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Enhancing Moodle to meet the needs of 200,000 distance learners

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Rozšíření Moodle pro potřeby 200 000 distančních studentů

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Abstract. In 2005 The Open University UK selected Moodle as the basis of its institutional virtual learning environment. Since then, the system has been integrated with existing elearning and administrative systems at the University and considerably enhanced during an extensive development programme costing around €8m and taking nearly three years. Many policy issues have emerged which needed to be tackled alongside the software developments in order for the platform to be adopted by the 7,000 tutors and nearly 200,000 students of the University. The Moodle system has proven to be reliable, scalable and customisable and has resulted in a more flexible system for the Open University than the commercial alternatives. This paper examines some of the many enhancements made to Moodle by the Open University, most of which have been fed back into the product for the benefit of other Moodle users. It describes some of the policy and pedagogical issues which have emerged during the roll-out of Moodle across the University.

Keywords: ELEARNING, MOODLE, OPEN UNIVERSITY, VIRTUAL LEARNING ENVIRONMENTS, LEARNING MANAGEMENT SYSTEMS

Abstrakt: V roce 2005 vybrala Open Univerzity UK Moodle za základ institucionálního vzdělávacího prostředí. Od té doby byl systém integrován do stávajícího elearningu a administrativního systému na univerzitě a podstatně rozšířen během rozsáhlého vývoje programu, což stálo asi 8 mil. Euro a trvalo téměř 3 roky. Objevilo se mnoho úvah o tom, co by se mělo udělat zároveň s vývojem softwaru pro to, aby platformu mohlo vzít za svou 7000 vyučujících a téměř 200 000 studentů univerzity. Moodle systém se osvědčil jako spolehlivý a dostupný a pro Open Univerzitu vyústil v mnohem flexibilnější systém než komerční alternativy. Tento příspěvek zkoumá některá z mnoha zlepšení, která Open univerzita v systému Moodle provedla, z nichž většina se vrátila uživatelům jako výhoda. Popisuje některé faktory, ať už z hlediska univerzitní politiky či hlediska pedagogů, které se objevily během představování a zavádění Moodle na univerzitě.

Klíčová slova: ELEARNING, MOODLE, OPEN UNIVERSITY, VIRTUÁLNÍ VZDĚLÁVACÍ PROSTŘEDÍ, LEARNING MANAGEMENT SYSTEMS

1 Introduction

The Open University (OU) was founded in 1970 as the United Kingdom's first major distance learning provider (Sclater, 2008). Since then it has become Europe's largest university with around 150,000 undergraduate and 30,000 postgraduate students, a wide range of courses, and a reputation for high-quality content and student support. The OU's style of teaching is known as 'supported open learning', where students learn in their own time by reading course material, working on activities, writing assignments and in many cases working with other students. They are supported by a network of 7,000 tutors and other staff organised into thirteen regions across the UK (and by other staff in offices abroad). Tutorials take place in face to face sessions and increasingly online; some courses include a residential or day school. While much of the course content is still developed in-house for print, the Internet has become increasingly important as a means of providing interactive content and for

communicating with students. To give an idea of the current scale of online activity (Open University, 2007):

- Each week, 25,000 students view their academic records online
- When exam results were available, 85,000 students viewed them online
- The student guidance website receives 70,000 page hits per week
- The Open Library receives more than 2.5 million page views each year
- 110,000 students use the conferencing system
- There are 16,000 conferences, of which 2,000 are organised and moderated by students themselves

Over the past decade, the OU has developed considerable expertise in areas such as online conferencing and e-assessment. These activities, however, were taking place through a range of disparate systems, and there was increasing pressure to consolidate these and to provide a unified design. In addition the University had taken a strategic decision to increase the elearning components of its courses, and therefore required new systems to cope with increased usage of all online systems and a wide range of pedagogical requirements.

