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Piloting innovative uses of informal repositories in campus-based student assessment and associate tutor communities of practice

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Abstract

Collaborative environments, such as wikis and blogs, offer opportunities in diverse areas of education. Results from early exploration and the perceived potential of such environments are reported.

One campus-based assessment initiative was based on student contributions to online discussion boards. Analysis showed evidence of 'participant fatigue', and an alternative approach was used of a collaborative writing assignment with students making defined contributions to Wikipedia.

The use of informal repositories by associate tutors for sharing and storing resources has also been investigated as part of a JISC-funded project. Institutional-tutor relationships and involvements vary, so an early focus has been on common teaching and learning themes that support personal/professional development needs.

Accompanying infrastructure developments have allowed such new technologies to be deployed flexibly, the model adopted allowing full control over how system components are made available and accessed by staff, students and other community network members.

Introduction

The use of collaborative social environments, such as wikis and blogs, is widely seen to offer interesting and significant opportunities for use as informal repositories and workspaces in diverse areas of education. These include teaching and learning, staff/student support, continuing personal or professional development (CPD) and course materials development, and increasing the range and diversity of online media available in technical, pedagogic and social terms. Such initiatives are often expressed in terms of encouraging knowledge generation and sharing, the exchange of best practice, and in building and nurturing communities of practice.

However, as with all new developments, such technical advances often present new challenges, highlighting problems of both capacity and capability building for institutions and individuals alike. At the University of Leicester (UoL), a multi-level and multi-dimensional approach has been adopted to enable such new developments to be integrated effectively within existing frameworks, resources and practices, including the use of a Blackboard [TM] virtual learning environment (VLE), and also to support the pathways outlined in the university's e-learning strategy.

In this paper, two current developments are reported on, with early results from the use, experience and perceived potential of wiki/blog-based approaches being presented. One is a practical initiative in the area of campus-based student assessment, using online discussion boards and a public wiki resource. The other is a research study into encouraging and facilitating the growth of existing and new communities of practice using institutional wiki resources at several different levels.

Additionally, comments are provided on the accompanying infrastructure developments that have allowed such new technologies to be deployed flexibly in support of the emerging needs and requirements of the academic user community.

Student Assessment in an Online Environment

As part of a blended learning approach on a final-year undergraduate science module, students have been assessed for several years on their contributions to online discussion boards hosted on a Blackboard ^{TM} virtual learning environment.

This approach was first introduced in 2003 with discussion boards running for two weeks and with individual topic-related boards overlapping throughout the module to provide continuity. However, VLE user statistics and end-of-module questionnaires showed that the pattern of repeated assessments induced 'participant fatigue' in students by the midpoint of the module.

In order to counter this repetitive effect and to introduce some variation into the later weekly online assessments, an alternative form of assessment for the second half of the module was introduced in January 2006 with a cohort of 23 final-year bioscience students. After four overlapping weekly discussion boards, run as in previous years, Assessments 5 to 8 inclusive now consisted of an online collaborative writing exercise.

This revised approach required a specified minimum-length contribution to the online encyclopaedia Wikipedia (see http://en.wikipedia.org/). The intention was to motivate students later in the module calendar by providing them with an opportunity to display and test their knowledge in a public forum. The existing VLE discussion boards were retained to support the construction, submission and revisions of individual wiki contributions.

Students were awarded marks for successful completion of the assessment if their contributions survived substantially unaltered for a limited (but contextually appropriate) period after the original posting date. They were briefed on the basis that:

> "An acceptable contribution to Wikipedia is: a total of at least 100 words on any topic covered on this module with appropriate references which survives substantially unaltered (ie not including minor edits and vandalism) for at least one week after the original posting date.

> "You can use the Blackboard discussion boards to discuss your contributions with others on the module, but everyone needs to make one unique Wikipedia contribution per week to qualify for the marks available for this exercise. You can make more than one contribution per week if you wish, but you won't get any more marks.

> "When you have made your contribution, post the URL (address) of the Wikipedia page you have edited/created on the relevant discussion board for the week. I will use this information to mark your contribution once the period for contributions has closed, so if you don't post the link, you won't get any marks."

For this cohort of students, the weekly VLE discussion boards for Assessments 1 to 4 inclusive accounted for 84% of the total hits on the module site. The range of marks obtained for these assessments was between 100 and 50% of those assigned for these exercises (mean = 78%). Although the weekly discussion boards were continued to support the later wiki-based contributions, these later discussions in themselves were not assessed directly.

In the second half of the module, with the change in the assessment regime, it was notable that the VLE discussion boards attracted only 20% of the number of hits and 27% of the number of posts which the assessed discussions had attracted during the first half of the module. This observation offers stark evidence of the significance of the explicit link to assessment in persuading students to engage in online discussions. The marks obtained for the wiki-based contributions ranged from 100% to 13% (mean = 84%).

In qualitative feedback obtained via the end-of-module questionnaire, the students' reactions to the discussion boards were similarly enthusiastic to previous years. However, the wiki-based contributions were less popular, attracting comments such as:

> "I believe that the group discussions were helpful because we were supposed to answer different questions from other students and search to the internet for more information in order to complete our Wikipedia web pages."

