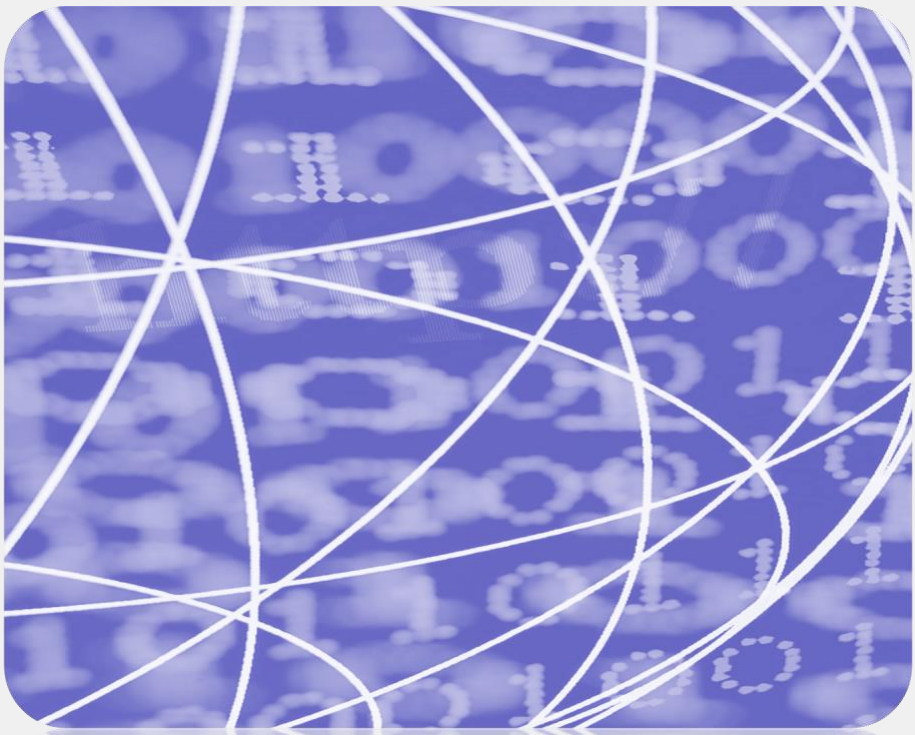
Brunel University Virtual Learning Environment Strategy Working Group (VLESWG)

Final Report

April 2010



Brunel UNIVERSITY WEST LONDON

VLE Strategy Working Group

EXECUTIVE SUMMARY

REMIT

The VLE Strategy Working Group (VLESWG) was established in September 2009 by the Information Steering Group (ISG) for the purpose of developing a 'vision for e-learning' at Brunel, with particular focus on the best option for the continued provision of a Virtual Learning Environment (VLE).

Target dates: an interim report by December 2009 and a final report by March 2010.

The issues to be considered were:

- The wider picture: use of technology in supporting students
- Best practice in the sector
- Benchmarking current provision and future options
- Interaction with other IT systems at Brunel; in particular, the work of concurrent Working Groups on 'EDRMS: Electronic Document and Records Management Systems' and 'Brunel Web'.
- Possible implications of a Virtual Research Environment (VRE)
- Open source or proprietary software? Blackboard or not?
- Support requirements

MEMBERSHIP OF THE VLESWG

- Chair: **Professor Peter Lunt** - School of Social Sciences
- Project Manager: **Monique Ritchie** - Copyright and Digital Resources Officer, Library
- **Dr Phil Alberts** - Head of e-Learning, Academic Practice Development Unit
- **Tony Yates** - Assistant Director of Computer Centre (Technical)
- **Anu Sharma** - e-Learning Team, Academic Practice Development Unit
- **Dr Gabriella Spinelli** - Brunel Business School – Deputy Head (Learning and Teaching)
- **Dr Alisa Lebow** - School of Arts
- **Dr Tatiana Kalganova** - School of Engineering and Design
- **Priya Pallan** - VP Academic Representation, UBS
- **Dave Snowden** - Brunel Business School – School Manager
- **Paul Lashmar** - School of Arts

ACTIVITIES OF THE VLESWG

The Group organised scheduled meetings and established a SharePoint site for the collation of information, minutes and reports. Meetings were also arranged with DASH, ISG, the Web 2.0 Group, and Brunel Library.

The Group liaised with the review groups for database and management systems within Brunel, attended workshops organised by Blackboard and WIMBA, and followed up on contact persons in other UK universities. A survey of staff attitudes towards and experiences of the VLE at Brunel was conducted.

THE BROADER PICTURE: IT IN SUPPORT OF THE STUDENT EXPERIENCE, TEACHING, LEARNING AND RESEARCH

Three phases of e-learning policy and practice in UK universities were identified:

- Early idiosyncratic provision;
- The age of the VLE;
- Diversification of applications and functions.

E-learning is at a point of transition both in terms of the approach to blended learning that is supported (moving from supporting traditional teaching methods to being a source of innovation) and the growing diversity of applications (including specialist applications, Web2.0 and enhanced Data management Systems).

These developments are changing the potential of e-learning and require a renewed effort to discuss, research and attempt to gain consensus on the aims and objectives of e-learning at Brunel.

The research conducted by JISC/HEA was reviewed indicating that:

There are many drivers of e-learning that are pushing forward innovation and development including student expectations, new technologies and applications, and new concepts of e-learning. This is a fast moving area where continuous development is to be expected across the sector.

A picture of the e-learning focused university emerged as: adopting enabling rather than standard setting policies; as dispersing funds focused on development rather than buying licenses; as balancing different approaches to e-learning rather than specifying minimal standards; attracting funds for research and integrating technical and academic support and including departments and academics in developments.

The challenges facing universities in managing the changes implicit in adopting flexible e-learning strategies was reviewed. Key barriers to development include the concerns of academic, technical and administrative staff.

BRUNEL: CURRENT POLICIES AND PRACTICES

The Brunel VLE strategy, as well as the implementation of the VLE was reviewed, including the work of the e-Learning Team.

Key stakeholder discussions were conducted across the University. The following individuals / groups were identified to engage in this process: PVC Student Experience; DASH; the Library; School Managers; and the e-Learning Team.

A survey of academics was conducted and complemented the best practice study conducted by the e-Learning Team and statistics on VLE usage.

The best practice review demonstrates that the VLE has the potential to play a key role in innovation in learning and teaching. Broader publicity of these findings is needed.

The survey of academic staff confirms that there is a range of concerns with the current VLE - some of these will be addressed by the new version. Others relate to academics' broader concerns about the impact of e-learning on their teaching practice, with further concerns reflecting the lack of flexibility and engagement with new technologies that has accompanied the VLE's implementation and application.

BRUNEL: THE FUTURE

THE CHOICE OF VLE

The proprietary Blackboard Vista system was compared with Moodle, a freeware solution that has been adopted by a number of universities in the UK. The work done by other universities in researching and rationalising their choices was reviewed.

The report concludes that there is increasing convergence between these two approaches to the VLE so that the technical case is not conclusive in making this decision. Similarly, the real costs are similar – although these are spent in licensing in the case of commercial VLE and on development in the case of open source solutions.

The real difference between the two approaches is one of strategy and culture – the commercial applications may fit with a more centralised and standardised approach whereas open source solutions may fit with a more inclusive, dispersed approach focused on engagement and innovation. However, this distinction is not technologically determined since it is likely to be increasingly possible to use Blackboard as part of an integrated approach to e-learning and Moodle could be the means of delivering a centralised and standardised approach to e-learning.

BEYOND THE VLE

A key issue is the likely future use of specialist applications, web2.0 and enhanced functionality of the University website -- The use of IT beyond the VLE in teaching and learning was considered, and the use of IT to support administrative and management processes (e.g. submission, marking and feedback).

A VISION FOR BRUNEL

The different themes of the report were consolidated and a vision for e-learning at Brunel was proposed.

"Academics will increasingly combine traditional teaching methods with the use of a variety of e-learning applications in support of learner-centred learning experiences that are flexible, responsive and effective and meet the needs of all its learners.

E-learning will be at the forefront of innovation in learning and teaching and will be delivered making effective and efficient use of all resources whilst maintaining the quality standards to which the University is committed. E-learning technologies will develop in diversity, combining the VLE, specialist e-learning applications and greater flexibility in the use of the University data management systems.

Blended learning will, where relevant, be embedded in all University policies and procedures to ensure a consistent approach to e-learning while encouraging innovation and collaboration in learning and teaching. A broader consensus on e-learning will develop across the University reflected in the practices of academics, the experiences of students and the policies of schools"

RECOMMENDATIONS

A number of recommendations follow from the report:

1. **Currency of technologies:**
   Vista represents outdated technology; it is necessary to move on. There are underlying technology infrastructure issues and the current version of the VLE is being phased out by Blackboard. Therefore, the University should trial the new version of Blackboard and Moodle – the open source VLE.

2. **Administrative needs:**
   In addition to the VLE, we urgently need an efficient technology to handle assignment submission, marking and feedback; this is unlikely to be achieved under Blackboard applications. Alternatives include adopting specialist applications or equipping the SITS system to do this.

3. **Culture and staff experience:**
   Academics should be actively encouraged within their Schools to make use of training, individual guidance and advice available to them and to incorporate e-learning in module design. More broadly, the cultural aspects of resistance and distrust of e-learning needs to be addressed at University and School levels. A renewed effort to build consensus around the meaning of e-learning/blended learning and the aims and objectives of these is needed across the University. This needs to address the concerns expressed by academics and students about the existing VLE.

4. **Technical infrastructure:**
   Emerging e-learning technologies including specialist applications and Web 2.0 need to be encouraged and integrated with the VLE in the future, taking into account the new build for the University website. A single logon to integrate all systems at Brunel and enable seamless access is essential.

5. **Academic practice and training:**
   The e-Learning Team should continue to support academics centrally, but academics will only make progress if they adopt a proactive role in relation to their practice of blended learning. Technology has already influenced teaching immensely in the past (think of the printing press, film, video, sound recordings, overhead projection, interactive whiteboards, broadcasting), and will continue to do so in future as computer / web / digital technologies continue to evolve.

