Virtual Learning Environments - overview and issues for institutional managers

Jacqueline Chelin
Deputy Librarian, University of the West of England
Tel: 0117 344 3768
E-mail: Jacqueline.Chelin@uwe.ac.uk

Context

'Virtual Learning Environments (VLEs) are learning management software systems that synthesise the functionality of computer-mediated communications software (e-mail, bulletin boards, newsgroups etc) and on-line methods of delivering course materials (e.g. the WWW).' [1]

There are have been many interesting discussions on the JISCmail VLE list about what exactly does constitute a VLE, and heated debates about in-house versus commercial offerings. [2]

VLEs sit very much within a wider environment that may be termed a Managed Learning Environment (MLE). Indeed, the MLE section on the JISC website is a good source of information on this subject, including evaluations of studies, conference reports, etc. [3]

In SCONUL's vision there is anticipation that 'the growth of MLEs will support development of cross-sectoral and work-based approaches through distributed learning centres, requiring interoperability between library management systems and other internal/external information systems.' [4]

The VLE at UWE

In late 2001, a VLE group was formed because, like many institutions, we were already using and developing several different systems, both commercial and in-house. It was felt that in terms of support for students, and staff, and especially for those studying and teaching across faculties, one centrally supported system should be the aim, although the expertise and development associated with the existing systems was important to harness.

The principles to which the group worked were:

- An MLE was the goal, the VLE being one component of a larger system
- The system should be pedagogy led
- It should be simple but flexible, i.e. to encourage on board staff lacking in confidence with networked learning whilst motivating others to experiment further
- Support was paramount - the amount of staff time involved in preparation of materials, helping students with the system, etc., would be likely to offset any savings in face-to-face contact time
- A culture shift would be needed to embed networked learning across the institution

Shifting the culture has involved re-engineering many of the standard processes carried out across the institution, from registration to assessment to IT and information skills support.

Motivation for adoption

The motivation for adopting one centrally supported VLE included:

- Improving access to learning for ALL - on-campus and distributed students, students with disabilities, etc.
- Providing methods of learning that meet a broader range of student needs and thereby offer equality of opportunity, encourage independent learning, etc.
- Complementing traditional learning and teaching methods.
- Preparing to engage with the e-University.
- Offering a platform to aid collaboration with other institutions - something the Shell project at Plymouth aims to do. [5]
- Integrating with existing UWE infrastructures and services to provide a student-centred learning environment.
- Capitalising on digital initiatives in other areas of student support such as library, archives, advice and admissions.
- Facilitating support to continuing professional development and to attract commercial partners.
- Supporting and enabling the effective implementation of the mission of the University [6]

Resources

The university needed to consider both how to use existing resources within the organisation (for example, staff and equipment) as well as gauging the capital outlay and ongoing maintenance that would be incurred.

Although home grown systems may seem a cheaper option, the ongoing development costs have to be carefully considered, as does interoperability, knowledge management, etc. One argument, (put by an IT manager) is that the university should focus on what it does best, namely teaching and research, leaving software companies to develop the framework system, especially since they have the capital investment to keep at the cutting edge of new technologies and to develop in line with these.

The expertise and knowledge required may include:

- Technical skills – web and multi-media authoring, graphic design, authentication systems
- Standards and protocols - e.g. IMS/SCORM for the exchanging and sharing of data/content, Dublin Core for describing resources, W3C for web accessibility
- Legal – copyright, intellectual property, data protection, licensing, disability discrimination. It is also important that this knowledge is disseminated widely, and in certain cases, tactfully.
- Accessibility and usability – a project carried out at the Royal National College for the Blind in Hereford demonstrated that VLEs are very complex in that they require a high level of navigational skill for effective engagement. When students are employing a screen reader in combination with a VLE they spend a huge proportion of their time accessing and navigating the VLE and rather less time than other students actually using it for their studies. [7]
- Pedagogical skills - these should not be substantially different within the networked environment from the traditional, but perhaps applied differently. Certainly, it is imperative that students are clear about the use of the VLE for each particular module, for example, is it a replacement for face-to-face contact or supplementary?
- Coordination skills – there is a clear need to coordinate the expertise in people across the organisation, thereby optimising knowledge and reducing duplication of effort. This has been the role of the networked learning support framework team at UWE over the past two years, funded initially by a Good Management Practice award. [8]

Training and support

- 24x7 – focusing on just one centrally supported VLE has escalated the need to implement more comprehensive methods of technical support should the system fail during the evenings or weekend.
- On and off-campus – support for users can include face-to-face, email, telephone and web chat facilities. Ensuring that web-based information is appropriate to a range of browsers and versions may avert some of the problems off-campus, whilst on campus availability of suitable equipment and environment is imperative.
- Training – this might include general awareness training, basic and operational training on how to use the system and how to migrate materials into it, training on how to troubleshoot, discussion on how best to teach with it, etc. Methods include formal, cascade and informal, and lunchtime seminars organised by the team to share best practice have proved very popular.

