Funding Council for England to reward excellence in learning and teaching and to promote educational research. It is a five year project to build on existing excellence of the University of Plymouth Colleges (UPC) partnership. The UPC Faculty was established in 2003 and supports a network of nineteen colleges in the South West region of England. Partnership colleges work with the University to deliver Foundation Degrees which are flexible, 2 year degrees designed in conjunction with employers to combine study with work-based learning. The learning is delivered by further education colleges yet the academic attainment is that of the second year Honours degree (Foundation Degree Forward, 2007) therefore the context for these courses is known as Higher Education in Further Education (HE in FE). UPC has a large number of teachers of HE in FE, many part-time, spread over several thousand square miles.

To help overcome the problems of distance the HELP CETL proposal undertook, amongst other things, to investigate several interlinked areas and resources to address these issues. It has taken on the task of developing both **physical** and **virtual** Communities of Practice. This paper shares the HELP CETL's first experiences of the creation of virtual communities of practice facilitated by a digital Knowledge Management infrastructure.

Communities of practice

Based on the work of Schulman (2006), Wenger (1998) and others, the HELP CETL was tasked with developing the idea that teaching and learning are social practices. The education sector is beginning to explore the usefulness of building on this approach and connecting individuals with a common interest to create a Community of Practice (CoP) where knowledge is created, sustained and transformed. Already familiar to many academics is the idea of working in groups such as project teams, programme teams, special interest groups and forums to discuss, share and develop practice. A CoP is formed by people who engage in a process of collective learning in a shared area of interest and requires the following characteristics: the domain; the community; the practice. The domain is the area of interest; the community is formed by the relationships (conversations, discussions etc.) between members; and the practice is what community members do with learning derived from their interaction. Successful

communities influence and change the way that members view their own identity both within and external to the community. It is possible for an individual to be a member of many different CoPs, acting at the core of some and at the margins of others. This may change over time and it is argued that learning is moving from periphery to centre through the practices and activities of the CoP (Wenger 1991).

Knowledge management

Within UPC there is a vast amount of knowledge and expertise held by a range of academics and support staff who are in different geographic locations and are disconnected from other practitioners. To facilitate effective CoP collaborative working and to engage additional users in working with the HELP CETL and UPC, it was necessary to develop an integrated virtual support structure which would enable CoP members to share documentation and reference materials; share research, membership and contact data; use University/UPC and external data /meta data search tools; work to common standards to facilitate the dissemination, exchange and use of materials; work synchronously or asynchronously; and to develop a public face to assist with awareness, dissemination and recruitment of cop members. In short it required a digital Knowledge Management infrastructure.

Knowledge Management is the *explicit* and *systematic* management of *vital knowledge* and its associated *processes* of creation, organisation, dissemination, use and exploitation. A Knowledge Management System (KMS) is an IT solution for managing knowledge in organisations by supporting creation, capture, storage and dissemination of expertise and knowledge.

One option available to the HELP CETL was to develop its own system based on the team's previous experience of developing Virtual and Managed Learning Environments; and building on work undertaken at the University of Plymouth in support of EVIMAR (2005) the first European virtual institute integrating the knowledge and expertise of 17 maritime research institutions and organisations from 11 countries. However, a study of commercially available KMSs was also undertaken, to investigate the possibility of finding a commercial system that would meet the CETL's needs. After due consideration contact was made with Tomoye, a Canadian company specialising in Knowledge Management and CoP software with their Tomoye Ecco 1.0 product (Tomoye, 2006).

In January 2006 Ecco 1.0 was installed remotely on a twin server configuration and one month later HELP CETL staff were given training by Tomoye. The HELP CETL technical staff then set about tailoring the system to its needs. It was named the Knowledge Exchange Network (2007) but has become more widely known as KEN. Adaptation involved creating a model community; community topology design and implementation; regulating functionality; regulating security and permissions based on roles; and branding.