6. **Research, future development and innovation:**
   It is important to encourage research into e-learning within the University, building on the work carried out by the e-Learning Team and enhancing this with academic partnerships across the University – this has been shown to encourage take up and innovation in the use of e-learning at other universities.

7. **Student experience:**
   Students are institutional drivers of the adoption of e-learning technologies. They need to have a 'voice'. Inspiration works better than prescription. Collegiality is a key factor in driving innovative uses of e-learning. We recommend establishing School-based e-learning champions to promote this initiative.

8. **Strategy**:
   Reaffirm commitment to teaching by establishing a Learning and Teaching Strategy, which recognises the role of e-learning in driving the institutional mission. Cultural issues in relation to the adoption of e-learning need to be addressed, avoiding 'blanket' institutional approaches towards e-learning policy as this affects quality. Embed e-

learning strategy within the Learning and Teaching Strategy. Allow academics sufficient autonomy, however, providing sufficient dissemination of e-learning practice across the institution to avert academic 'isolation'.

9. **Leadership:**
   Embedding the e-learning strategy at senior levels within Schools/ University management to encourage support and to ensure that the project meets current and future needs. *Senior / School management 'buy-in' to e-learning strategy is essential, ensuring "strong commitment and understanding of the project at senior level" (Breslin et al, 2007)*

10. **Governance issues:**
    Consider the issue of change management as part of the project management. Ensure a cycle of ongoing evaluation. Ensure involvement of staff at all levels in the formulation of strategy. Dissemination and communication are of key importance. Promote the project as a 'process'.

11. **Pedagogy:**
    Clear guidance / consultancy provided to staff which highlights e-learning pedagogy. Consider curriculum design as a mechanism for embedding sound e-learning pedagogical practice into taught programmes from inception. Promote bespoke pedagogical approaches for different subject areas. Reaffirm importance of academic at the heart of learning design.

12. **Technology and change:**
    Technical infrastructure should create a 'culture of support'. Technology should support the Learning and Teaching Strategy, not drive it. Understand motivations of early adopters versus mainstream to provide targeted support.

CONTENTS

INITIAL SPECIFICATION, SCOPE AND GROUP MEMBERSHIP OF THE VLESWG

BACKGROUND

As the University (staff and students) expands its use of the current VLE: u-Link, it is perhaps not surprising that a number of questions are raised about the extent to which our provision satisfies current and future needs. The University is committed to 'blended learning' and the need for an effective VLE to support learning and teaching. The Learning and Teaching Committee and the Information Steering Group have decided to set up a Working Group to investigate this issue and make recommendations on possible courses of action.

PURPOSE

- To develop the 'vision' for e-learning at Brunel University and to establish the role that Brunel's future VLE plays in the delivery of that vision
- To recommend the best option for the University's future VLE provision

ISSUES TO BE CONSIDERED

- The wider picture: Use of technology in supporting students (see, for example:
    1. Report of the Committee of Inquiry into the Changing Learner Experience (Melville Committee), "Higher Education in a Web 2.0 world" **http://www.jisc.ac.uk/media/documents/publications/heweb20rptv1.pdf**
    2. 'Enhancing learning and teaching through the use of technology – A revised approach to HEFCE's strategy for e-learning', HEFCE publication: March 2009/12
    3. Brunel's current e-Learning Strategy (2004): **http://intranet.brunel.ac.uk/ltdu/e-learning/strategy/model_for_e-learning_fac.shtml**
- Best practice in the sector
- Benchmarking current provision and future options
- Interaction with other IT systems at Brunel; in particular, the work of concurrent Working Groups on 'EDRMS: Electronic Document and Records Management Systems' and 'Brunel Web'
- Possible implications of a Virtual Research Environment (VRE)
- Open source or proprietary software? Blackboard or not?
- Support requirements

DELIVERABLES

- A report containing a review of the methodology used

- Identified requirements from options considered
- Prioritised recommended proposals (costed and justified, including pros and cons of each)
- Proposed timescales
- Emerging findings should be notified to the Web Working Group so that they can be taken into account within the requirement setting and tender evaluation components of that Group's work.

TARGET DEADLINE

Preliminary report by December 2009; final report with business case by March 2010

GROUP MEMBERSHIP

- Chair: Professor Peter Lunt - School of Social Sciences
- Project Manager: Monique Ritchie - Copyright and Digital Resources Officer
- Dr Phil Alberts - Head of e-Learning, Academic Practice Development Unit
- Tony Yates - Assistant Director of Computer Centre (Technical)
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- Dr Alisa Lebow - School of Arts
- Dr Tatiana Kalganova - School of Engineering and Design
- Priya Pallan - VP Academic Representation, UBS
- Dave Snowden - Brunel Business School – School Manager
- Tania Krzywinska - School of Arts (was replaced by):
- Paul Lashmar - School of Arts

GROUP ROLES AND MANAGEMENT

Peter Lunt chaired the group and its meetings, took primary responsibility for drafting the report and generally driving forward and coordinating the activities of the Group.

Phil Alberts was a critical member of the Group as Head of e-Learning at Brunel. Phil has been central to the development of strategy and support services for the existing VLE and brought this experience to the Group, as well as a broad understanding of e-learning strategy and practice across the sector.

Monique Ritchie, the project manager for the Group, established a SharePoint site on which source documents, minutes and draft documents were made available to the Group and to other key actors across the University. She provided input into the issues related to copyright permissions for content on the VLE and brought the perspective of the Library staff to the work of the Group.

Anu Sharma, a member of the e-Learning Team, made significant contributions. She provided administrative support by taking minutes of the meetings and, more importantly, contributed two pieces of research to the Group: one reporting on her research into change management and the VLE and the other a survey of staff attitudes and experiences of the current VLE at Brunel in March 2010.

Paul Lashmar, of the School of Arts, made significant contributions by making available the results of his research into e-learning policy in the HE sector, his research on the use of the VLE at his previous institution, and his experience of having worked with Moodle.

Tony Yates provided important input in relation to technical aspects of the VLE and alternative systems, and by providing a general information systems perspective to the deliberations.

Dave Snowden, the BBS School Manager, provided input from the perspective of School managers and admin teams across the University.

Other members of the group were academics from the Schools who contributed to the discussion and drafting of reports: **Gabriella Spinelli** (BBS), **Tatiana Kalganova** (Engineering and Design), **Alisa Lebow** (Arts), **Peter Lunt**.

The student experience was represented by **Priya Pallan**, VP Academic Representative from the Union of Brunel Students.

WORK PLANS OF THE BRUNEL VLESWG

The work of the VLESWG was divided into three broad areas:

THE BROADER PICTURE: E-LEARNING IN HE

The Group reviewed broader policy work across the sector in response to the increasing engagement of young people with social networking technologies and Web 2.0. This analysis of broader policy across the sector was supplemented by a comparative discussion of policies in other universities in the UK.

BRUNEL: CURRENT POLICIES AND PRACTICES

The Group reviewed the Brunel VLE Strategy and the implementation of the VLE, including the work of the e-Learning Team. The broader use of IT in teaching and learning beyond the VLE was also reviewed.

Key stakeholder discussions were conducted across the University. The following individuals / groups were identified to engage in this process: PVC Student Experience; DASH; the Library; School Managers; the e-Learning Team.

BRUNEL: THE FUTURE

The Group made recommendations as to the future scope and role of the VLE at Brunel, discussed the broader context for developing the use of the VLE, and drafted a vision for the future of IT support for teaching and learning within and beyond the VLE.

CHOICE OF VLE: The proprietary Blackboard Vista system was compared with Moodle, a freeware solution that has been adopted by a number of universities in the UK. The work done by other universities in researching and rationalising their choices was reviewed.

BEYOND THE VLE: The Group considered the use of IT beyond the VLE in teaching and learning, and the use of IT to support administrative and management processes (e.g. submission, marking and feedback).

A VISION FOR BRUNEL: The Group consolidated the different themes of the report and proposed a Vision for e-Learning at Brunel.

THE BROADER PICTURE: IT IN SUPPORT OF THE STUDENT EXPERIENCE, TEACHING, LEARNING AND RESEARCH

KEY THEMES EMERGING FROM A REVIEW OF HE POLICY, RESEARCH AND DISCUSSION BY THE VLESWG

Brunel, in common with universities across the sector in the UK and worldwide, is facing important decisions about the meaning and role of e-learning. Increasing student numbers, changing expectations of students, the increasing power and flexibility of applications and websites are creating both pressures and opportunities. Indeed, we are witnessing a period of significant change in the range, availability and functionality of software applications that support teaching and learning. These technical innovations are provoking a discussion of learning and teaching strategy across the sector with JISC and the Higher Education Academy (HEA) playing a leading role in policy, research and debate.

Initial uses of ICTs in learning and teaching were a supplement to traditional teaching methods; making material available to students in a way that blended with traditional lectures, seminars and library research. Initially this was achieved in a piecemeal fashion, through individual websites and early packages that allowed academics to make learning material available to students. A second phase of e-learning can be identified over the past ten years, during which there has been a rapid adoption of VLE software packages that aim to provide a single application for e-learning. VLE packages have enabled universities to put e-learning strategies in place rapidly and with considerable success. The great advantage that VLEs brings as a proprietary software package is that it provides a clear and separate resource around which e-learning can be introduced across the university: training can be focused on the VLE and technical support is available from the supplier.

In the early years of adoption many positives have arisen from organising e-learning around a VLE. One clear advantage is that a VLE provides relatively easy entry requirements for teachers who only want to make minimal use of e-learning, while providing some sophisticated functions to those who are interested in implementing e-learning strategies such as online seminars, links to external websites, simple survey tools, communication tools and so on. The adoption of a VLE also provided universities with the opportunity to develop strategies by, for example, requiring standard minimal uses of the VLE thereby providing a degree of standardization of delivery at the level of minimal requirements. Brunel's strategy in recent years reflects these developments; to be reviewed later in the report.

Another of the implications of adopting a commercial VLE is that new versions of the software are developed over time; requiring universities to periodically shift to new versions of the software, with the concomitant issues related to migrating information onto the new version of the VLE and changing training programmes. Brunel has been through one such transition from WebCT to Vista and is approaching such a choice point again as the current version of the Blackboard Vista system is being replaced by Blackboard Learn. In this context, the time is right for a review of e-learning at Brunel.