> "Wikipedia exercise - I didn't think there was much point in doing this. It didn't require a lot of thought and didn't really stimulate me to read anything more than what was covered in a previous exercise. The discussion boards were far better in generating my interest in outside reading. I didn't enjoy the Wikipedia exercises."

> "The Wikipedia assessment should be scrapped because the discussion board topics were more relevant to the lectures, and Wikipedia articles could be about any topic."

One of the main advantages perceived of this form of assessment is the 'encouragement' of contributions from all the students in a group, many of whom might be reluctant to contribute to oral discussions in a seminar or other face-to-face formats or who may prefer to be 'participants' rather than 'contributors' to VLE-based discussions. This approach is seen as beneficial particularly for students working in a second language or who may otherwise lack confidence.

Additionally, the peer review of the Wikipedia postings by the wider online community helped to ensure the accuracy and completeness of the students' individual entries. It provided also a *de facto* plagiarism detection capability through the 'many pairs of eyes' scrutinising the entries. Students were warned explicitly about this with examples shown, and no incidences of plagiarism were detected during the project.

Reflections on these activities have led to the view that assessed online discussion groups of the type described here can have a positive, yet challenging, role for students and for academic staff alike. They are perceived as promoting deeper, rather than more superficial, learning and also encouraging the development of higher-level learning competencies.

For these reasons, it is intended to continue to explore and develop similar modes of assessment in future years. It is likely that this will be by developing the format itself, rather than changing the underlying context of online collaborative working, and to also understand the effects of variability in student cohort motivations and ability.

Developing Tutor Communities of Practice

In a further initiative, the use of informal repositories for sharing and storing resources among tutors is being investigated. Key aspects of this ongoing work have been informed by the OU-led, JISC-funded PROWE (Personal Repositories Online Wiki Environment) research project in which UoL is a partner, with its main focus on the needs of associate tutors involved with distance-learning programmes (see http://www.prowe.ac.uk).

At UoL, the nature of institutional-tutor relationships and the degrees of involvement vary considerably. Initial effort centred on identifying individuals and small groups that could be considered generically as 'distance-learning tutors', however not all individuals being remotely-based teaching associates and with many being full- or part-time campus-based staff. Some 400 tutors are employed as teaching associates across at least nine departments, such roles going under a variety of job/role titles and being located within individual departments that offer distance-learning programmes.

This situation represents that of an on-campus plus off-campus and mixed delivery mode university, with an attendant diversity in teaching styles, pedagogical approaches and levels and modes of engagement. This contrasts with The Open University's situation as lead partner in the PROWE project, with its more uniform model of the contracted associate lecturer teaching role and with extensive support of its distance-learning tutors provided on technical, pedagogic and professional practice levels.

Thus, an early focus has been on identifying potential common themes in teaching and learning that could support a wide range of personal and professional development needs and interests. This, it is anticipated, will encourage the sharing of best practice and complement other discipline, programme or subject specific activities.

Initial focus group discussions on the potential of wiki-type resources were held with UoL central academic staff already involved in teaching and learning technologies. These identified a number of generic issues concerning the future development and use of such resources, namely:

- current use
- current access
- potential use
- educational values

- concerns of using
- elements to make use successful
- future development
- policies to support use.

A subsequent self-completion survey questionnaire was circulated by email to a small sample of the teaching associates across a number of discipline areas. Responses highlighted diverse approaches to the organisation of personal teaching resources and in the technical, social and cultural attitudes held towards the use of newer technologies (such as the informal repositories provided by wikis). Illustrative questions and comments included:

> Q - If you had access to a wiki or blog for a teaching community, what would you consider the most important things that it should be able to do?
>
> "Be useful as a teaching resource for lecturers in specific subject areas. Also, it should be simple enough that students could understand the material from there."
>
> "Be quick and easy to use. To be different from looking at lecture notes, more informal and allow free thought and mad ideas to circulate and hence to stimulate discussion and new ideas."
>
> Q - What is the most important aspect of interacting with other academic staff and tutors?
>
> "Discussing methods of interaction with students. I see myself as a facilitator rather than a creator of resources. I add value from my non-academic working life experiences and from showing practical application of techniques and concepts."
>
> "To learn each others' experiences in dealing with teaching and research matters with an aim to save time and effort."

The preliminary findings from these investigations are considered relevant more generally: (a) in working with peripheral workers, such as teaching and research associates, and (b) to the issues of personal repositories in campus-based universities with high levels of departmental autonomy in the deployment of teaching and learning technologies. It is in this latter respect that the existence of an e-learning strategy providing the necessary institutional context for development is of prime importance.

Opportunities for further wiki developments are anticipated at several levels, namely:

a) at an institutional level, to help to foster inter-disciplinary discourse across existing boundaries and barriers;

b) at departmental and at programme, module or project levels, to provide informal repositories as collaborative working environments for course development and delivery and in managing research projects; and

c) at individual level, for practitioners in teaching, research or support roles, to provide informal repositories that offer flexibility in keeping and maintaining digital resources, thus extending the choices available in supporting individual practice and professional development needs.

