Effective Management of Virtual Learning Environments

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Abstract

Virtual Learning Environments (VLEs) are now used by the vast majority of the UK's Further and Higher Education sectors to support students' learning. However, surveys suggest that the technology is not being effectively utilised. This may be due to e-learning having grown in a bottom up way and many institutional strategies and policies focussing on targets for getting content on-line. If the education system is to meet the requirements of the Government's and funding bodies' e-learning strategies, then the issues and barriers to effective use of VLEs need to be identified and solutions found. Colleges and Universities need to move forward so that e-learning is no longer a 'cottage-industry' but is a mainstream activity.

To assist Colleges and Universities move forward with e-learning, JISC infoNet promote a good practice model that views the management of e-learning in a holistic way and addresses issues of effectiveness and sustainability.

This paper will introduce this model and by identifying some of these issues and suggest ways of moving forward.

This paper introduces this model, identifies some of the management issues associated with using VLEs in teaching and learning, and shows how the model, together with other resources, can be used to overcome some of these issues.

Keywords: e-learning, Virtual Learning Environments, sustainability.

1 Introduction

The majority of UK further and higher education institutions view e-learning, and use of the associated technology, as an integral part of the learning process [10] and the UK government and its funding bodies actively support this view with e-learning being central to the various education strategies that have recently been published [2,11,13]. In order for these strategies to be realised, the majority use of e-learning technologies needs to be moved to the next stage to enable the learner to be totally engaged in the learning opportunities offered, as opposed to a passive role.

In a paper to EUNIS 2004 (Living in the Past: e-learning – progression or regression?) JISC infoNet[1] explored the implementation of e-learning strategies across the UK and identified examples where the implementation of institutional wide VLEs was actually stifling innovative use of learning technology. In response to these issues, and to a lack of cohesive guidance on the use of VLEs, JISC infoNet commissioned a major piece of work on 'Effective Use of VLEs' [3] by a number of leading practitioners in the field.

The work was published in January 2005 as part of a series of 'infoKits' – JISC infoKits are a set of online resources that consist of a subject overview, a step by step 'how to' guide and a resource layer of templates, toolkits, case studies and other supporting materials.

The infoKit is aimed at tutors, learning technologists, staff developers and senior managers. A numbers of different pathways lead the user through the sections most relevant to them.

For tutors the aim of the infoKit is to enable them to make informed decisions, based on sound educational principles, about the use of technology in their teaching and their students' learning.

Learning technologists and staff developers are guided through using the materials in institutional staff development programmes and senior managers are presented with a range of issues relating to the management of institutional VLEs.

The resource also includes background material on current theories and models of learning and teaching and on the types of commercial and open source products available. Throughout the infoKit there are case studies, examples of good practice and worked scenarios of typical problems that may be solved by effective use of the tools within a VLE. The materials will be updated on a regular basis and will draw extensively upon ongoing research and case studies especially those undertaken by the JISC. A future development is the inclusion of current work on e-portfolios; at present this is only a small subsection.

Management aspects of implementing e-learning have frequently not been recognised. In many institutions, senior management have not played a key role preferring to allow

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[1] JISC infoNet is the UK's national Centre of Expertise in the Planning and Implementation of Information Systems

the specialists (e.g. learning technologists, teaching and learning advisors, IT staff) to take to the lead. This has led to issues such as lack of quality management and procedures, low staff motivation and lack of sustainable resources becoming apparent.

The aim of this paper and accompanying presentation is to highlight some key issues relating to the effective management of the use of VLEs, to introduce delegates to a management model, highlight supporting resources and to give an indication of how they might be useful in their own institutional context. Technical aspects of VLEs are not discussed in this paper.

2 Issues for Management

During a series of workshops, JISC infoNet identified a number of issues for the effective management of VLEs. Suggestions for addressing these issues were offered. This list is by no means exhaustive but indicates the type of issues that can lead to VLEs not being used effectively.

Technical infrastructure not sufficiently robust	Openness of learning resources may lead to criticism
Fear of job loss	Lack of training
Lack of time for training	Fear of technology
Lack of time for development of learning materials	Perception that practical courses cannot benefit
Curriculum and assessment from a different era	Fear of losing ownership
Bad feeling because staff directed to use	Constrained by VLE navigation and interface
Fear that technology may change	Access to the technology

These issues can seriously affect the positive impact that technology can have on learning, and impinge on the effectiveness of tutors.