There is another set of reasons why a review is timely, since a number of significant changes are emerging in the area of e-learning: the technologies have become more sophisticated and the availability of online information has escalated (through, for example, electronic gateways to journals, increasing accessibility of academic and research websites and online databases, and increasingly sophisticated online learning resources). These trends escalated the development

and adoption of specialist software packages that brought together a range of functions related to learning and teaching.

In addition, we are at an interesting point in the development of e-learning technologies, practices and policies. New applications are increasingly being harnessed to education, including specialist collaborative and teaching software (e.g. WIMBA), applications that support student-led learning portfolios (e.g. PebblePad), and the adoption of Web 2.0 technologies for informing and engaging students (e.g. Facebook). Institutions are adapting to these important trends in e-learning, so that instead of expecting that an off-the-shelf package will provide 360 degree technical solutions to e-learning, the idea is emerging that the VLE will be the platform for and complement the adoption of a range of solutions. Some of these will have specialist functions such as social networking, marking, feedback, podcasting and virtual teaching.

In addition, universities now have considerable experience of implementing e-learning strategy, operating with VLEs, and experimenting with Web 2.0 and specialist software solutions. These developments are happening at Brunel, not always in collaboration with the VLE. In addition, Brunel is about to commission a new build for the Data Management System used to develop and maintain the University website; this too will have important implications for e-learning strategy.

In summary, a number of different drivers of change in e-learning are converging at present. Technically, either new versions of Blackboard or an alternative VLE will need to be adopted with all the changes to implementation, training and persuading the users to adopt a new system. At the same time a range of specialist e-learning applications are developing that will complement the VLE but also require integration, further support and training. Finally, the accumulated experience of using e-learning in higher education and associated research and policy development is pushing the boundaries of e-learning and leading to greater innovation and embedding of e-learning technologies in learning and teaching.

JISC HEA: HIGHER EDUCATION IN A WEB 2.0 WORLD

In this section, emerging discussions of e-learning policy in the UK HE sector are reviewed.

The HE sector is influenced by a number of external forces. One of the most apparent is the Higher Education Funding Council for England (HEFCE), who has formulated a national strategy for e-learning.

> *"Our primary focus on the enhancement of learning and teaching drives our approach. Technology can support this enhancement goal, and is therefore a factor in development of effective learning, teaching and assessment strategies" HEFCE (2009)*

JISC's report considered evidence and testimony on three broad areas:

- the experience of social technologies that young people are now coming to university with;
- the expectations that young people now have of provision at university, and
- international comparative analysis of the emerging use of Web 2.0 in HE.

In order to provide evidence for the potential of new technologies not just to cope with increased student numbers and supplement traditional teaching methods in HE, JISC and the HEA have commissioned considerable research into defining and researching '*flexible learning*', which is claimed to be enabled by the increasing use of ICTs in learning and teaching.

There has been an attempt to research and define what is meant by flexible learning: learners who use the affordances of e-learning to become active learners and who focus on blending different sources of information; take advantage of collaborative learning; are keen on content creation as a model of work; integrate learning with their everyday lives using mobile technology; and develop strong research and evaluation skills to work through the diversity of information from different sources at their disposal.

Many universities, including Brunel, are now placing a greater emphasis on the inclusion of enhancement of learning and teaching via technology into their learning and teaching strategies.

There is also a growing recognition that students are evolving. They are now, more than ever, dependent upon technology to fit learning into their complex lives, ready to take the opportunities for flexible learning (JISC, 2009). It is time for HE institutions to respond to this need.

Paul Lashmar, a member of the VLESWG, has reviewed the work of JISC, the HEA, and the policy of HEFC in this regard. The outlines of this research appear in full on his website: **http://paullashmar.com/page.php?7.**

He reports on a JISC sponsored conference that was held at the University of Greenwich in July 2008 (**http://web-dev-csc.gre.ac.uk/conference/conf37/index.php**). A key theme of the conference was that we have reached a moment for reflection on the meaning of e-learning and that there was an emerging tension between the institutional provision of information technology and its use by learners and teachers. There is a feeling that this is an area in which technological innovation and national policy have run ahead of practice. So this is a good moment to revisit on the meaning and value of e-learning, what the implementation of IT in learning and teaching has achieved, what the remaining concerns and barriers are, and what is on the horizon.

The adoption of VLEs by universities in the UK has seen rapid expansion in a short time: JISC reports that in 1997 only 7% of UK HE institutions had VLEs and that this had risen to 95% by 2005. Notwithstanding the rapidity of adoption by universities, a report by the HEA indicated the overwhelmingly positive response that VLEs had received from students, indicating that in this rapid stage of development universities have been successful in implementing e-learning technologies and that students have broadly positively received these.

From the beginning there has been a focus in the literature on VLEs on the notion of *blended learning* and this concept has been adopted by Brunel as the core way of thinking about the contribution of the VLE to learning and teaching. Sharpe et al (2006) suggest that there are three different approaches to blended learning across HE institutions:

1. An institutionally supported VLE that enables supplementary resources to be made available to students in support of otherwise traditionally taught modules.

2. The use of IT to replace elements of traditional module delivery with innovative modes of teaching, focusing on using the communicative potential of IT

3. Enabling students to use their own technologies to engage with material in innovative ways.

The first of these is common and represents the majority of uses of the VLE at Brunel. The second is less common; there are examples of this in the more innovative uses of the VLE at Brunel revealed in a good practice review conducted by the e-Learning Team and discussed below in this report. The third is rare and tends to happen when academics use either the more complex tools of the VLE, specialist e-learning packages or Web2.0 applications as well as more intricate uses of the VLE in their teaching; some academics at Brunel have started with this.

An important point is that the concept of blended learning encompasses these different practices and raises a number of issues: a perceived lack of consensus about the meaning of blended learning; varying expectations that are placed on

academics with the inception of the VLE; and the concern that the direction of the use of IT in HE is toward radical and innovative uses. We will visit these concerns when we review current practice at Brunel and a survey of staff attitudes towards the VLE and e-learning.

It is also worth noting that these three conceptualisations of blended learning may be unclear to staff and students generating tensions about what the VLE *should* be used for and *could* be used for.

What has driven the impetus of e-learning at universities in recent years?

One influence has been student demand. E-learning is popular with students, and case studies conducted by JISC suggest that this is so for a number of reasons:

- It fits with their general engagement with new ICTs, as well as social networking
- Students are often 'time poor', and so value the increased access to learning resources – they value 24 hour access to learning materials
- They value the ability to access learning resources online and off-campus
- They have expectations of e-learning from their secondary school experience.

There are also institutional drivers of the adoption of e-learning technologies. The Government has adopted investment in ICTs across education as a core strategy. A number of important NGOs are heavily involved in promoting e-learning:

- The Joint Information Systems Committee (JISC)
- The Higher Education Academy (HEA)
- Higher Education Funding Council for England (HEFCE)

In addition, certain universities have developed a strategic and research interest in e-learning technologies, notably the Open University. The bar for good practice in the sector is being raised at a rapid pace.

The conjoint strategy of JISC, the HEA and HEFCE has been to develop support for and to fund research that examines the potential benefits and barriers to the use of ICTs in learning and teaching, to develop policy on e-learning, and to support specific case studies and collaborative ventures in e-learning.

An example of JISC's research is CAMEL (*Collaborative Approaches to the Management of e-Learning*), which supports research on case studies of e-learning practice across the sector; by 2008 a total of 37 case studies from 16 institutions had been reported.

The primary finding of the CAMEL report in 2008 was that these case studies demonstrated that:

- e-learning is leading to significant improvements in learning and teaching across the sector
- e-learning has facilitated expansion in student numbers without equivalent rises in both estates and faculty
- e-learning is now critical to the delivery of HE programmes
- continuing development and investment in e-learning technologies is essential.

The specific examples arising from CAMEL, interestingly, tend to report on specialised applications or functions that have not yet been adopted extensively at Brunel; for example, electronic feedback, e-portfolios, e-assessment, distance learning and continued professional development programmes.

A similar story emerges when academics talk about the benefits that they see in using e-learning technologies in blended learning – these tend to be associated with the more innovative uses.

It is acknowledged in the CAMEL report that resistance by members of staff is now the principal barrier to the development of e-learning strategies and innovations in universities. The reasons discussed by CAMEL for this resistance are:

- The belief that e-learning is the latest educational fad
- Concerns that e-learning is linked to increases in workload

In our report we present both a study of best practice amongst early adopters of the VLE at Brunel, and a study of the concerns of academics about the adoption of e-learning.

CAMEL suggests that being involved in research projects has positive benefits for engagement and developments in e-learning. Brunel has been involved in several research initiatives: e-Learning Benchmarking, e-Learning Pathfinder, e-Transition and Progression for non-traditional students, and e-Learning Design. However, the e-Learning Team at Brunel has mainly conducted this work (as well as a few staff in the advanced PGCert course, as displayed at the recent Learning and Teaching Symposium). A broader base for research in e-learning amongst the academic community would bring considerable benefits in extending the diversity and quality of e-learning practice at Brunel.

There is an important distinction to be drawn between e-learning strategies that focus on innovation and engaging staff in development and change, and the strategy focused on the minimal definition of blended learning in which a VLE is used to provide supplementary materials for modules backed by regulations specifying minimal content.

A telling point made in the CAMEL report is that while institutional strategies are useful in providing vision and support for e-learning, innovation in this area comes from users getting engaged in e-learning developments that meet the needs of students. Institutional strategies that focus on enabling e-learning developments to take place are more likely to be successful rather than strategies that aim to be drivers themselves. CAMEL case studies demonstrate that innovation comes from academics recognising the value of developing a particular implementation of e-learning, rather than through institutionally established standards and directives.

A critical question that Brunel now must face is whether the institutional strategy to date has promoted innovation through enabling individuals to develop e-learning applications or whether there has been too great a focus on generic provision and directives. In addition, the University has not to date completed a systematic study of the requirements analysis for different users of e-learning (both staff and students) and that the time has arrived when a ‘one size fits all’ strategy may not make the best use of the emerging technologies and practices in e-learning.

