

The implementation of a VLE: not so virtual after all

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This article looks at the many pragmatic issues involved in the development, roll-out and take-up, from the library perspective, of a Virtual Learning Environment (VLE) within a large research university. It considers how VLEs may or may not fit into the wider e-learning landscape and also aims to flag up the wider implications for the other stakeholders in the information and content market.

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Landscape

The broad areas covered in this article give a taster of what is still very much work in progress by Oxford University Library Services (OULS) in the implementation of a Virtual Learning Environment (VLE). Many of these issues will be familiar to other libraries working in this area.

The first somewhat obvious issue to grapple with is that any VLE, however effective the product is off the shelf, needs to reflect how your institution actually works and not the idealized work flow that may be assumed. It needs to reflect the institutional culture, and support the learning and teaching needs and priorities of the home community. Indeed, frequently, cultural and operational changes are in some ways much more difficult, more time consuming and resource intensive than the purely technical challenges.

We must also remember that, as information practitioners, information management and access issues continue to be of great importance. Even in the 'virtual' world, the organization of the information and how it is presented so that it fits into the work flow of the various constituents, such as researcher, teacher, student, is critical. We are working with a virtual aggregation, which needs to be presented in a range of views to match the expectations of our range of users.

We must also be cognisant of the changes that are happening in the parallel world of the service providers. We, as well as our users, are becoming familiar with byte-size nuggets of information in the environment of 'just in time' and 'just enough', and what and how we link to these information or content bytes is a complex issue.

To provide some background to the environment in which OULS operates, Oxford University is a collegiate university with approximately 17,000 students, 11,000 of which are undergraduates. OULS comprises more than thirty libraries with a staff complement of around 700. The current electronic resources portfolio is about 5.5 million records in our federated catalogue with over 10,000 electronic journals and 500 dataset subscriptions.

Background to the VLE implementation

In 2003, it was decided that a central VLE system would be procured by the University. A centralized procurement exercise was undertaken by colleagues in the Learning Technologies Group, a group based in Oxford University Computing Services. As a result of this exercise the Bodington hierarchical system developed at the University of Leeds was chosen and installed. At Oxford, there is a dedicated research effort working on the VLE's instantiation, which is known locally as WebLearn.

At the time of procurement, one of the key advantages of the Bodington system was its high level of granularity. This allowed responsibility for the maintenance, use and development of particular areas to be devolved to a specific individual, thereby enabling control for resources and content for specific courses to rest with the appropriate tutor. Furthermore, this hierarchical structure allows tutors to dictate access permissions rights to particular rooms and to the resources located within these areas.

There were existing home-grown VLE systems which are still in place and used by their niche

communities. It was hoped that the centrally procured system would at least match the functionality of the locally developed systems and provide a centrally maintained resource that departments would wish to buy into.

WebLearn structure

The architecture adopted for WebLearn aimed to meld four different areas of information into one workspace and present this in different contextualized views to different types of user.

The first tranche of information is basic administrative knowledge that would be required by the student to successfully complete the course on which they were registered, such as exam requirements. The second type of material is instructional, both interactive and self-driven, e.g. self-assessment exercises. The third tranche concerns communication and social space made possible through discussion boards, announcements, etc. The final component consists of links to content and resources like reading lists, links to remote sites, or examination papers.

The framework adopted was that of a campus (a term not in use in Oxford) with buildings, suites

of rooms and single rooms to reflect the granularity of the material and to provide the breadcrumb trail. The components within individual rooms included the usual tools, and links are maintained to a range of material, e.g. external web sites and structured documents. For instance, using both push/pull technologies, the pigeon-hole system would allow students to load their files for assessment to the tutor who would then push the results back to the students.

Figure 1 shows the front page of WebLearn, which reflects the institutional structure familiar to the Oxford user. The analogy is that the ‘campus’ is the University, a ‘building’ represents a division, a ‘floor’ a department, a ‘suite of rooms’ a research group and a ‘single room’ a course or project.

OULS implementation

Within OULS, we needed to reflect the ‘whys’ and ‘wherefores’ of how we wished to implement and deploy WebLearn from the library perspective. We needed to consider issues arising as potential, incremental and sustainable elements within the bigger picture of library/IT developments of the hybrid library environment as a whole.

