

Virtual Learning Environments

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This is leaflet 2 of a series written by members of the LTSN Generic Centre and ALT to inform colleagues on current learning technology topics.

Introduction

This document aims to give an overview of **Virtual Learning Environments** – what they involve, how they can benefit your teaching, how to get started and where to find further information and resources. Following the emergence of the Internet in the early 1990s, many new tools and products have been developed to fully exploit its benefits. Since the mid-1990s the education community has witnessed the appearance of software products labelled Virtual Learning Environments (VLEs) that aim to support learning and teaching activities across the Internet. Many educators want to take advantage of the benefits offered by the Internet to support their teaching activities. However, creating Internet resources that are stimulating, appealing, easy to use and educationally sound is time consuming and requires considerable expertise. VLEs allow educators to create resources quickly and without the need to develop technical skills. Typically web-based, VLEs provide an integrated set of Internet tools, which enable easy upload of materials and offer a consistent look and feel that can be customised by the user. Popular commercial VLEs currently being used in UK HE include Blackboard and WebCT¹. **Managed Learning Environments** (MLEs) incorporate the elements of VLEs but also include and interact with the whole range of information systems eg student record systems, finance etc that contribute directly or indirectly to learning and teaching management.

How can Virtual Learning Environments support learning and teaching?

Overview of features

The tools and features that comprise the VLE aim to facilitate a complete learning and teaching experience, and include:

Communication between tutors and students

eg email, discussion boards and virtual chat facilities which support various types of communication: synchronous and asynchronous, one-to-one, one-to-many and many-to-many.

Shared work group areas

Allows designated groups of students to upload and share files as well as communicate with each other.

Support for students

Could take the form of communication with tutors or other students, provision of supporting materials such as course information and Frequently Asked Questions (FAQs).

Self-assessment and summative assessment

eg multiple-choice assessment with automated marking and immediate feedback.

Student tools

eg individual student web pages, 'drop boxes' for the upload of course-work, electronic diaries and calendars.

Delivery of learning resources and materials

eg through the provision of learning and teaching materials, images and video clips, links to other web resources, online discussion and assessment activities.



www.ltsn.ac.uk/genericcentre



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Management and tracking of students

eg usernames and passwords to ensure that only registered students can access the course; analysis of assessment undertaken by students or their use of materials within the VLE.

Consistent and customisable look and feel

A standard user interface that is easy for students to understand and use. Courses can be individualised with colours, graphics and logos – but the essential mode of use remains constant.

Navigation structure

Structured delivery of information supported by a standard navigation toolbar. Most VLE software assumes that students will work their way through linear sequences of instructional material. Others are more flexible and will accommodate alternative information structures, eg multi-path case studies.

Simple to complex use

There are many ways of using VLEs, ranging from simple uses of a limited range of tools, to support for face-to-face courses, through to entirely online courses that make sophisticated use of a wide range of the VLE's facilities. The diagram below (figure 1) gives some examples of how VLEs can be used, and shows the possible range in their levels of sophistication. These uses can of course be combined in as many ways as appropriate to local needs. You might start using just one or two of the features of the VLE, then develop in sophistication as you become familiar with the system and what it can do.