Universities that are in the forefront of developments in e-learning tend to adopt enabling rather than standard setting approaches; they disperse funds for research and attract external funds for researching innovations in e-learning; and they balance the different approaches to blended learning so as to promote both the everyday value of electronic resources to module delivery as well as innovative projects. Another source of innovation is the adoption of open source solutions and a cross disciplinary approach to support and enabling. A critical point here is the question of where the resources for e-learning are deployed: centrally or dispersed amongst the academic community.

The research by JISC and HEA also demonstrates that there are a number of challenges that arise out of the increasing adoption of e-learning in HE:

- To be effective beyond making resources available within a traditional teaching format, e-learning has to be a part of module design
- The terminology of e-learning, blended learning, flexible learning are off putting (reference could therefore be made to ‘technology enhanced learning’)
- Institutional strategies on e-learning need to take account of the context of modules rather than being general institutional commitments

- There is a need to monitor and evaluate innovations in e-learning
- Institutional strategies need to aim at enabling and supporting e-learning
  Support for staff developing e-learning practices in their design and delivery of their modules is needed.

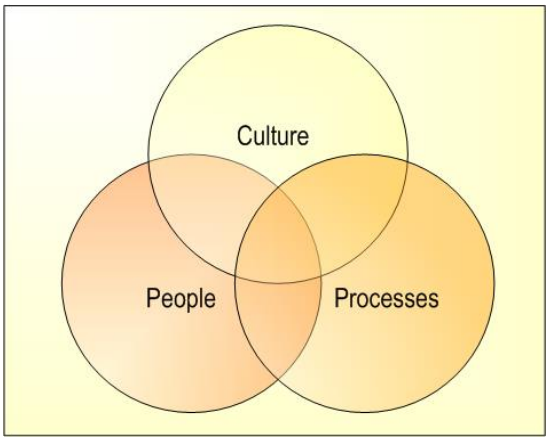
E-LEARNING CHANGE MANAGEMENT IN UK HE INSTITUTIONS

The adoption, maintenance and enhancement of e-learning strategy requires a variety of changes at difference levels of a university; it is a multi-stakeholder process involving academics, administrators, e-learning specialists, the computer centre, school management teams. We reflect here on the change management aspects of these shifts following research conducted by Anu Sharma, one of the e-Learning Team and a member of the VLESWG.

OVERVIEW OF CHANGE MANAGEMENT IN UK HEIS

The issue of change has been high on the agenda of UK HEIs. HEFCE has taken a lead on developing an extensive and influential set of resources entitled the '*Change Management Infokit*' (JISC, 2005). This has been designed as a resource for UK HEIs, which entails popular change management approaches, but tailors them for use in the Higher Education sector.

It is recognised that change management in UK HEIs has three areas of focus:



Aspects involved in change (Source: JISC (2005))

Often change management perspectives have focused on the 'process' aspect, but an equal emphasis on 'people' and 'culture' is also required (JISC, 2005).

A scan of the literature suggests that there is a common set of convergent themes which arise in the review of HEI change management literature. These are summarised below:

- Solutions to change management in UK HEIs are not forthcoming
- Institutions require bespoke approaches (both within and between institutions)
- Change requires teamwork and leadership
- Perseverance is required
- Communication is a vital factor.

Change management has recently received much attention in light of many changes currently facing the UK HE sector. The following review draws together various research conducted in HE institutions, with particular attention paid to the cultural aspect, as this seems to be a predominant and the most problematic issue on the change management research agenda (McNay, 1995).

The variables affecting e-learning change management can be classified into the following 3 areas:

1) Culture,
   subdivided into:
   A) Strategy, mission and values, policies and processes
   B) Leadership
   C) Resource
   D) Project management
2) Pedagogy
3) Technology

Each of these will now be reviewed, in turn, with a view to highlighting the main outcomes of each research area.

1) CULTURE

Crucial to any change management initiative, is addressing the cultural aspect. This involves influencing the mindset and motivation of academics, administrators, technicians and school management teams. Culture is shaped by a variety of factors, each of which will be discussed in turn.

Strategy, Policies and Processes

Strategy, policy and processes are fundamental aspects of change management. Strategy to set objectives and vision; policy for guidance and framework to realise strategy; and processes as routines to support the strategy.

Gibbs (1999) investigated the implementation of learning & teaching strategy within an organisation. He argued that organisational strategic change needs to pay attention to 3 different levels of operation:

- Institutional
- Departmental
- Individual

Gibbs argues that HEIs typically tend to pay greater attention only to the institutional aspect, when embedding strategy. The same can be said of e-learning, which is complex and involves both institutional and individual change (Zentel et al, 2004).

'Time' is a factor quoted in many studies of e-learning change. Many academics highlight this as a particular hurdle, preventing them from engaging in e-learning initiatives (Hanson, 2004; White, 2006). There is a 'risk' element attached to this, in the sense that the benefits to staff of engaging in e-learning initiatives were not forthcoming particularly in research-intensive institutions, where the conflicting demands on academics' time were evident (White, 2006). This has an obvious implication on the sustainability of such initiatives.

For e-learning to be effectively embedded into University culture, there is a need for teaching to be given as much priority as research. This would involve, for example, linking e-learning achievements to promotion (Hanson, 2004) and to put teaching at equal par with research. Perceived reward and recognition is certainly an important factor, as White (2006) suggests:

> *"The more financially autonomous climate typified by a research intensive institution may need a structure of internal rewards coupled with explicit initiatives to build vertical alignments" (White, 2006)*

On a similar note, Hanson (2004) comments:

> *"Even if an appropriate staff development programme is in place, academics need to see that putting effort into changing their teaching practice is valued and that effort is rewarded" (page 140).*

Research suggests that policies advocating a 'blanket' approach to the inclusion of e-learning in teaching will fail to add value. An investigation into the state of the e-learning landscape in 2003 found that 86% of HEIs responding to survey had a VLE (Browne & Jenkins, 2003), but although they were used widely, they were not always used to enhance learning and teaching. The survey also highlighted that a common approach to VLE implementation had involved setting institutional targets for VLE use, which may inadvertently have shifted the focus away from quality and towards quantity.

On a similar note, Staffordshire University did not wish to risk embedding weak educational practice; therefore, it chose to avoid the 'blanket' approach when introducing its VLE (Stiles, 2003). Furthermore, Staffordshire wished to engage all staff (not just enthusiasts) at the start in order to avoid short term wins (Stiles, 2003).

Learning and teaching strategies should be formulated to include e-learning (White, 2006). E-Learning should be seen as synonymous with academic practice, rather than an 'add-on'. This should be further complimented by local (School-based) strategies, due to the influence of local working cultures (Casey et al, 2007) and operational needs.

Whilst policies are an important aspect of guiding engagement in e-learning, individual academic autonomy with regard to e-learning use is also important (Hanson, 2004). However, this can be an 'isolating' experience for academics; therefore, it is vital for them to be aware of e-learning examples across the University to encourage a collegiate community of practice.

The impact of e-learning on staff roles is yet another issue that has been identified (Hanson, 2004). The boundaries between different staff roles (e.g. programme leaders, administrators, module leaders, etc.) must be clarified.

E-learning policies should ensure balance in quality and assurance processes, not adding bureaucracy into the mix (Stiles, 2003). The need for effectively joined up policies, procedures, roles and responsibilities is paramount to ensure consistency and continuity / joined-up thinking within the institution (Stiles, 2003). Curriculum design has been receiving much attention recently, as this is a possible means through which e-learning can be effectively embedded in academic and quality assurance processes right from the inception of an academic programme.

Leadership

Leadership is another important facet of embedding change, providing direction and motivation, and should be present at various levels of the organisation.

Clearly this involves 'buy-in' from senior management in order to be able to guide the institution from the top, as well as School management (Hanson, 2004).

Part of this process would also involve embedding structures such as an institutional e-Learning Steering Group, as well as structures at School level, to ensure that online learning issues can be discussed and policies agreed (Hanson, 2004).

Resource

Resource is essential in enabling academics to engage in e-learning initiatives. Training has been noted to be a primary resource required by academics (Hanson, 2004; White, 2006). Appropriate staff development is required to guide academics in the implementation of e-learning as part of their academic practice.

In practice, it seems that academics may not understand the differentiation between offline and online pedagogies, as this quote from Hanson's (2004) study demonstrates:

"learning on the web is no different to learning from a book"

In this respect, e-learning may be mistakenly perceived as 'additional work' rather than being complimentary to existing teaching methods. Training has an important role to play in order to correct this misconception.

Support personnel are valued as a resource to facilitate e-learning. Academics have indicated that support is required from individuals who are experts in the technology and are also able to provide pedagogic guidance (Hanson, 2004). The importance of staff development has also been highlighted by HEFCE (2009):

> *"We anticipate that institutions would wish to consider staff development to support investment in technology. Strong pedagogic skills will enable staff to make good use of ICT and other resources to support student learning, and to be better placed to revise approaches as technologies change."*

A possible suggestion to consider, involves allocating staff accounts on the VLE provided they have undertaken training (Stiles, 2003).

Funding of e-learning projects has also been highlighted as an important enabler (Breslin et al, 2007).

Project management

Casey et al (2007) argue that HEIs often fall short with regard to project management skills. They argue that project management to implement technology needs to consider the issue of change management. This suggests a more procedural approach towards embedding e-learning, involving an ongoing cycle of evaluation (Stiles, 2003).

Ongoing communication and involvement of all stakeholders in a collaborative approach is vital to ensure visibility and shared ownership of the project. This is a sentiment shared by JISC.

> *"There has to be widespread stakeholder agreement about the desirability and feasibility of the proposed changes and so how stakeholders feel about them will be critical to their success" JISC (2009b)*

Staff input into the formulation of strategy (by senior management, academics, and support staff) is advocated (Stiles, 2003). By the same token, dissemination has an important role to play in the success of the initiative (Stiles, 2003).

Finally, it is important not to promote a project in the guise of a project. White (2006) explains the fact that a project can be seen as just that and will not be driven by key institutional players as a result. It will therefore be seen as separate from University business.