A lack of institutional e-learning policies and procedures used to guide, as well as lead, staff can result in lower ratings in institutional or quality audits or inspections.
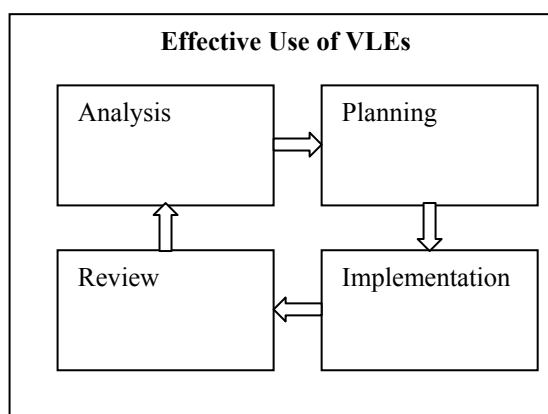
A more formal approach, a managed approached, to the integration of learning could be used to resolve these highlighted issues and we will go on to look at such a model. As part of this managers need to identify which of these issues are at risk of occurring in their institution and adopt the model accordingly.

3 Formal Approach / Managed Approach

The approach suggested is simple and has been found to be effective in the development of information systems in education. It is an iterative approach not a one-off. In the first instance it is worth reviewing the business case that was developed for the VLE. What were the expectations; have the desired benefits been achieved; what is the next stage? VLE usage may have begun in a bottom-up way promoted by groups of enthusiasts but as it becomes widespread and mainstream a model is required for managing it in an effective and sustainable way.

The following diagram shows this model:

Effective Use of VLEs

Analysis → Planning

Analysis ← Review

Planning → Implementation

Review ← Implementation

Each of the four phases – analysis, planning, implementation and review – will be discussed in turn; applying them to the effective management of VLEs.

4 Analysis Phase

One key finding of the JISC funded 'Impact of Networked Learning on Education Institutions' [4] was that VCs, Principals and senior executives need to be involved in networked learning strategies if other members of staff are to be motivated. The authors also reported that change must be relevant and everything should be in place to address the change, including motivated staff and sufficient resources for the planned changes.

The model starts with the analysis of requirements. There are many components to the analysis phase; this paper concentrates on the most critical aspect related to staffing.

4.1 Staff development

Many of the issues raised by tutors can be addressed by staff development (lack of training, fear of technology, perception that practical courses cannot benefit, constrained by VLE architecture). Staff development is crucial to the successful implementation of e-learning and for there to be any real and significant effect it must be sustainable. This development includes training in the use of the technology and education in the associated pedagogic models and considerations.

One of the first tasks is to conduct an Institutional Needs Analysis assessing staff skills in basic IT as well as use of the adopted VLE e.g. Microsoft Office packages, Outlook functionality, use of the internet, creating materials for e-learning, packages for material development, VLE

functionality, multi-media packages, assessment tools. Questions on pedagogy may also be included. The results of this needs analysis will feed into human resources and financial planning and metrics can be developed in order to measure the success of the staff development programme. This should be part of a 1 or 2 year cycle tied into the strategic planning cycle. A good example of such a needs analysis is the ETNA (Enhanced Training Needs Analysis) survey used across all further education colleges in Scotland [8].

It is recommended that tutors are encouraged to undertake an individual needs analysis for the use of the VLE in their teaching. This will assist in personal development planning and a matrix for this purpose is available from the JISC infoNet website [5]. This information can also be useful for department planning and staff appraisal.

The availability and robustness of the technology can have an effect on staff motivation. If there are issues or problems in this area, then there will be reluctance by tutors to use the VLE for anything other than a minor support role in their teaching.

Staff access to the technology should be considered at this point. Using a VLE to support learning frequently means a different timescale of working for tutors and it important that the technology is available when required to support the learners.

A heavy use of the technology, especially if being used for summative assessment, can place high demands on the technical infrastructure. This requirement should be identified during the analysis phase.

Identification of exemplars of practice from within and outwith the institution can be part of the staff development process. These exemplars can demonstrate to staff what is possible using their existing skill set and can also lead to innovative practice by enabling staff to apply other peoples' ideas to their own situation or modules. Staff who are sceptical about the suitability of using VLEs within their subject area (for example practical subjects within building services) may find exemplars from other institutions very useful for stimulating ideas.

The Observatory for Borderless Education [12] found that staff in the UK are more enthusiastic than elsewhere in developed countries about online learning and this enthusiasm needs to be harnessed and maintained.

4.2 Buddy System

A Buddy System is a type of peer observation system but is less formal and not directly linked to staff appraisal or reward system. The basic concept is that two tutors work with each other in a supportive non judgemental way. The whole process is confidential to the buddy pair ensuring a trusting relationship to be built. One of the pair will take on the role of the observer and ask searching questions of their 'buddy' or to note aspects of the teaching that the tutor may not have noticed – for example, negative or discriminatory language used in computer mediated conferencing (CMC).