Already wikis are being used in externally-funded e-learning research projects for community building. These have enabled the rapid initial development of trust and knowledge between internal and external partners, adding value to planning and workshop activities and providing dedicated collaborative spaces for writing research reports and outputs.

A future institutional wiki development will provide a forum for sharing information and knowledge about the cross-cultural aspects of teaching and learning. Membership of such an informal community or network may include those involved with teaching non-native English speaking/English as a study language students on campus as well as those teaching 'at a distance' among the worldwide student community. In both contexts, e-learning use is growing and presenting its own cultural challenges. The virtual space provided by the wiki will enable experience to be shared, good practice identified and resources exchanged to help develop more effective cross-cultural practitioners.

Developing the Infrastructure

In parallel with considering the use and application of the collaborative environments provided by wikis/blogs, developing a technical infrastructure has been a significant activity. At UoL, such wiki initiatives have been taken forward within the broader context of the university's overall computing infrastructure and future pathway, rather than as a standalone or 'novel' application.

This work has been informed by the university's involvement with the OU-led, JISC-funded PROWE project already cited, that has been instrumental in planning and providing a focus for the development work. The system that has evolved has a structure based on an open source content management framework (Zope $^{®}$) and a transactional object database. This can store not only content and custom data, but also dynamic HTML templates, scripts, provide a search engine, and relational database (RDBMS) connections and code.

This is coupled with an open source content management system (Plone $^{®}$) that allows for the easy creation of a variety of web page content types. This enables additional components to be added from existing open source repositories or to be written by local programmers, and wiki/blog tools have been added to the initial system.

The Zope ®/Plone ® combination also gives flexibility in the support of different types of web content and the authentication/authorisation processes needed to protect such resources. The security model is based around the concept of 'safe delegation of control', allowing control of certain areas of a web site to be given to other individuals. Another of the system's major features is the ability to allow users to update web/wiki sites from anywhere in the world.

In the first phase of development, from mid-2005 to early 2006, key system features provided included user authentication against an internal database of users, each requiring a username and password set by the system manager, together with authorisation control to an initially limited extent. A range of wiki/blog support tools and limited repository support were also provided.

The preliminary software installation was hosted on a separate server for trial and evaluation purposes. However, this was found to lack power, not giving users of the early wiki sites a true feel for the power, performance and functionality of the software. Thus, in the second phase of development in early/mid-2006, the system was moved to a higher-specification server, with both the Plone and Zope software also being upgraded to later versions.

In this second phase, user authentication was further improved through integrating the Windows Active Directory into the system. User authentication control was also enhanced, particularly for those in the role of site leader/author/tutor who can now select those who can add content to selected areas through devolved publishing rights (authorisation).

The resultant environment comprises a suite of wiki sites for use as repositories and collaborative working spaces at individual, project, departmental and institutional levels. This service is available to the whole institution, including more than 750 web authors and a potential 20 000 plus individual contributors. The availability of the wiki environments has been highlighted in articles in internal bulletins and dissemination events, and early uses and applications are being developed.

Ongoing technical developments include the provision of a cache to improve performance, a review of the current software plug-ins (ie the wiki/blog tools) and recommendations for additional enhancements such as a discussion board plug-in to help the integration across different environments.

The Way Forward

With the necessary infrastructure in place by mid-2006, further opportunities are now being explored within UoL to take wiki and blog initiatives forward on a number of fronts. The UoL Plone ®-based approach has helped to promote interest in wiki environments and in the integration of Plone ® usage into institutional systems. The PROWE project evaluation wiki has been used in other institutional projects and processes, including the HEA benchmarking and pathfinder research projects and other research processes (eg http://www.impala.ac.uk/).

Several wikis have been or are being established for collaborative work in other areas. These include:

a)   the provision of common educational reference resources for staff development purposes, such as glossary and case-based materials;

b)   the provision of discussion areas for inter-disciplinary dialogue on themes of common interest, such as student assessment and feedback and the previously-mentioned cross-cultural aspects of teaching and learning; and

c)   supporting teaching and learning applications in seminar discussions in both the humanities and sciences courses.

With this multi-faceted approach, it is hoped that 'critical mass' can be established among regular users and visitors to help to achieve the sustainability of the individual projects. Monitoring and evaluation activities are also being put in place to better inform best practice, benchmarking and future developments.

This paper has reported on UoL wiki-based initiatives at several levels, presenting early results and conclusions from the use and experience of different approaches. The potential of both formal and informal repositories in diverse areas of teaching, learning and research has been highlighted.

However, wikis are only one of many new possibilities envisaged within the framework of the UoL e-learning strategy. A common challenge is how best to explore, encourage and facilitate the potential of such new technological developments while managing issues of time and timing, of nurturing enquiry and developing familiarity and of acknowledging both personal and contextual cultural imperatives.

Notes

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