2) PEDAGOGY

The use of technology-facilitated learning is now commonplace. A national benchmarking report conducted by the HEA in 2007 confirms that the 21 participating institutions had all implemented e-learning institutionally; however, few seemed to have 'embedded' the e-learning in ways that would allow them to realise the 'intended' benefits of e-learning (HEA, 2007). The dominant picture of e-learning is currently the use of technology as a supplementary resource to lectures and seminars, promoting reinforcement rather than stimulation or additional opportunities for learning.

A key challenge for academics is for them to understand how best to use the tools at their disposal for effective learning, and impact of the use of those tools on the learners. This is a complex set of considerations (JISC, 2009).

There is also now an increasing awareness of curriculum design processes in the effective embedding of e-learning within an institution, such that many institutions are now intending to redesign processes and systems in planning and designing study programmes (Breslin et al, 2007). Curriculum design involves the design of the programmes of study, considering the embedding of e-learning from the inception of the programme. This is of importance to the institution, due to its direct impact on the student learning experience. There are many challenges to address, such as the variety of student types: from the young learner to the mature learner, to distance learners. Institutions are now utilising technology to design personalised learner-centric approaches to delivery.

The diversity of courses also implies that pedagogy is different within a variety of subject areas; therefore, the importance of evaluating the tool versus the teaching within that department is vital. This is an issue that curriculum design interventions may address.

Research conducted in institutions in the 1990s seems to indicate that staff responses towards e-learning have been unfavourable, due to the fear of the imposition of a prescriptive approach towards teaching, which prohibits innovation and the use of a variety of learning methods. According to Lewis (1998), staff feared the removal of 'the skilled teacher from the centre of a university education, instead of identifying the positive aspects of their likely future roles (page 29). Therefore, it is argued that the effective use of learning technology can only be achieved when staff concerns regarding their role as educators are addressed and appropriate attention is paid to the pedagogical requirements of technology-facilitated learning (Paliwala, 2002).

When we talk of e-learning change and embedding in HEIs, we are not simply considering a case of technological change; it also involves a complete paradigm shift in the definition of teaching and learning. Perhaps this is one of the factors that have complicated the embedding of the technology as a tool to facilitate learning and teaching.

3) TECHNOLOGY

The technical infrastructure of any e-learning system should not hinder students or staff from accessing/editing resources; it should support teaching and learning (Hanson, 2004). The importance of robust systems is vital, as are complimentary systems (e.g. single sign-on) to create a 'culture of use' (Breslin et al, 2007).

It is important to advocate the use of resource-based learning. This concerns using technology to support the learning strategy, not to drive it.

In addition to recognising the needs of different Schools / subject areas, it is important to understand the motivations of those who are early adopters of the technology versus the mainstream (Hanson, 2004; White, 2006), in order to be able to effectively support a variety of user types.

The discussion of technology adoption is complex per se in an organisation, and appropriate consultation phases, stakeholders analyses, and identification of relevant social groups are methods used to alleviate the risk of failure and promote an incremental, hence relevant and considerate, organisational change. The discussion on e-learning technology ought to encompass functionalities and interface issues, both fundamental aspects of a successful e-learning strategy.

CLOSING REMARKS

Evident in most studies of e-learning change management, is the fact that there is no single approach to successfully embedding e-learning - it is dependent on the local context and therefore the types of approaches utilised (Oliver & Dempster, 2003). It is noted that a bespoke approach for Brunel is therefore required.

In addition to this, one must address the strategy at School, course and module level. A focus on curriculum level design seems sensible from an e-learning perspective.

Understanding Brunel's processes and existing culture is vital to the success of any change initiatives, as the following two quotes illustrate.

> *"The challenge for key decision makers lies in identifying the reality of the local circumstances and working with the existing strengths… the challenge remains 'how do we sustain change?'" White (2006)*

> *"To understand how to implement e-learning, we need to understand how the organisation operates first." Casey et al (2007)*

VLE STRATEGIES IN OTHER UNIVERSITIES

Brunel is not alone in conducting a review of its VLE strategy; many universities in the UK have conducted such reviews in recent years or are in the middle of similar exercises. Members of the VLESWG have begun to make contact with individuals in other universities who are involved in reviews. In addition, Phil Alberts is part of a UK universities' Heads of e-Learning Forum and Tony Yates of a similar body on the technical side – they have both been monitoring the activities of their colleagues.

We have made contact with these representatives of other universities to get a view on their VLE strategy and the costs and benefits of different applications. This work will help us to identify the opportunities and risks of alternative strategies for comparison with Brunel's strategy, and set it in the context of the sector.

Brunel has not, to date, conducted a study of requirements for the VLE, which would provide a more objective evaluation of the potential of different applications. (It is worth mentioning that when Brunel acquired its VLE in 2002, two options were evident: WebCT and Blackboard. Due to the superior range of features and options available within the WebCT option, this alternative was chosen. WebCT later merged with Blackboard). Nevertheless, with care, we can learn from some of the extensive studies of requirements conducted in recent years at other UK universities, e.g. the one conducted at UCL – which we will report below when we consider the comparison of Moodle and Blackboard.

The OU started an extensive initiative with the aim to research new learning platforms and ways to communicate and distribute learning content. This process that started in October 2005, eventually led to two important outcomes. From a technical perspective, the OU decided to develop a VLE on the basis of the open source software Moodle, as this software seemed to offer the highest degree of modularity and a broad user base, which ensured continuous support for the system. With regard to the learning materials itself, the OU decided to change its policy and to release large parts of them as open educational resources (OER) through the OpenLearn project that has been generously funded by the William and Flora Hewlett Foundation to the public under a Creative Commons licence.

Bierhals, G. (2009) The Open University UK: creating a win-win situation by sharing code and content [Online] http://www.osor.eu/case_studies/

BRUNEL: REVIEW OF CURRENT POLICIES AND PRACTICES

When Brunel, along with many other HE institutions across the UK, adopted WebCT and then Vista (known as 'u-Link' at Brunel, to distinguish it from Microsoft Windows Vista), there were strong arguments in favour of using a proprietary, stand alone, software package that delivers the majority of IT functions that constitute e-learning.

The adoption of this software package has served Brunel well: it has enabled the widespread adoption of e-learning across the University, and provided a good entry point for many academics who are interested in developing the use of IT in teaching and learning. In terms of University policy, the VLE has provided a clear focus for staff development. It has enabled a degree of standardisation of minimal requirements for delivery of core information for students.

However, there have been some concerns and problems associated with WebCT and Vista as the technologies became outdated; some of which have gained the status of 'urban myths' in the University. In our report we will reflect both on the successes of the adoption of the VLE at Brunel to date and the issues and problems that have arisen.

SUMMARY OF BRUNEL VLE STRATEGY TO DATE

Relevant documents are loaded on the VLE Strategy Working Group **SharePoint site**:

- Benchmarking (core documentation available in previous work at Brunel on benchmarking for the VLE)
- Best Practice in the use of current VLE (core documentation available from the Pathfinder ENTICE Project)
- VLE Strategy (the choices and strategic direction taken to date at Brunel)

Brunel produced an e-Learning Benchmarking Report. The team producing the document included Prof Robert Macredie (PVC Student Experience at the time), Linda Murray, Phil Alberts and members of the e-Learning Team in the then LTDU. This document represents an important statement of Brunel's position relative to national benchmarks on e-learning and an important strategic document that has guided much of the development in e-learning at Brunel. It was written against the background of the 2002 - 2007 Strategic Plan and at the point where the transfer from WebCT to Vista was taking place in early 2007. Since then, the e-learning needs of the University have changed together with those of the sector and the expectations of staff and students have significantly increased.

E-LEARNING STRATEGY

Brunel's current e-Learning Strategy (as agreed by the Learning and Teaching Committee on 4th May 2005) is located at the following link: **http://intranet.brunel.ac.uk/apdu/e-learning/strategy/downloads/e-LearningStrat.pdf**

The Strategy has 6 objectives linked with appropriate actions. The following is an overview:

Objective 1: Establish agreed targets for e-learning at Brunel (administrative, teaching, and innovation), consulting each School

Objective 2: Identify opportunities and priorities for the enhancement of teaching programmes, when Schools review their learning and teaching strategies

Objective 3: Maximisation of the quality of provision of e-learning, by providing assistance to Schools to review and evaluate their e-learning initiatives

Objective 4: Maximisation of the take-up of e-learning, by providing opportunities for staff and students to acquire e-learning know-how and skills

Objective 5: Clarification of resource needs for e-learning, by providing an e-learning development budget in the APDU

Objective 6: Coordination of activities related to e-learning, by accommodating the e-learning strategy in a University-wide, integrated computer and IT based environment.

This e-Learning Strategy was formulated to support the Learning and Teaching Strategy of the University at the time. When the Learning and Teaching Strategy lapsed in 2006, the e-Learning Strategy continued, but could not be updated until a new Learning and Teaching Strategy was in place.

Given the changes happening in e-learning, this e-learning strategy needs to be reviewed to take account of the experience of the University in the past five years and the changing nature of e-learning technologies and practices.

SENATE REGULATIONS

From 2006 to 2008, Senate decided – progressively – that academic modules from Level 1 to Level 3 should meet specified minimum requirements to ensure that the learning experience of students within and across Schools is more consistent.

The three minimum requirements included access to a module outline, reading list and a schedule of class sessions.

The Senate Regulations have had a disproportionate influence on School policies – Schools have focused on making sure that minimal requirements are met for all modules – adopting a strategy focused on maximising the statistical returns on modules completing the minimal requirements.