Structure of KEN

During this initial phase, after discussion with HELP CETL staff, seven communities were set up on KEN. These were mostly to support the running of the HELP CETL and its activities. Communities and topics consist of Knowledge Objects (KOs) and their associated Discussions. A KO is any item which might be of interest to the community such as a physical thing like a report or a case study, or something less tangible such as an idea or a question. As well as informing the community, the KO should be a catalyst for discussion. Central to the production of KO is the metadata that describes them, therefore when contributing a KO the community member must complete a description of the item. An important step is the completion of a field labelled *benefit/value* which is to encourage members to think about, and articulate the benefit and value to the community. KEN was initially set up 24 types of KO which were designed to cover the likely needs of the seven communities.

After the agreed communities and topics had been established the HELP CETL Team were given access to the system and encouraged to start using it. Additional training materials were developed and members of the HELP CETL Team undertook this training whilst being briefed on the topology of the system. Further communities were added as demand from existing UPC subject-based and thematic (e.g. blended learning) groups were identified. At launch each community was lead by one of two technical team members with the aim of quickly identifying a leader with appropriate subject or thematic experience.

Findings from the evaluation of the knowledge exchange network

Evaluation Activity of the *Knowledge Exchange* was monitored by members of the technical team subscribing to all communities and thereby allowing all communication and creation of KOs to be

observed over a four month period. These observations together with semi-structured interviews with eight users and informal feedback from all users formed the basis of this initial evaluation. The former were selected from the HELP CETL team as they were the longest standing users and had a range of IT skills. The figure of 8 was chosen as according to Nielsen (2000) it is much more useful to test for usability more frequently with fewer users than test less frequently with more users. Also an expert walkthrough was carried out.

The Tomoye software was found to be working well, with no unanticipated problems. A review of activities of the HELP CETL revealed a range of levels of use. Some users engaged fully, others to a lesser degree and some expected users failed even to subscribe to the HELP CETL Team Community. Participation rates were unevenly spread with some communities well used, others containing a single knowledge object or discussion and the majority existing in name only. The need for rapid prototyping of KEN created tension between users, who simply wanted a tool they can use now, and the KEN team, who needed to develop and evolve the system. There was, therefore a significant mismatch between the expectations of the two groups. Evidence of this is difficult to point to but could be argued to underlie many of the issues discussed below.

Structural issues: Communities had been established to reflect the working of the HELP CETL and UPC. This resulted in 34 communities with only 18 users. Not surprisingly users felt that this was too many. Some communities had no description, defined purpose or useful title, all of which prevented users from knowing their context or use.

Usage issues: Another result of too many communities and too few users was discussions going unanswered. Contributors felt they were being ignored or that their comments were unworthy of reply. They were also uncertain about using KEN and many enquiries centred on this topic rather than pedagogic subjects. There was a lack of understanding about posting knowledge objects, starting discussions and other features which would have stimulated community activity. Users were overwhelmed by email notifications about items irrelevant to them. Related to lack of understanding was the tendency to use KEN as a place where things could be put and never thought of again. The role of a CL was perceived in terms of power relations and members did not like the idea of an appointed superior who would dictate to them.

Technical issues: Some issues were artefacts of the software and thus impossible to change. An example of this is the Tomoye icon for a topic which is a folder very similar to that used by Microsoft Windows. This would do nothing to discourage the idea that KEN was a virtual filing cabinet to add to the many physical filing cabinets possessed by academics. Other matters were configuration issues and could be changed by the System Administrator. These covered concerns such the Personal Profile template being unsuitable for academics.

Training issues: It was apparent that a significant proportion of issues revealed by the evaluation were a result of lack of training. However, finding time for this proved difficult as staff in UK further education colleges have high levels of teaching time and UPC staff are spread over thousands of square miles. Of those who received training, some lacked confidence and general IT skills, and this was exacerbated by changes in the configuration of the KEN necessitated by the rapid prototyping spiral of planning, implementation, evaluation and further planning etc..

Action plan

The next step was to devise an Action Plan to address each and every issue that was raised by the evaluation. In total 39 issues were identified, their impact assessed, solutions developed and lessons learned were formulated. Analysis of these resulted in 20 recommended development activities in the following four areas.