A three-year programme to develop and roll-out a virtual learning environment (VLE, otherwise known as a Learning Management System) was therefore initiated in October 2005; until that point there had been no attempt to achieve an institution-wide VLE at the Open University. It is a programme rather than a single project, incorporating a variety of different projects and aimed at lasting strategic change across the institution. Each project is managed by a leader responsible for liaison with faculties and requirements gathering, and writing business cases for the development of particular parts of the VLE. The project leaders work closely with internal developers or with outsourcers to develop the products.

The VLE Programme was aimed not just at the creation of a learning environment but also at tackling the change management issues required to make effective use of elearning. Many staff were understandably unwilling to engage with elearning because of the lack of suitable and integrated software. The VLE itself thus became a focus for the aspirations of faculties and for dissemination and staff development activities.

2 Why Moodle?

At the heart of the OU VLE is Moodle, the open source VLE, initiated and led by Martin Dougiamas from Perth, Australia. It is supposedly more aimed at social constructivism than other VLEs – but of course any VLE can be used for a didactic, teacher-driven approach to education and the danger is that a university ends up replicating existing ways of teaching rather than achieving the benefits of greater interactivity and communication.

The University had examined the major commercial virtual learning environments. None were thought to be suitable for its particular needs as a distance learning institution. The assumption therefore was that the VLE would be developed by linking the existing systems together and building further functionality. However a number of open source products were evaluated before the decision to go it alone was finally taken.

At this time Moodle was the leading open source VLE and gaining rapidly in popularity. It had a richer set of functionality and a larger user base than other open source systems. The OU could have more of an influence on its development than with Sakai, the only other serious open source contender product, and not usable as a VLE at that stage. Using Moodle would enable the OU to provide a basic VLE much more quickly than if the University had tried to develop its own system. Deploying Moodle would also allow it to play a leading role in a vibrant worldwide community and gain from the expertise and efforts of others.

The OU's version of Moodle is different from the standard release because of the University's unique requirements as a large distance education provider and the fact that some of the new modules (eg the wiki) are currently add-ons to Moodle rather than part of its core distribution. Also the OU's version of Moodle is closely linked in with its authentication and administration systems. The intention however is that all of the University's enhancements wherever possible are fed back to the Moodle community. This not only helps to fulfil the University's mission to promote education Worldwide but also means that upgrading to new versions of Moodle is easier as more of the OU code is incorporated into its core.

3 Components of the VLE

There are a number of other systems linked into Moodle to form the VLE. These include OpenMark, the OU's in-house eassessment system, now connected to the Moodle quiz module. Another system which has been integrated is a proprietary system, Intelligent Assessment, which enables the automated assessment of free text responses. All three assessment systems provide questions in a single integrated interface for the student who is unaware of the underlying separate systems. The VLE also includes a commercial synchronous collaboration system, Elluminate, for videoconferencing, shared whiteboards etc, and other proprietary and home-grown tools are integrated to some extent with Moodle.

Forums – Moodle forums have been enhanced in a number of ways to meet the University's requirements, many of which are features heavily used in the previous system, FirstClass, which users said were essential to their practice.

Wiki – a new module built for Moodle by the OU which incorporates most of the functionality requested by the faculties.

Quiz – the OU became the official maintainers of the Moodle quiz module and has made considerable enhancements to its robustness and functionality.

E-Portfolio – Moodle did not have an adequate eportfolio system but the OU developed a plug-in for Moodle, MyStuff, which has just been released and will shortly be piloted. This can be used for personal content management, storage, tracking, organising, audit, search, tagging, versioning and sharing of content.

Study Calendar – this displays course calendar events by week. A facility to allow students to view multiple course calendars simultaneously if they are taking more than one course was included.

Events Calendar – this is available in addition to the study calendar, and incorporates personal, group and course events.

Blog – this is intended to be made available to all students for personal or course purposes and will allow them to publish blogs to the World if required as well as internally.