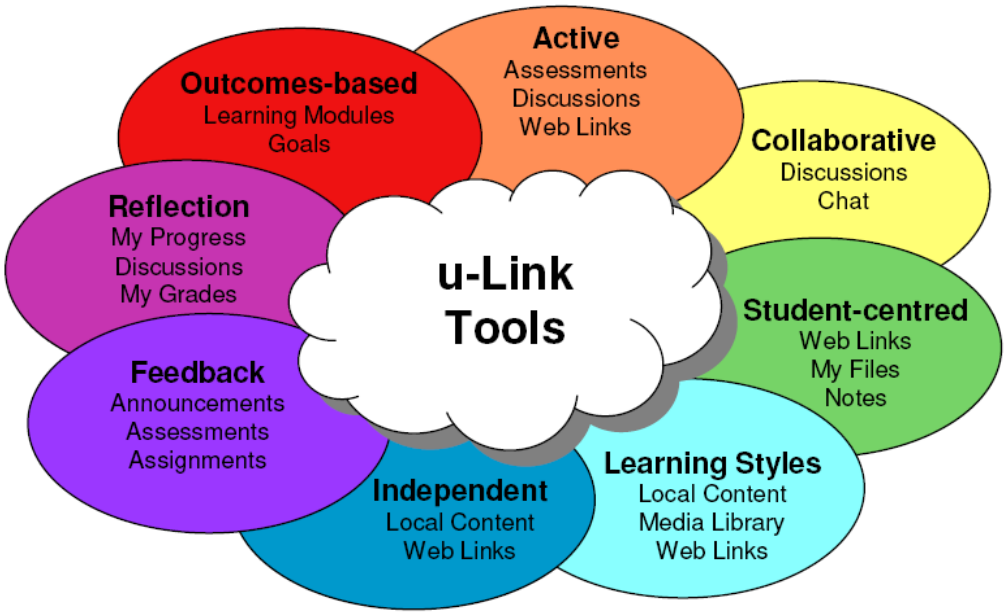
THE USER EXPERIENCE AT BRUNEL

There are three main sources of information about use of the existing VLE service at Brunel: *Pathfinder ENTICE Project*, a Best Practice review by the e-Learning Team in the APDU, statistics collected and collated by the Team and a recent survey of academic staff at Brunel.

OVERVIEW OF PATHFINDER ENTICE PROJECT FINDINGS

As we have seen in the JISC/HEA research, a key driver of innovation in the use of e-learning is the identification of the ways in which adoption of e-learning technologies is linked to technical innovations. The *Pathfinder ENTICE Project* conducted by the e-Learning Team worked backwards from examples of good practice in the use of the VLE across schools to map the different pedagogic uses to which the different tools within u-Link were being put.

The *Pathfinder ENTICE project* identified eight areas of good teaching practice and learning practice and articulated these are 'educational considerations' to be taken into account by academics when designing blended learning for an academic module (combination of face-to-face teaching and e-learning). The ENTICE team then mapped these desirable teaching and learning practices onto u-Link tools to demonstrate the potential of the VLE to enhance teaching and learning, the student experience and the communication between academics and students, as the following diagram demonstrates:



u-Link Tools: Pathfinder ENTICE project

The following examples of good academic practice using e-learning were identified during the Pathfinder ENTICE project:

1. Outcomes-based learning

- Provision of online study guides (in addition to the module outline)
- Using u-Link tools such as 'Announcements' and the 'Calendar' to remind students of learning outcomes and the learning activities associated with them.

2. Active learning

- Provision of a range of 'Web links' associated with learning activities, for example links to discipline-specific web sites
- Creating / making available online exercises, simulations, past papers / mock questions / model answers
- Links to e-books and articles in e-journals.

3. Collaborative learning

- Involving students in online discussions / blogs / chat on specific topics
- Case studies / assignments / wikis for online group work.

4. Student–centred teaching

- Online assignment submission
- Online feedback
- Online glossary of subject-specific terminology.

5. Learning styles

- Variety of online learning resources: graphics, photos, podcasts, video clips, audio clips, links to YouTube / BBC archives, links to case studies and simulations.

6. Learner independence

- Choice from list of online assignments
- Choice from range of additional online learning resources.

7. Feedback to students

- Summary postings by means of the 'Discussion' tool
- Personal 'Mail' tool messages
- Self-assessment quizzes
- 'Assignment' tool grade comments
- Video / audio recording feedback
- Use of the 'My grades' tool
- Model answer essay
- Frequently asked questions (FAQ's).

8. Reflection on learning

- Evaluation questions by means of surveys
- Personal blog postings that could be shared with the lecturer / tutor
- 'Discussion' tool messages to review learning progress
- Formative self-assessment quiz to 'deepen' student understanding on particular topic/s
- Use of the 'My grades' tool so students can reflect on their own progress.

EMBEDDING BLENDED LEARNING IN SCHOOL LEARNING & TEACHING PLANS

Schools have identified ways in which the aforementioned considerations could be related to their Learning & Teaching Plans. Below are examples:

- A u-Link section for every available module for consistency of student experience
- Assignment submission & feedback by means of u-Link
- Communication by means of u-Link tools e.g. 'Announcements'
- Arrangements with Subject Liaison Librarians for u-Link reading lists / links
- Examinations by means of u-Link quizzes
- Using the u-Link content repository for sharing online School 'learning objects'
- Links to Echo lecture recordings for Schools / podcasts for revision purposes
- Links to 'Brunel Island' in 'Second Life' / virtual labs / advanced simulations

- Links to large video recordings on the Brunel media streaming server
- Availability of a central 'administrative' section on u-Link (containing for example past examination papers)
- Mid-module and end-of-module evaluations by means of u-Link surveys
- Personal Development Planning (PDP) by means of the e-portfolio facility integrated with u-Link
- Provision of distance learning programmes by means of u-Link.
- Online discussion boards managed by students reps
- Internal and external moderation through u-Link access

To summarise, the Pathfinder ENTICE project illustrates the potential of the VLE to enhance teaching and learning practice in a variety of educationally sound ways. It is important that this message is communicated effectively to academic staff who might have a more minimal conception of the VLE or object to the pedagogic model that it represents.

ACADEMIC USER DATA

COMPLIANCE WITH SENATE REGULATIONS:

We can see from the table that there is a high relatively high rate of compliance with the minimum requirements for module sections on u-Link.

TOOL USAGE SUMMARY BY SCHOOL, 2008/9

School	BBS	Law	Arts	E&D	HS&SC	SISCM	Soc Sci	S&E	
Sections	81	53	159	254	142	99	199	91	Number of u-Link sections in each School
Tool	**Sections using tool**								**Student action for tool to be included**
Announcements	97.5%	84.9%	86.8%	63.8%	71.1%	93.9%	72.9%	67.0%	Announcement(s) viewed
Assessments	96.3%	3.8%	0.0%	2.0%	9.2%	9.1%	24.1%	9.9%	Assessment submitted
Assignments	67.9%	1.9%	75.5%	7.5%	17.6%	60.6%	54.8%	3.3%	Assignment submitted

Bookmark	1.2%	0.0%	0.0%	0.4%	2.1%	3.0%	0.5%	0.0%	Bookmark created
Calendar	84.0%	64.2%	62.9%	50.8%	60.6%	75.8%	60.8%	23.1%	Any Calendar tool action
Chat	72.8%	26.4%	11.9%	16.1%	24.6%	33.3%	21.1%	25.3%	Chat room entered
Content page	100.0%	96.2%	92.5%	89.4%	89.4%	98.0%	83.9%	79.1%	File viewed
Discussions	77.8%	11.3%	1.3%	5.1%	20.4%	61.6%	17.6%	24.2%	Message posted
Folders	100.0%	96.2%	97.5%	90.9%	90.1%	100.0%	86.4%	80.2%	Folder viewed (e.g. Home Page)
Goals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	Goal viewed
Mail	56.8%	7.5%	1.3%	4.3%	9.9%	20.2%	12.6%	27.5%	Message sent
Media Library	0.0%	0.0%	0.0%	0.0%	0.7%	1.0%	0.0%	2.2%	Entry viewed
My Grades	98.8%	30.2%	5.7%	22.0%	26.8%	27.3%	29.1%	26.4%	My Grades viewed
My Progress	81.5%	45.3%	74.8%	42.9%	49.3%	71.7%	46.2%	26.4%	My Progress viewed
Notes	13.6%	0.0%	1.9%	2.0%	2.8%	7.1%	3.0%	2.2%	Note added
SCORM	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	SCORM content viewed
Search	32.1%	17.0%	2.5%	7.9%	9.2%	12.1%	12.1%	5.5%	Search performed
Web Links	44.4%	41.5%	88.1%	43.3%	45.8%	69.7%	47.2%	29.7%	Web link viewed

Notes: Considers sections under the Undergraduate Academic and Postgraduate Academic groups of each School, with 2008-9 in the name. Cross-listed sections are counted only once for each School. Only considers actions between 1 Sep 2008 and 1 Sep 2009 from users enrolled as Students and with a source of Brunel University SIS (SITS) - this excludes "Student View" use.

School	**BBS**	**Law**	**Arts**	**E&D**	**HS&SC**	**SISCM**	**Soc Sci**	**S&E**	
Sections	81	53	159	254	142	99	199	91	Number of u-Link sections in each School

Tool	Sections using tool	Student action for tool to be included

Tool Usage Summary by School, 2008/09

There is a debate about whether the glass is half full or half empty in these data. One interpretation of the data it is evident that there has been considerable success in adoption of the minimal requirements specified by the Senate Regulations. Accordingly we are doing well and the data represent the early adopters of the VLE and we can expect increasing and more sophisticated usage as the word spreads about the benefits of e-learning.

However, an alternative explanation is that most academics are conforming to the minimum requirements, many are having these loaded by School Administrators and that there are two concerns that need to be addressed: that there is not a consensus on the value of e-learning and that there are relatively few academics making innovative use of the VLE.

SURVEY OF ACADEMIC STAFF AT BRUNEL

INTRODUCTION

Some of the issues related to the use of the VLE and broader engagement with e-learning at Brunel were explored in an academic staff survey conducted in the early months of 2010 by Anu Sharma of the e-Learning Team and a member of the VLESWG.

During February to March 2010, an academic staff survey was made available to all Schools at Brunel. In addition, a series of interviews was undertaken with Deputy Heads (Learning and Teaching), or members of School management, in four academic Schools.