System configuration: These alterations would cover technical issues such as changing the information required for members' personal profiles. Processes for adding and changing communities were to be formalised, existing communities reviewed and some removed. Linked to this development would be the modification of the role, rights and responsibilities of community leaders.

Guidelines and publications: The creation of materials such as guides and FAQs to support KEN members and their community leaders. Also the development of a general guide for UPC staff who might be thinking about using KEN.

Training issues: In accord with the theme of supporting users was the aim of developing and implementing a training checklist and work book and/or personalised learning. These to be backed up by the development and implementation of one-to-one training and telephone support.

System Development: Looking to the future, this centred on formulating an implementation strategy for Ecco 1.5 and INVESTIGATING the use of the API with v1.5.

Conclusion and future work

The development of KEN is very much a work in progress and it is expected that its structure and support, driven by further evaluations, will evolve over the remaining three years of the project. This current evaluation represented a snapshot in time of the rollout of the HELP CETL CoPs. The next phase of development has been to focus on implementing the lessons learned and action points identified.

The evaluation showed the need to explain clearly the purpose and use of KEN so it has proved necessary to formalise protocols and develop processes to manage the creation, training and running KEN communities. Several very short guides have been written to explain *What is KEN?* and *What is a community of practice?*. Although brief, they point to further resources and form part of a series supporting the work of the HELP CETL. This has resulted in procedures for creating communities and there are now 21 defined communities active. It is anticipated that at least another 20 UPC-based communities are likely to be created. Some of these are only at the idea stage, others are ready for launch.

Although it is quite possible to use KEN without training, particularly for the IT confident, a priority has been to develop more detailed support guidance and training. For these reasons, and to help engender a sense of community, groups now come together for an initial period of introduction and training. A continuing professional development course is under development which will be offered as distance learning courses to increase flexibility and because it is felt that functioning communities will not require face-to-face training for new members. A development server has been implemented so that changes can be carried out away from the functioning communities. Upgrades can now be managed to create minimum disruption.

Supporting the community leader (CL) was identified as one of the most important tasks for the KEN team. CLs are, generally, already the leader of the group involved and therefore the subject matter covered by the community already formed a significant aspect of their work or academic interest. It was expected that the CL role would be a 'virtual' continuation their role in the real world but in reality it requires new skills to interest and engage users on an ongoing basis. A process for creating a new community has been put in place which requires identifying a CL and working with that person to develop the aims and initial tasks and members for the community. The aim of this process was to ensure that there is both a need for and a commitment to new communities. A CL Guide outlines not only technical issues but discusses the role and provides a briefcase of community engagement strategies. There are also training events and newsletters to help leaders develop their communities. An unanticipated benefit of taking this approach is that we will shortly be able to offer a CPD certificate to those who go through KEN training as members or as CLs. Regular *drop in* sessions and telephone support are now offered in addition to formal training. To support all of the above a number of user support guides have been written and there is now a regular newsletter updating users of events, changes and tips.

Using the combined approaches of knowledge management and communities of practice to support teachers in the HE in FE setting is a novel application of these concepts. KEN's 208 users vary greatly in their skills and confidence levels. Furthermore, some are already challenging themselves professionally in other areas of HELP CETL activities. It is already apparent that some communities are successful and whilst others fail to flourish. This is a known phenomenon with communities of practice but why it occurs without obvious cause remains something of a mystery (Wenger, 2007).

A flourishing community requires a core of members to be engaged and interacting with each other or it may stagnate. As the person who has thematic/subject knowledge and already has this role outside of KEN, the CL is uniquely positioned to supply the challenge and stimulation necessary. This would be an impossible task for the KEN team due to the lack of specialist knowledge but supporting the CL by devising and evaluating and disseminating methods of engagement should be a key function. A further evaluation will be carried out in 2008 to gauge the success of measures taken and to explore the nature of learning and support that KEN members get from their participation.

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