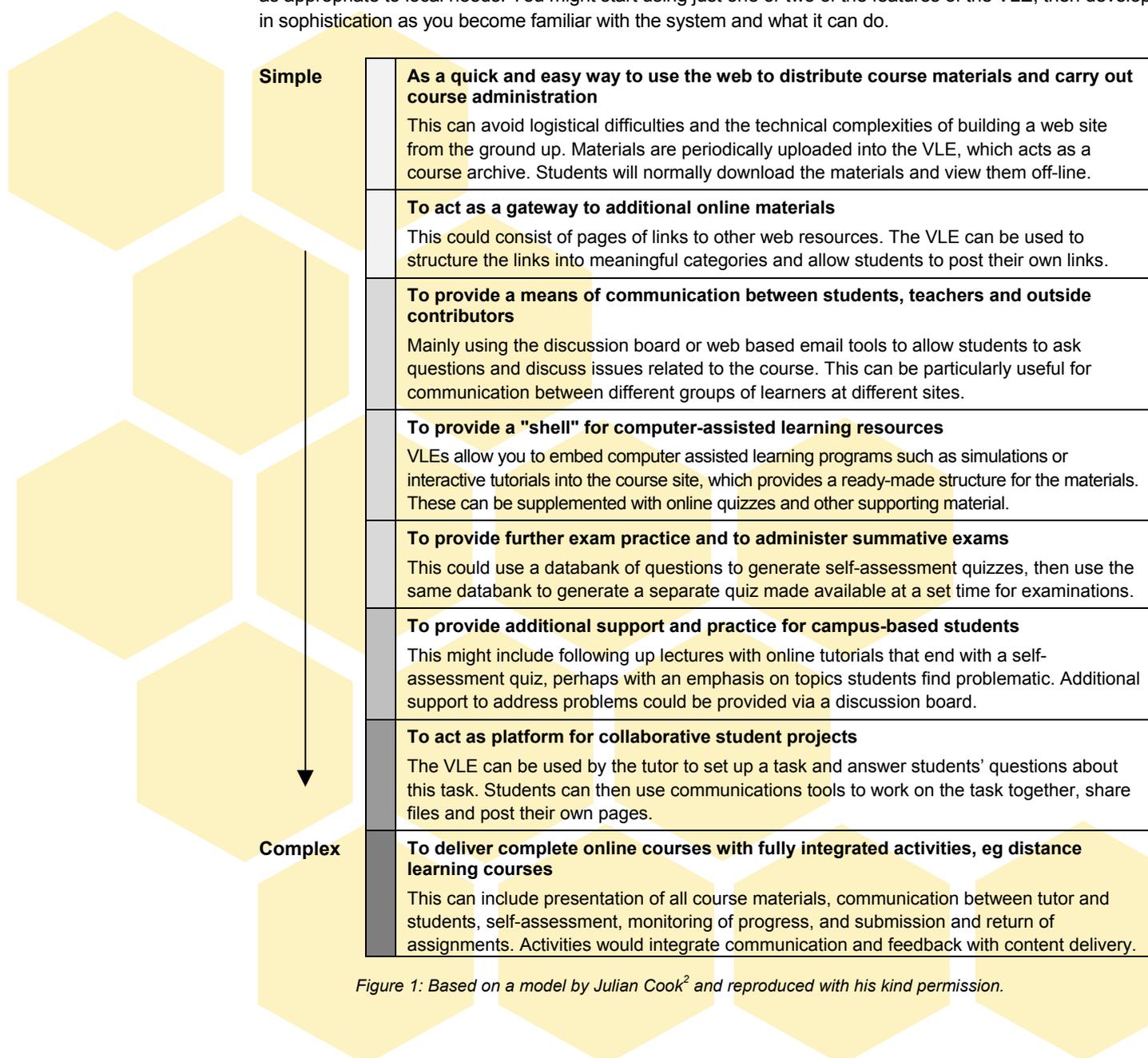


Figure 1: Based on a model by Julian Cook² and reproduced with his kind permission.

Frameworks for VLE use

A useful framework for considering different ways of using VLEs to **support or deliver courses** is one developed by Mason³, which identifies 3 models:

Content and support model; where pre-prepared content is delivered in print or online, and support is provided online. Content and support are not integral to one another, ie online support is an optional extra and is not integrated into learning activities. Relatively easy to establish but does not fully exploit the benefits of online learning.

Wrap-around model; where there is a mixture of pre-prepared content and online learning

activities. The learning activities involve online discussion and collaborative activities.

Integrated model; where most of the learning takes place via collaborative online activities and content is largely determined by the learners, either individually or as a group. Learning is very much student centred and highly collaborative.

Other useful models for **evaluating** virtual learning environments and developing **online activities** include: Britain and Liber⁴ adapted from Laurillard's Conversational Learning and Beer's Viable System Model, and Gilly Salmon's e-moderating Five Step Model⁵.

Advantages and disadvantages

As with any technology used in teaching and learning, VLEs have no intrinsic educational value in themselves. The way in which online courses and online activities are designed and delivered can add value and increase effectiveness. Below are some commonly perceived advantages and disadvantages of using VLEs.

Advantages	Disadvantages
Easy online delivery of materials.	Can become a 'dumping ground' for materials not designed to be delivered online.
Easy to use for both students and lecturers.	Copyright and IPR of materials need to be considered. See the JISC for guidance ⁶ .
Widens student access on and off campus to learning materials and resources.	Off campus access to hardware and networks can be problematic for both students and educators and raises issues of equality. Disability legislation and accessibility to online materials also need to be considered. See TechDis for guidance ⁷ .
Offers flexible support for educators who do not need to be in a fixed time or place to support and communicate with students.	Need to plan online support carefully to avoid overload.
Has the potential for new ways of learning and teaching such as active and independent learning which make use of online communication, online assessment and collaborative learning	Such independent learning still needs to be guided and supported. Appropriate training and ongoing support is still needed for both students and educators.