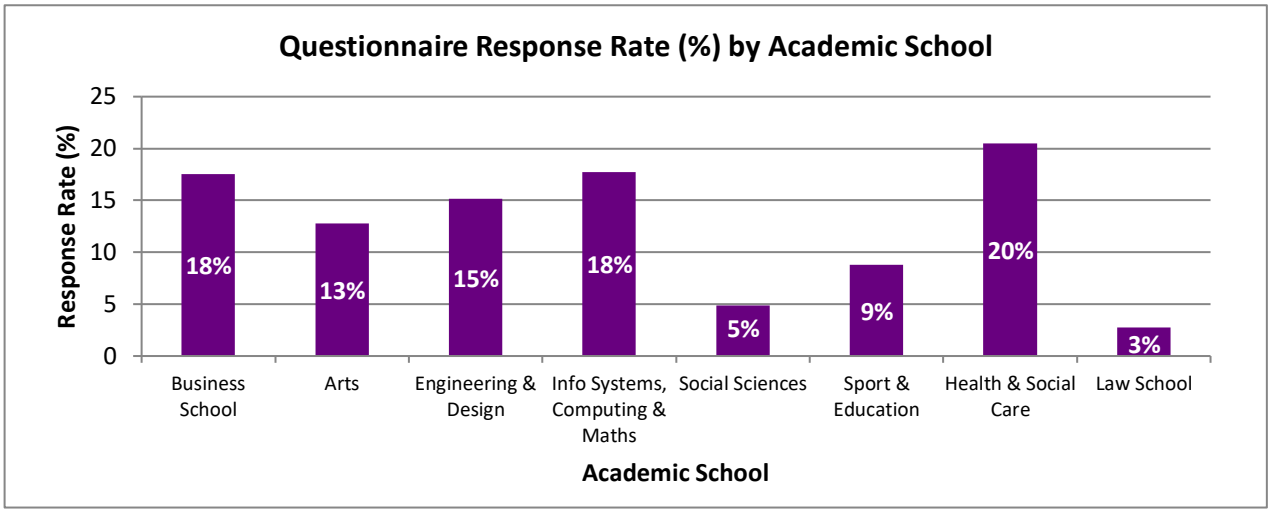
The report is divided into the following areas:

1. Academic staff survey
2. School management interviews
3. Recommendations from this study

1. ACADEMIC STAFF SURVEY

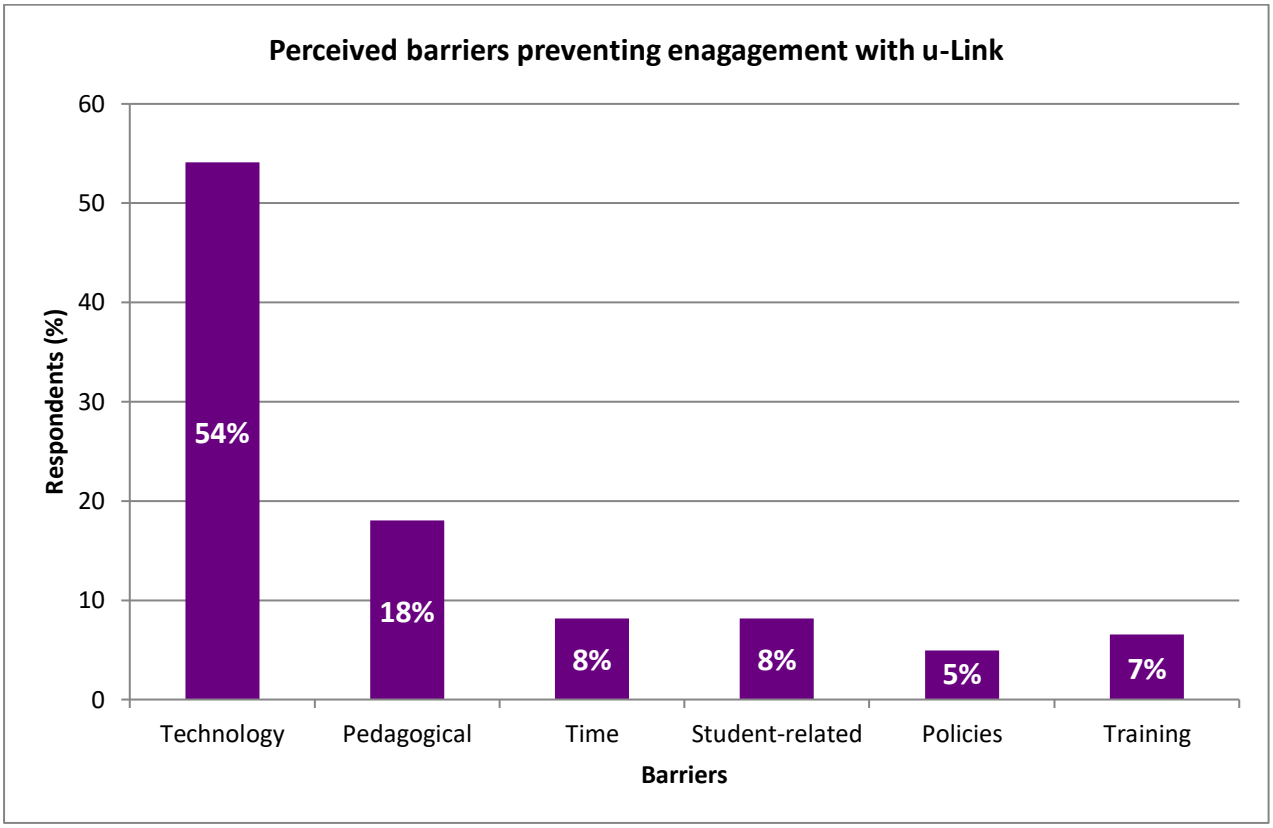
A. RESPONSE RATE

A total of 625 questionnaires were circulated to teaching staff at Brunel. A total of 83 responses were collated, representing a 13% overall response rate. There was a varied response rate across the Schools, broken down as below. **Note**: response rates are presented as a percentage of the number of academic teaching staff in each School.



B. BARRIERS TO U-LINK USAGE

It is important to understand perceived barriers to u-Link usage, as these are vital considerations informing any future decision for VLE provision. Overall, 71% respondents indicated that there hurdles preventing engagement with current VLE provision, broken down into the following areas:



Technological barriers

Many respondents experienced technological barriers to u-Link usage. These were primarily related to the 'usability' of the system. This included the fact that the system was considered by some of them to be 'non-intuitive' and that navigation within the system was considered not to be amenable to straightforward use of the technology. Some academics expressed frustration in being unable to personalise u-Link sections, but it was not clear whether they sought assistance from the e-Learning Team in this regard. A couple of respondents went as far as to indicate that they considered the system infrastructure itself to be problematic:

"The course module system prevents a school/ dept/ course approach to use u-Link"
"does not allow direct links to content within each u-Link module. Very limited."

Many described the system as being 'slow' and consequently perceived that time was a major barrier - it would take academics too long to achieve what they wanted to via the use of the system. It has to be noted, however, that the speed of the system is dependent on investment in hardware and bandwidth (for any VLE).

"unfriendly user interface but I still have to use it."

"Not intuitive I have to relearn how to use it if I access it after some time"

This may explain why many academics are only making use of the basic features, with u-Link primarily being used as a content repository. However, it was not clear whether these academics attended training sessions to familiarise themselves with u-Link.

"Sometimes there are glitches in u-Link – this academic year I have had a problem with indenting files and a colleague had a problem with uploading materials due to a file error. These are irritating more than anything else and put me off doing more than the bare minimum at the moment"

Pedagogical barriers

Academics express their intentions to use u-Link to enhance teaching and learning; however the technology presented in their view a range of pedagogical barriers. A few such comments are presented below:

"inputting of grades and feedback is a complicated operation and should be simplified"

"it does not facilitate giving individualised annotated feedback on assignments"

"it is very basic and can not cover a wide range of issues regarding student communications enhancement"

In general, the irony of the VLE as it currently stands is that it delivers many functions that are used very sparingly by academics whilst not sufficiently facilitating some of the basic things that academics would like to use a VLE for such as anonymous marking and electronic feedback in relation to assignments.

The origin of these problems is that the VLE used at Brunel is a commercial product developed primarily for the US market that embeds a particular pedagogic model and view of common practice in teaching and learning. Where the set up of the VLE is not directly aligned with practices in the UK generally and at Brunel in particular there is little room for manoeuvre within the time frame of a particular build or version of the VLE. This contrasts to the way that in some universities a developmental approach to the deployment of an open source VLE and a greater focus on integration of diverse e-learning applications leads to potentially greater flexibility and engagement in development.

Schools have varied pedagogical requirements and therefore any decision for future VLE provision must be preceded by a wide scale consultation with academics to ensure appropriate choices for VLE provision are made based on actual academic / pedagogical requirements.

Time-related barriers

As indicated above, the technology was perceived by some academics as being 'slow', which impacts on their time. However, some have highlighted conflicting pressures on their time, which prevent them from engaging further with e-learning initiatives:

"Lack of time prevents me from engaging fully with all its capabilities"
"Due to the pressure for time there is not enough time to think, discuss and reflect on the best ways to use u-Link"

Student-related barriers

Other pedagogical issues concern the impact on student learning. It has to be noted that how u-Link is used is decided upon by the academic, for example the students can be presented with a task in relation to resources provided:

> *"u-Link takes the agency away from the student, and makes him/ her dependent upon handouts and information. To a certain degree, u-Link as rolled out by Brunel is under utilised and not used in [the] most student friendly way"*

In practice, a VLE can be used as part of a research led challenging approach to teaching – in contrast a significant number of academics have identified e-learning with spoon feeding and dumbing down of teaching and with an approach that treats students as sovereign consumers of education.

Some academics are of the opinion that the use of u-Link adversely affects student attendance at class sessions. Others are unaware as to how u-Link can facilitate student learning:

> *"I am unconvinced that it offers much to teaching that a simple web page couldn't also offer"*

This comment is prescient given the new DMS being commissioned by the University, which will bring greater flexibility in content management to the University website.

Research-based evidence of the way in which e-learning influences teaching and student learning may therefore be regarded as a requisite for academic engagement. Some of these comments, however, indicate that the academics concerned may not have attended training or asked for assistance from the e-Learning Team.

Policies

Other policy-related issues seem to pose barriers. For example, access to the Brunel website for trainee teachers in Schools (on placement) and restrictions related to copyright policies.

Local School policies also pose a problem for some academics, because they are perceived to create more barriers than solutions.

An understanding of these can only emerge in School-based discussions.