This collaborative approach can be taken from the start of the analysis phase, for example discussing the individual needs analysis matrix, and continues during the running of the module through to evaluation and review.

Usually the pair teach in the same or similar domain – this helps foster sharing in a safe environment which leads to a more open approach to sharing teaching materials generally within and outwith the institution. However there are advantages to the buddy pair being from different subject areas - even different institutions – as this does help to stimulate innovative practice by brainstorming ideas or give a non-expert view of material.

The topics for discussion can be anything associated with teaching and learning with technology, for example, sourcing of resources, activities, appropriateness of assessment type, use of discussion boards, and eliciting student feedback.

Although confidential, aspects may be brought into an appraisal process or professional / personal development planning (PDP) by the appraisee if agreed by the buddy pair.

5 Planning

The planning phase includes developing staff training and education workshops that are carefully scheduled so as to be inclusive. It may be necessary to devise methods whereby staff are released form teaching duties in order to attend workshop sessions or study online, perhaps by a team teaching approach. Part time staff are frequently forgotten when staff development is planned. The issue is usually one of payment for time attending and this should be part of the financial planning of the VLE implementation by the institution.

Development of learning materials and associated assessments or quizzes occurs in the planning phase. The buddy system can be of benefit here with buddies discussing the development, sourcing and suitability of materials or the timing of quizzes. Adopting a holistic view to using a VLE in a module can overcome the 'content trap' that has attracted much criticism and led to some tutors believing that a VLE is not suitable for use in their modules. Sustainability is a keyword when discussing materials development and some ideas for sustainability are discussed. These activities may be thought to be the province of the tutor, but there are management considerations for the VLE to be used effectively.

5.1 Holistic view of module and course

As discussed a paper to EUNIS 2004 (Living in the Past: e-learning – progression or regression?)] and as evidenced by the JISC/UCISA study [10], The Observatory for Borderless Education report [12] and the INLEI report [4] VLEs are used mostly to store basic material considered to be of a low level

learning resource. Staff need to be supported to move forward in their approach to using a VLE and top down support can lead to staff motivation [4].

Using the module learning outcomes to steer the development of a module on a VLE can enable a more holistic view of that module as opposed to a piecemeal approach. Moving to a lesson plan from learning outcomes is an approach that is familiar to many tutors and so does not require a change in the mind set. This holistic approach can also be used for a course as a whole. Adopting this view will also move tutors away from the 'content trap' and make use of the full range of VLE communication and collaboration tools.

A more formal approach to e-learning, using pedagogic models, usually requires a sea-change that is top-down.

5.2 Designing for Sustainability

Creating learning materials is a time-consuming task; this is frequently cited by tutors as a major issue. One way of using the time more productively is to (re)use existing materials; either developed in-house or sharable resources that are readily available.

Some external resource bases require a subscription or one-off payment, or may be only for a particular sector only. These payments need to be included in the budgets year on, and the use and effectiveness of the materials measured to ensure that this approach is cost effective.

The Joint Information Systems Committee fund services that support free (to UK post-16, Further Education, Adult and Community Learning and Higher Education institutions) access to sharable learning resources. For example, the Resource Discovery Network [9] is a collaboration of over seventy educational and research organisations. It consists of a central RDN Centre and eight independent subject based service provider hubs. A new service (a development from the JISC Exchange for Learning Programme (X4L)) to be launched summer 2005 will make materials available through the JORUM repository [6].

One way of sharing resources within the institution is to implement a digital repository as an integral component of the VLE. Until recently VLEs did not include this facility and resources had to be duplicated within each module. Within the digital repository the resource is stored together with its metadata to enable efficient retrieval. Some of the questions that arise from the use of a digital repository are:

- Are all staff allowed to store resources in the repository?

- Are there restrictions on the type of resources to be stored?

- Who decides on the optional and compulsory metadata?

- If there are restrictions, what are the management procedures for the control?

At the 2005 Spring Conference of the Association for Learning Technology [1] a research group debated the first two questions. It was agreed that to encourage tutors to use the repository in order to share their resources, there should be no restrictions on who could store or access. The proviso being that the metadata was an integral part of the resource (paper in preparation). As learning resources staff (librarians in particular) have experience of defining and using metadata, it was recommended that such staff be included at an early stage of digital repository implementation. Some institutions would not adopt this approach, requiring quality control procedures to be implemented. Whichever approach is adopted, it is recommended that guidelines or procedures should be in place before the repository is implemented.

Accessibility needs to be considered during the planning phase. This is not only a legal requirement but it is actually good practice in learning design. The legal side of this is however a major reason for management to introduce standards and templates for the creation of learning materials rather than allow staff 'creative freedom'. Accessibility must be built in at the start as it can be very costly and time consuming to adapt materials after they have been developed.