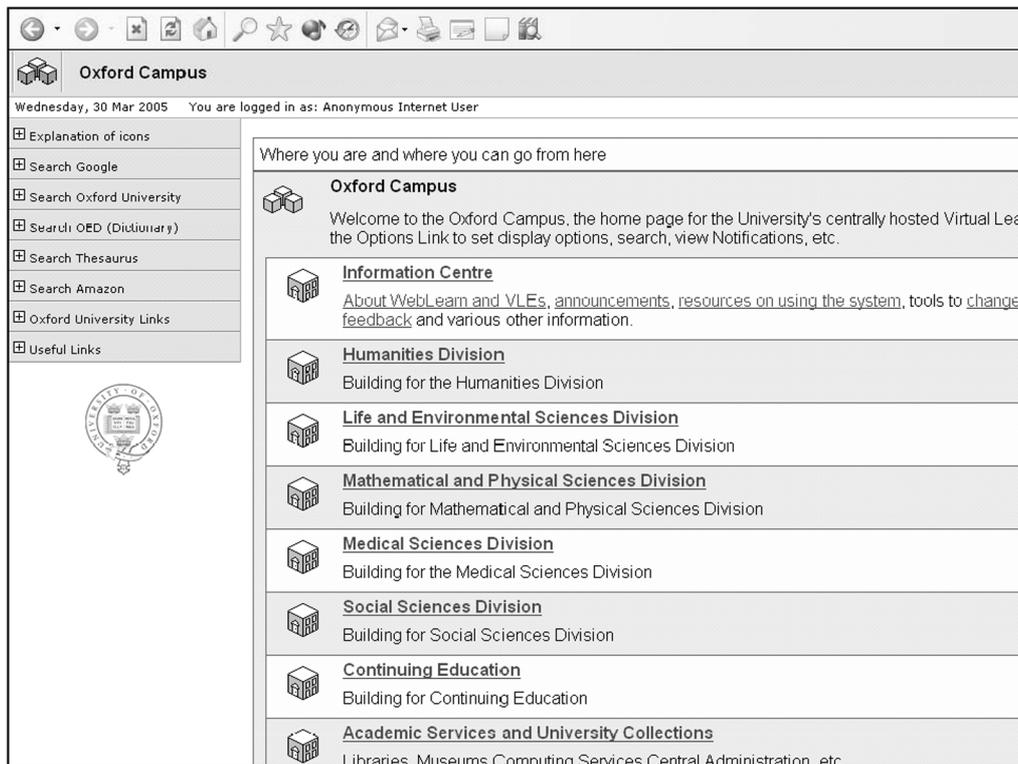


Figure 1. WebLearn at Oxford

Some of the drivers that influenced the decision to take forward the implementation of WebLearn were:

- it would help to facilitate a holistic approach to linking the content to the learning and teaching experience
- it would allow embedding of resources into the curriculum at the point of need
- it would improve support/communication to and from our users
- it would facilitate the introduction of novel and creative opportunities for user education and user self-assessment
- there was an increasing signal from our users that there was a real interest in, and growth of working in, an e-learning environment.

As we are all aware, there is much work in the national/international area looking at integrating VLEs and digital libraries. The simple route is a direct linear link to and from the electronic content from the relevant work area within the VLE – which is not a particularly elegant solution in the days of Open Knowledge Initiative. In short we are looking at interoperability to, from and between different resources. The VLE is a component in the overall vision of hybrid and digital library initiatives.

OULS deployment

The approach taken by OULS was a two-strand one within the framework for WebLearn, as described above. Firstly, there is a distinct library 'building' and secondly, there is an embedded library presence in departmental 'buildings' and course 'rooms'.

The core objective of the library 'building' is to cover generic information and literacy skills and user-centric support. Within this area there can be found: announcements; general information about using and joining libraries; study skills of specific relevance to library use, e.g. explaining a booklist, explaining how to use a citation; support and linking to catalogues and resources; and IT support for specific library applications such as bibliographic reference handling packages. The training space contains, for example, self-help quizzes and FAQs. There is also a general chat room for library queries, in addition to the existing library help-lines and support mechanisms.