Newsfeed – news items can be added to course sites with ease by course teams using this facility – and read by students using RSS readers if desired.

Shared database – this can be used to host databases of content for particular course purposes and allow students to access and update the content.

Polling – allowing tutors to receive “votes” from students as a way of obtaining feedback on particular issues.

Audio recording – students doing language courses in particular need a way of recording sound clips to be sent in for assignments.

Offline Moodle – for students who have intermittent or no Internet connectivity (eg those in the armed forces overseas and prisoners) this will allow access to course websites and some functionality such as forums and quizzes.

4 Policy Issues

There are many issues of internal policy which militate against adoption of the VLE. These have been tackled through a VLE Policy Group with representatives from the faculties and the key service departments involved. Issues are gathered by members in advance and presented in the form of brief papers which describe the issue, one or more proposed ways forward, and the budgetary and other implications of following those routes. This has proved an effective way to move forward on controversial issues. Some of the key issues discussed are outlined below:

4.1 Online course organisation

OU courses consist of a range of different media such as books, DVDs and course websites, together with various activities including online tutorials and e-assessments. One issue was whether all courses should have their organising structure online (normally in the form of a course calendar with learning presented in recommended study weeks). An advantage of this approach is the ability to update content dynamically. Also with the course calendar available on the VLE rather than in printed format students would be encouraged to go online more – and benefit from increased opportunities for eassessment and online contact with tutors and other students.

4.2 Personal use of VLE tools

One of the problems with VLEs is that they can be regarded as “tools of institutional control” (Hoel, 2006) which organise courses from an institutional point of view and fundamentally disempower learners, who are increasingly used to more flexible Web 2.0 and social networking sites. At the OU an attempt is being made to allow students and tutors to use tools such as forums and wikis on a personal basis, inviting others to use them for specific activities. They would have access to these tools, together with their eportfolio for a period of two years after the end of a course, recognising that many students take considerable time between courses and would benefit from ongoing access to these facilities.

4.3 When to update VLE tools

There was concern in faculties that VLE tools would change part-way through the presentation of courses and that this could result in confusion for students. However due the continual delivery of courses throughout the year there is no single period when changes could be made without affecting many students. There is also a growing acceptance that sites such as Amazon are under continual evolution and that consumers do not seem to be unduly concerned when their appearance and functionality change without notice. The recommendation was that changes should not adversely impact on a course’s learning and teaching strategy – and that reductions in functionality would be more problematic than additions to functionality.

4.4 Different requirements for VLE servers

There were requirements for further VLE servers in addition to the main production server accessed by students. One of these was for acceptance testing of new functionality. There was also a need for staff to try out new tools before they went live with students in order to

explore their pedagogical potential. Some of this functionality would be untested and unreliable. Support would not be able to be provided to staff trying out this functionality to the same level as to students. As well as various development servers there was an agreement to host the acceptance test server, and an “experiment” server for trying out new functionality, in addition to the main production machine.

4.5 Access for students to past course papers

There was a policy of withdrawing access to past course materials after three months; this was regarded as unhelpful, and put students on courses with considerable amounts of digital materials at a disadvantage to those undertaking largely paper-based courses. There is a difference between formally authored course materials and more transient and dynamic content such as that found in learner generated wikis; requirements to access both types of content were evident. Copyright clearance for the use of third-party material however was generally based on the period of study rather than continued access.