Operational aspects

In this area, UWE has learned a lot from other institutions that have already undergone the process of implementing a VLE

- Committees – who to include and how to operate, e.g. to date UWE has at least four groups for Blackboard covering implementation, operation, systems and technical, in addition to an existing more general networked learning group.
- Rollout – whether to offer blanket access for all staff at the outset or to pilot with small numbers of staff and faculties. If a pilot, then who to involve, how and when. UWE decided on caution, especially since the VLE is linked to the student registration system and therefore both systems were, in effect, being tested. This academic year there have been 54 modules involving 5,000 students and 100 staff, representing all faculties.
- Interface – decisions need to be made regarding standardisation whilst acknowledging that academic staff prefer freedom to develop their own ideas. Logo and branding need to be agreed. Decisions about which features to implement are important as well as agreeing on naming conventions and use of particular

areas of the system to ensure that navigation is consistent. How to link to sections of existing institutional web site, intranet, library catalogue, etc., are further considerations.

- Evaluation – this is particularly important to inform future development. At UWE evaluation is taking the form of:
  - an institutional review - carried out by a researcher employed for the task
  - faculty-based reviews - faculties had to submit an evaluation plan before being admitted onto the pilot
  - critical friend scheme - involving a colleague in another faculty who can comment on and learn from the experience.
- Procedures – e.g. dealing with abuse – this should really reflect the university sanctions already in operation, but disallowing a student access to the VLE, for example, is arguably preventing them from learning.
- Administrative processes – these, in particular, may need review, e.g.
  - registration - so that student information is fed into the VLE earlier in the academic year,
  - electronic submission of assignments – may raise procedural and assessment issues
  - systems administration –decisions regarding who to give access to what need to be well justified and transparent.
- Archiving – keeping modules on the system after they have ended could involve amending current intellectual property rights practice.
- Functionality - moving courses from existing platforms whose functionality is different raises issues of where to cut losses and find another way of doing a similar thing, which might even involve changing assessment regulations.
- Integration into portal - where does the VLE sit in relation to the institution's portal, or does it frame it? At UWE another set of committees has been set up to investigate this!!

Library involvement

As we know, libraries have had online systems and services for years, and the advent of VLEs provides the opportunity to integrate them into teaching and learning in a more streamlined way. Libraries are the first port of call for help outside normal working hours. Librarians have a tradition of working with academic staff on learning support. So, it is natural they are included in VLE implementation.

Examples of library involvement with VLEs:

The Inspiral project made a series of helpful recommendations to JISC about portals for information resources and learning. [9] Currently, the Digital Libraries and VLEs programme (DiVLE) is investigating links between library and VLE. [10]

University of Newcastle library staff are undergoing training on Blackboard via a module on Blackboard itself in order to be able to better support Blackboard queries. [11]

Many libraries in institutions with VLEs are currently attempting to adopt an approach to integrate their information skills materials sensibly into the VLE, and trying to ensure that library resources are accessed in an appropriate manner, witness the recent plethora of useful articles in Update. [12] [13] [14]

At UWE we have been considering adopting the INHALE web-based, interactive information skills packages. This demonstrates the true benefit of JISC projects – sharable, customisable, well-evaluated and free or reasonably priced! [15]

Whether to load module specifications, exam papers, information skills materials, digitised texts, etc., into the VLE, or to keep them on a separate platform, with links from the VLE, is a major discussion point. It could be argued that official university documentation might be better kept separately on an institution's content management system where the copies constitute the authoritative, approved versions. It may be better to develop information skills materials on the library website so that all students and library users can reach them rather than put them into the VLE where only those registered for the system may access them. The idea of an independent store is particularly important for digitised, copyright-cleared materials. With UWE's current version of Blackboard, an academic will have to copy the same content into the system several times if s/he wishes students on different versions of the same module to use it. In the case of copyright cleared digitised material this may be an infringement. However, loading that same material onto an independent platform such as, in UWE's case, Hyperion (Digital Media Archive) means that there is just one version that can be easily controlled.