See also the LTSN Generic Centre Starter Guides numbers 3 and 4 for more information on online communication and assessment advantages and disadvantages.

Other issues and concerns include:

Interoperability with other information systems. VLEs' ability to interact with student record systems, for example, can mean the difference between automatic and manual enrolment of students. See the JISC MLE pack⁶.

Future-proof authoring? Standards are still emerging which will allow educators to migrate content from one VLE to another. See the JISC

MLE pack⁶ and the Centre for Educational Technology Interoperability Standards⁹.

Development of VLEs is still in its early days and any one VLE is unlikely to meet all needs. Many institutions in the UK, in particular Medical Schools, have developed their own VLE/MLEs. See the JTAP report¹⁰.

Getting started

If you are new to this area you may wish to consider the following practical tips to help get you started.

Support. Find out what support and resource is available to you in your Institution and Department and communicate your plans in order to benefit from existing practice or expertise. You may also wish to contact your LTSN Subject Centre¹¹.

Explore other people's live courses to get a better feel for the potential of VLEs in your subject area or VLE product. You may need to request guest access to them.

Start with a small, manageable project. This could be just posting up some materials or resources or developing one online activity.

Test out your course as a student. Arrange to enrol yourself or a colleague as a test student to your course. This is extremely useful for experimenting with the technology and ironing out any glitches before exposing the course to your students.

Plan your VLE activity or resource, including:

- **The aim of your activity** and the intended **learning outcomes** for your students.
- **How the activity will integrate** into the rest of the course eg how it links to other activities or face-to-face sessions.
- **How students will be directed** through the activity eg a linear set of elements within an activity or an open research based task.
- **The timescale of the activity** - what time period and how many learning hours?
- **Assessment** - how will students be motivated to do the activity? Will you assess it? If so, how?
- **Evaluation.** How will you know whether your activity has been successful and effective? You need to plan for evaluation. See the LTDI Evaluation Cookbook¹².

References and resources

¹ www.blackboard.com/ and www.webct.com/

² Cook, J. *Virtual Learning Environments: Making the Web easy to use for teachers and learners*. LTSS, University of Bristol (1999) available from www.ltss.bris.ac.uk/VLEintro_1.htm

³ Mason, R. Models of Online Courses, *ALN Magazine*, vol 2, issue 2, (1998) available from www.aln.org/alnweb/magazine/vol2_issue2/Masonfinal.htm

⁴ Britain, S. and Liber, O. *A Framework for Pedagogical Evaluation of Virtual Learning Environments*. JTAP (1999) 01/10/99 available from <http://www.jisc.ac.uk/jtap/html/jtap-041.html>

⁵ Salmon, G. *E-Moderating: The Key to Teaching and Learning Online*. London, Kogan Page (2000). See oubs.open.ac.uk/e-moderating/ for extracts.

⁶ MLE Information Pack (2001) available from www.jisc.ac.uk/mle/rep/infopack.html

⁷ TechDis at www.techdis.ac.uk/

⁸ LTSN Generic Centre/ALT guides (2002) available from www.ltsn.ac.uk/genericcentre/elearning

⁹ Centre for Educational Technology Interoperability Standards at www.cetis.ac.uk/

¹⁰ Cook, J. The Role of Virtual Learning Environments in UK Medical Education. *LTSN Bioscience Bulletin*, no.5, University of Leeds (2002) available from bio.ltsn.ac.uk/

¹¹ LTSN Subject Centres at www.ltsn.ac.uk/

¹² LTDI Evaluation Cookbook (1999) at www.icbl.hw.ac.uk/ltidi/ltidi-pub.htm

Useful email discussion groups can be found at: www.jiscmail.ac.uk/, including: Blackboard-Usergroup@Jiscmail.ac.uk Webct-UK@Jiscmail.ac.uk Jisc-MLE@Jiscmail.ac.uk

See www.vts.rdn.ac.uk/ for online subject-specific tutorials to help improve Internet information skills – useful resources to link to or integrate into your VLE course.

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