5 Conclusion

There was a long process of transferring existing course websites from the previous system to Moodle which tied up several staff for months and made them less able to get to grips with the new functionality. The graphic design of the VLE also initially left a lot to be desired though this has now been addressed with an entirely new design. In addition, some staff were using tools hosted outside the University for wikis and blogs which had more functionality than those found within Moodle itself. These factors have meant that there was some initial cynicism in faculties with Moodle as a platform, though an element of cynicism is to be expected in university environments. On the positive side the institution now has:

- a platform for hosting all of its course websites – 284 courses are currently present
- a system that is proving fast and robust
- steadily increasing functionality, based on extensive requirements gathering in faculties
- a great understanding of Moodle and the ability to adapt the VLE relatively easily as needs change (much harder or impossible with commercial products)
- a reputation as the institution which is behind many of the enhancements to Moodle
- considerable evidence that the University is benefiting from the efforts others are putting into Moodle
- consistency of design across the various Moodle modules and integration with other OU systems

It is clear that the institution would not be nearly as far advanced had it attempted to build its own platform from scratch and would have had continual concerns about the sustainability of maintaining a bespoke VLE while the rest of the world moved on. Had the OU chosen a commercial product it would have had huge problems in encouraging the adoption of a system unable to be adapted for the multiple requirements of course teams, many of whom are understandably more willing to engage with products if they meet their needs exactly.

Open source working has on the whole been a positive experience, with developers feeling that they are involved in a Worldwide project and often putting in significant extra hours into their work than expected due to their high levels of motivation. There have been some drawbacks too in that deadlines for new releases of Moodle by the open source community

tend to be somewhat fluid, and the University has had to go live with beta versions of the software as required functionality was tied into the latest release.

While a robust and feature-rich VLE at the University is now largely in place, an argument is increasingly being voiced that institutions should no longer try to host elearning facilities for their students and that they should tap into free resources on the Internet. One teacher in Canada (Fischer, 2006) uses different systems for blogs, wikis, podcasts, instant messaging, email and photo sharing with his students. This encourages learners to draw the best from every environment. However Fisher has serious concerns about this approach as his students are required to remember multiple website addresses, usernames, passwords and user interfaces. It is clearly not a robust or scalable solution for larger institutions, particularly where students are paying for services and the systems are critical in the assessment process.

Another pressure comes from internal staff to make available familiar open source tools such as MediaWiki (the wiki system behind Wikipedia) and WordPress (the popular blog system). These tools are feature rich and already in use by many staff. Some argue that the facilities in Moodle are more restricted and wonder why the University does not simply provide these systems for teaching and learning alongside the VLE. There are significant reasons why the OU has chosen to develop such facilities within Moodle rather than to host multiple open source systems.

Firstly, there is now a large amount of expertise in Moodle at the University and an ability to keep on top of the developments happening to the product in the wider community. It would be a complex task to maintain a similar understanding of a broader range of open source products, their functionality, code base and release cycles. Second, the products have widely differing user interfaces and have not been enhanced for accessibility and usability in the way that has been possible with the Moodle tools. Third, the integration possible in a single VLE allows for example a forum contribution or a blog entry to be transferred instantly to the eportfolio, or a term appearing in the glossary to be highlighted within the forum, blog, quiz or any other module. Achieving such integration across multiple, continually evolving systems would be a highly complex software engineering task. Fourth, there is no need to replicate user databases, access permissions etc across multiple systems, and the user needs only authenticate once. Finally, it is far easier to track usage from Moodle's single database rather than having to trawl for data through the databases of multiple elearning systems.

VLEs are themselves evolving, particularly quickly in the open source arena. For instance the eportfolio system for Moodle, MyStuff, developed at the OU allows learners to store and tag content, and to share and discuss it with others. There are also emerging attempts to integrate VLEs with external systems such as Facebook, the extremely popular social networking site. It is felt that if students are highly engaged in such environments it makes sense to provide them with educational facilities in the medium where they feel most comfortable.

At the OU a fundamental change is being made to the architecture of Moodle from the students' (and tutors') point of view, allowing them to set up their own forums, wikis, blogs and other tools, and to invite others to join them in ad-hoc groupings. The OU VLE is about to become a much more flexible, appealing and useful system for students. The provision of a robust and feature-rich platform is complemented by growing understanding of the educational uses of technologies such as podcasting, wikis, forums, blogs, eportfolios and eassessment as these tools are evaluated with students on increasing numbers of courses.

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