Outcomes

The formal evaluations will provide part of the picture, but the process of implementing a VLE

has already had many notable benefits, e.g. a re-evaluation of the way many things are done (probably long overdue). This includes:

- administrative processes, e.g. registration, submission of assessed work
- library information skills and IT training
- out of hours technical support
- IPR, e-copyright, data protection procedures and practices (in effect, more staff need to be aware of more issues)
- monitoring and evaluation, quality assurance and assessment procedures
- opportunities to investigate electronic plagiarism detection services.[16]

The introduction of Blackboard has significantly affected the structures of support, in that academics, administrative staff, librarians and technicians are now collaborating formally on developing the framework for learning.

The adoption of a VLE has initiated a more lively and public debate about teaching, generally. It has opened up refreshing discussions about pedagogy and has encouraged new ways of thinking about student learning. There are immense opportunities for networked learning to complement traditional learning, to provide equality of opportunity through appealing to different learning styles and to offer a greater diversity of provision.

VLEs appear rather to add value to the students' learning than offer cost savings for the institution. The staff time taken to produce high quality learning materials and to support students in using them may offset any time saved in contact hours. However, having administrative and preparatory materials on the VLE can help to ensure that those contact hours focus on quality learning.

Online, collaborative learning is frequently viewed positively because of its association with constructivism. Constructivist learning is based on students' active participation in problem-solving and critical thinking regarding a learning activity which they find relevant and engaging. To what extent this happens within VLEs depends very much on the extent to which staff use the platform to its full potential.

There is the danger that a VLE may be used merely as an e-notice board on which to peg the equivalent of the print support materials, rather than to exploit the more interactive features and engage students (and staff) in more 'transformative' learning, ie academics and students learning together, transformed by a two way discourse. [17]

Accusations regarding the McDonaldisation of student learning have been levelled at VLEs which, in conjunction with increasing modularisation of curricula, appear to compartmentalise learning materials into 'McNuggets', bite-sized chunks that arguably undermine the coherence of the student experience and contribute to a fragmentation of knowledge. [18]

What is clear is that students, on the whole, respond well to VLEs if used appropriately and if their purpose is explained. However, it is advisable for the organisation to make every effort to get it right first time! Students will not easily tolerate poor initial encounters with a VLE. They are, indeed, the strictest judges.

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1 S. Britain and O. Liber, *A framework for pedagogical evaluation of Virtual Learning Environments*. University of Wales, Bangor, 2000 http://www.jtap.ac.uk/reports/htm/jtap-041.html

2 JISC's Managed Learning Environments site http://www.jisc.ac.uk/mle/

3 Virtual Learning Environments discussion list vle@jiscmail.ac.uk

4 SCONUL vision, 2001 http://www.sconul.ac.uk/pubs_stats/pubs/vision2005.htm

5 SHELL project, University of Plymouth http://www.shellproject.net/

6 UWE's mission and vision statement http://www.uwe.ac.uk/vision/

7 Virtual Learning Environment user testing project, RNCB, Hereford, 2002 http://www.techdis.ac.uk/resources/VLE002.html

8 Networked Learning Support Framework http://www.uwe.ac.uk/library/nlsf/

9 INSPIRAL: INveStigating Portals for Information Resources And Learning http://inspiral.cdlr.strath.ac.uk/

10 Linking Digital Libraries with VLEs (DiVLE) Programme http://www.jisc.ac.uk/index.cfm?name=programme_divle

11 M. Bent, 'Blackboard and staff development at Newcastle University Library', *SCONUL Newsletter* 25, Spring 2002, pp 13-14

12 K. Moore and C. Abson, 'Really useful or virtually useless?', Update 1 (8) November 2002, pp34-36

13 P. Stubley, 'Skills move to VLEs', *Update* 1 (7) October 2002, pp 34-35

14 I. Winship, 'VLES and information delivery', *Update* 2 (11) January 2003, pp 40-41

15 The INHALE project http://inhale.hud.ac.uk/

16 JISC plagiarism service http://www.jiscpas.ac.uk/

17 L. Sherry and B. Wilson, 'Transformative communication as a stimulus to web innovations', in B. D. Khan, ed., *Web-based instruction*, Englewood Cliffs: Educational Technology Publications, 1997, p 67

18 T. Hickley, 'Why didn't we say no?' *Times Higher Education Supplement*, 24 January 2003, p 20