Embedded tasks, whilst authored by library staff, complement and sit adjacent to the point of teaching/learning within a faculty/department

space. In one particular online module which is a compulsory component of an undergraduate course, this results in three courses that are assessed through MCQ (multiple choice question) tests embedded in WebLearn. This course is embedded in the faculty suite of rooms and involves using the Informs online tutorials. At the end of the test, WebLearn gives each student a mark and detailed feedback on each question, prompting students if their response is incorrect. Because the students are individually authenticated onto WebLearn there is a record of their test results which is critical for the course administration.

Another OULS-supported distance learning course consists of a set of Informs tutorials (as per Figure 2) introducing the students to a range of electronic resources including free resources on the web and locally available services. The course has worked well, though there have been some additional problems which are partly due to the wide range of information and IT skills that the students possess. There is also the inherent challenge of dealing with mixed hardware and software problems that an uncontrolled environment always throws up.

Outcomes

Some of the advantages that library staff have reported whilst operating in the WebLearn environment are outlined below.

For users:

- the WebLearn space is an effective wrapper for other C&IT resources, e.g. Informs
- tutorials are available 24/7 at the point of need
- MCQ tests allow students to receive individual feedback
- positive feedback from users.

For library staff:

- easy to re-purpose tutorials for different groups
- easy to use and requires no technical knowledge to set up a course or resource
- easy to grant/deny access to resources on WebLearn as appropriate
- MCQ tests allow monitoring of students' results
- seamless link between course materials and resources
- interface with academics and students.