5.3 Quality Management and Control

The INLEI report [4] identified that generally the institutional view differs from that of its staff. Most institutions regard that their existing policies, which meet the Higher Education Quality Assurance Agency (QAA) code of practice for flexible and distributed learning, are sufficient but staff feel that some changes are necessary. Two of the issues identified earlier ('openness of learning resources may lead to criticism' and 'fear of losing ownership') could be overcome by introducing quality management and control procedures with respect to learning and teaching resources. If used in conjunction with a buddy system, tutors could become more receptive to sharing materials and opening up the teaching and learning process. It has been suggested that one reason why tutors may be reluctant to be open with teaching materials is a lack of confidence in aspects of copyright. Quality procedures could be of use in this area.

Some institutions have robust quality assurance procedures for materials developed for distance e-learning courses, but have not implemented the equivalent procedures for courses that take a blended approach. This could give the impression that the use of the VLE in blended mode is not as important as if used to support distance learning students.

e-Assessment, especially if summative in nature, carries resource implications and requires its own set of institutional procedures and structures. The 'Effective Use of VLEs' infoKit includes a case study of e-assessment at Dundee University and includes their e-assessment policy and procedures that can be used for guidance.

5.4 Outdated Curriculum and Assessment Procedures

The module curriculum and assessment procedures may have been written for a different era and so not lend themselves to be implemented using e-learning. These may need to be identified and rewritten so as to allow a more flexible approach to implementation. If within the institution's jurisdiction then this may be a simple procedure; external validated courses may be more problematic.

6 Implementation

This phase is concerned with the use of the VLE to support the learners.

Staff concerns regarding the technical infrastructure not being sufficiently robust and a lack of access to the technology may be raised at this point. However, if the analysis has been conducted and acted upon then the problems should be minor and be quickly overcome. Procedures need to be in place to be able to capture these problems as they arise as opposed to waiting until evaluation and review.

The buddy system can be used as pairs can 'observe' each other's use of the VLE.

There are frequently high expectations of e-learning by students and roles and responsibilities should be discussed at the start of the module or course.

6.1 Roles and Responsibilities

It is worthwhile spending some time with the learners discussing roles and responsibilities to examine learner expectations and tutor expectations (of the learners). It is important to ensure there is clarity about what they need to do and that they have an opportunity to raise issues if they are unsure what to do. This discussion could be part of the institution or course induction programme.

Within some VLEs there is the opportunity for tutors to personalise the module with banners, use of colour etc. Some institutions or departments have agreed a standard for this giving a corporate feel to the technology.

6.2 Communication with students

Communication is a key component if the VLE is to be used effectively in teaching and learning. It is for this reason that institution or department guidelines may be produced for tutors guidance in this area. It must not be forgotten that this is still teaching and supporting the learners, and as such should be included in the teaching contact time.

The most common method of communication in this context is using the asynchronous communication tools provided by the VLE – discussion boards or similar. There is a wealth of advice and guidance available from the 'Effective Use of VLEs' infoKit [3].

7 Review

Evaluation and review of teaching materials and methods could be included in the ubiquitous end of course review. The buddy system can be used by tutors to assist in the reflection of their professional practice and identify future changes and individual staff development requirements. This evaluation can then be used together with the Institutional Needs Analysis and the staff development programme to identify where advances have been made and where further development is required.

7.1 New Tools

As part of the review and evaluation, it may be that a requirement for new tools has been identified; for example e-portfolios. If this is the case, then a strategic view with planned implementation is recommended. In the case of e-portfolios, this may be part of a life-long learning strategy with implementation across a number of institutions requiring complex procedures and agreements. The JISC 'MLEs for Lifelong Learning' programme [7] has been exploring this area information is available from the programme website.

7.2 Celebrate Success

One way of motivating staff is to recognise their achievements and celebrate their success. This can also lead to a more sharing environment.

Some institutions make small grants available to enable innovative developments. The successful applicants are usually required to share their developments with their colleagues either via publications, workshops or conference presentations. Sometimes there is a requirement for such projects to demonstrate the wider applicability of the project.

Rewarding success by awarding certificates and small grants at an annual event is another way of celebrating staff achievements.

A few universities organise annual teaching and learning conferences where staff can share, discuss and develop their professional practice. External speakers can provide stimuli to encourage staff to move forward with their practice.

These methods of rewarding and celebrating success have received very favourable comments from QAA and HEFCE auditors.

8 Further Work

The Observatory for Borderless Education [12] found that staff development programmes do not appear to be increasing staff confidence in their abilities to teach online. Further research in analysing the types of programmes that do have an effect needs to be carried out.

Acknowledgements

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