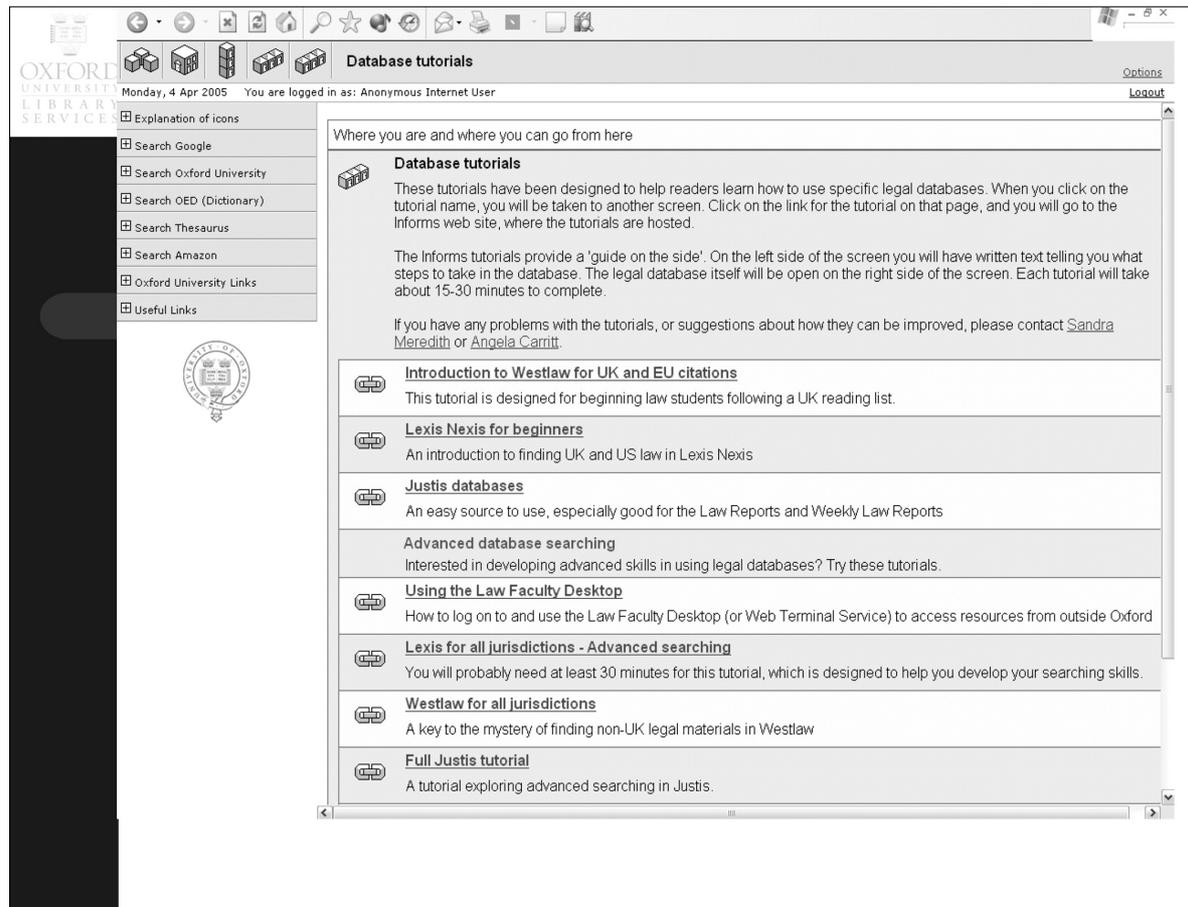


Figure 2. Example of WebLearn suite of rooms

Challenges

The biggest challenge encountered is that of access in the broadest sense. The ethos for library-authored material and 'buildings' is that all are readily available, as we want to encourage access. However, in the case of embedded work, 'rooms' may be locked by the course owners and thus access to many resources is denied or even invisible to non-authorized users. This may also lead to dead ends if there are other routes that have linked to these now locked resources.

Another major area to consider is that of Intellectual Property Rights (IPR) and copyright. Any organization needs to be able to balance its own institutional interest in the IPR of content on the VLE produced by its staff and still ensure that there is an incentive for its staff to continue to provide that content. The crucial issue is to establish who the rights owner of the content is, and how that content can be used. These IPR issues impact on the complete spectrum of material –

internally authored course material, links to external web site, links to e-journal, etc.

We also need to be conscious of the danger of building yet another information silo within the virtual information landscape. For instance, if we consider the ever growing corpus of internally authored material that is potentially with the VLE how do we link this to our institutional repositories?

The problems can spiral outwards from this, encompassing issues such as version control, IPR, archiving and digital curation. On a more mundane, practical level – how do we monitor dead links, particularly at the digital object level? Suppose there is a link directly to an online article and the licensed content changes, whereby the host institution no longer has access to that material – can we rely on this ever growing spiral of web authors to pick this up? There are quite enough black holes in the system already and we do not wish to create more. There are sustainability and maintenance issues, and identifying and agreeing whose role should cover these may not always be straightforward.

Customization and the concept of 'my web space/portal' is now popular and this surely must be factored into the development of any VLE. An immediate use for this would be for students' electronic portfolios, which are used as an assessment and a personal development tool. To develop ownership, then, we must allow customization. Whilst we must therefore be able to identify the user, this must not become a barrier for uptake if it is yet another username to remember.

When looking at the other side of the information chain – that is, the content providers – one has to elucidate what information chunks are the most suitable to link to and embed into an e-learning tool. Do we need to just limit to links to the articles or do the producers of the large electronic reference resources such as Oxford Scholarship Online need to package their product to facilitate linkage at the course level? All players need to look, and are looking, at the issue of portability of content in order to deliver it to users in the most effective way.

Conclusion

If this is not too flippant, I am minded to conclude that there are no conclusions, other than an awareness that there are many issues that have merely been touched on and need further expansion and development. As is so often the case, there are many stakeholders within an educational institution that need to be engaged with to ensure that any VLE is a successful tool in the learning and teaching environment. These range from faculty to learning technologists to admissions administrators. In the information world there are an equally large number of players that need to be part of the VLE debate. Interoperability has been one of the buzz words for a number of years but this must not only apply to the technical implications but also to the cultural and content providers.

As information and content becomes more 'atomized' and thus distributed and re-purposed, we need to agree what standards and applications we want both our purchased content and internally authored content to achieve and provide. Do we really want reusable content and if so, are these discussions happening between all the stakeholders? Are the mechanisms in place to support and allow this flexibility? Are the budget-holders in the institutions prepared to pay for this additional flexibility? How we are going to take this forward is yet another strand in the complex hybrid world of library land which now has many more 'frontiers' than ever before.

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