Training

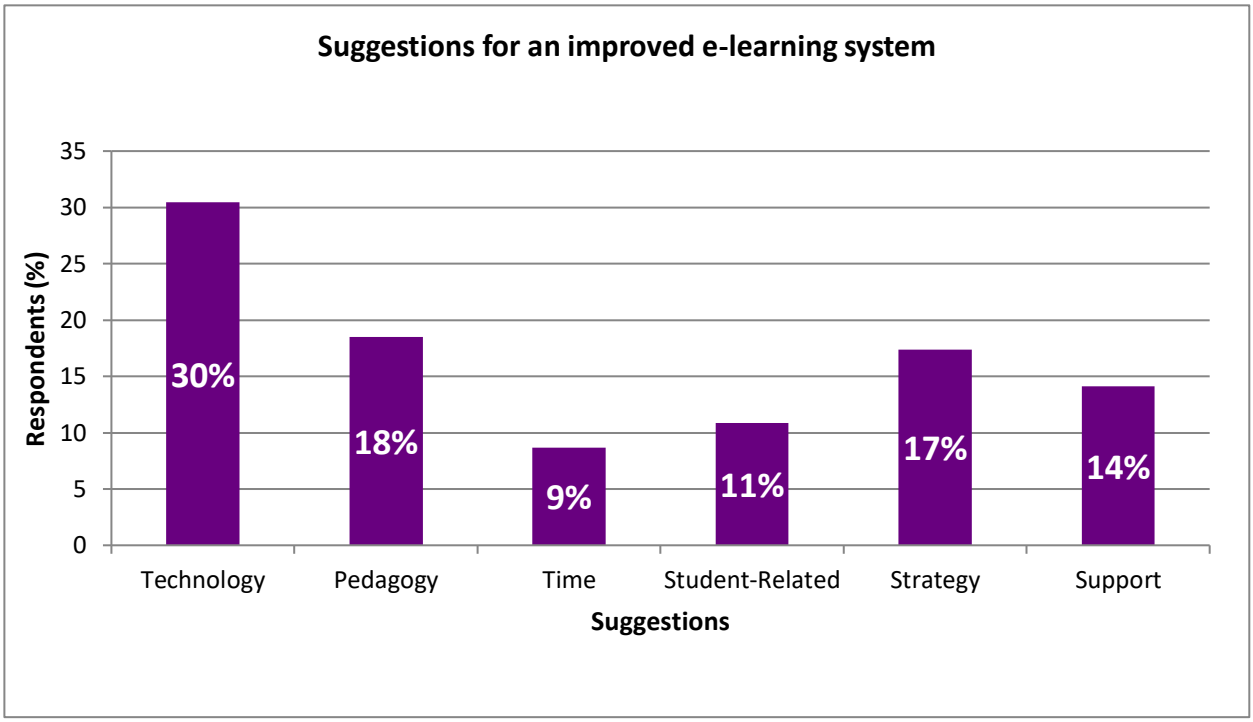
Some academics indicated that u-Link training was an issue. However, it was not clear whether these academics attended the full range of training sessions on offer at Brunel:

"understanding how to use it. We get little structured tuition and as it's complex you tend to forget"

Training at School-level might be an approach. Other forms of support (for example, drop-in sessions by u-Link liaisons) could be a suitable way forward. However, these must, again, be understood at a School level.

C. IMPROVING UPTAKE OF VLE PROVISION: THE WAY FORWARD

A total of 57 respondents (72%) identified ways in which uptake of an e-learning system at Brunel might be enhanced.



The responses can be broken down into the following areas:

Technology

Given that the majority experienced technological hurdles engaging with the technology, it is not surprising most have recommended improving the technology.

"replace u-Link with something that is fit for purpose"

"adopting a more contemporary and flexible system"

"Get rid of u-Link. It doesn't fit Brunel."

"Buy a much simpler, user-friendly system"

Some academics indicated that exploration of Web 2.0 technologies might be worthwhile. Of course, this has to be understood in the School context and considering the pedagogical or operational activities that need supporting, therefore, further research at School level is required.

Academics also suggested making the technology more user-friendly for students through simplifying access.

"Any ways to make it more user friendly for students so that they can easily log onto it and then move around the system. At the beginning having different systems… for the Library, u-Link e-Vision and webmail causes great confusion. Anything that can streamline the system so it is quicker to use especially off campus would be great"

Pedagogy

Many academics indicated that the system has to be technologically conducive to appropriate pedagogical practice, but also deployed in such a way as to promote such pedagogical principles.

"Have some more course specific function not just module specific"
"something that can be personalised to requirements of the module"

Some expressed particular concern over the replacement of face to face teaching with online forms of teaching, which is a concern that needs to be addressed.

Students

Academics suggested that an understanding of the way in which e-learning benefits students would facilitate uptake of the technology. It has to be mentioned that the Pathfinder ENTICE project produced a research-based booklet in this regard which was widely distributed in Schools and remains available on the intranet pages of the APDU.

> *"There are two aspects here: what do students think of u-Link i.e.: their perception… Then there's what it actually does to improve student learning; this is far less certain…what is needed is to show how u-Link can be used effectively (evidence-based research) and that it is not simply a convenient file store"*

Strategy

If the institution is committed to e-learning, there needs to be a clear strategic imperative which supports this at institution level. The strategy should also be translated locally (for academic Schools) via a process of collaborative decision making.

> *"Brunel needs a new ethos of proactive use of the VLE and to encourage innovation on the VLE. VLE enthusiasts should be encouraged and supported. Fellowships and awards for development should be encouraged"*

Support

Academics highlighted that support for e-learning should be delivered at a School level to facilitate embedding into local academic practice.

2. SCHOOL MANAGEMENT INTERVIEWS

Interviews were predominantly undertaken with Deputy Heads (Learning & Teaching) in 4 of the 8 Schools. The purpose of the interviews was to determine how e-learning was perceived from a managerial perspective.

Relevant findings are presented under a series of emergent themes:

SCHOOL STRUCTURES

In the prior move from departments to Schools the diversity of academic disciplines has increased in most Schools. The adoption of school-wide initiatives (particularly learning and teaching ones) is therefore also diverse.

USE OF U-LINK

School management have observed widespread usage in Schools, with a few 'enthusiasts'. Reasons for varied usage include:

a) **Cohort sizes:** Larger cohorts require greater use of the VLE provision within particular modules, but also generally, on a School basis (e.g. Arts vs Business School).

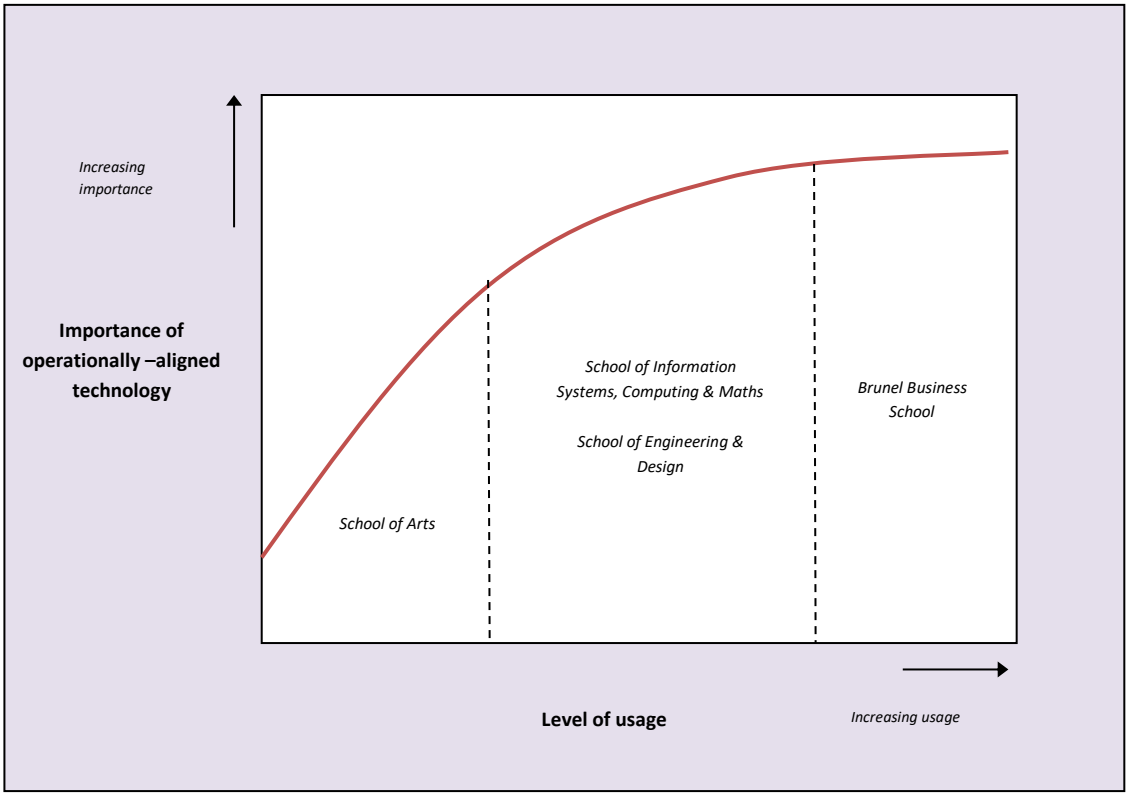
b) **Students**: Frequently students are driving the use of the technology. Students may request e-learning resources based on their experience of similar provision in another module or other schools.

c) **Subject specific pedagogy**: As previously indicated, subjects within a School adopt various pedagogical approaches, which influence their engagement with the technology.

d) **Individual inclination**: Some academics are described as more 'au fait' with the technology and will therefore engage to a greater extent. A suggested approach from one School was to allow the 'champions' to make suggestions for improvement of current provision, as the low-end users would be happy with 'what they have'.

SATISFACTION WITH E-LEARNING PROVISION

Satisfaction with the current e-learning provision seems to be higher in Schools that engage less with the technology compared with those that engage to a greater extent. This is highlighted in the diagram below:



The reason for this may be that as Schools grow in their engagement with the technology, high-end users (e.g. the Business School) experience a greater need for the technology to be operationally aligned (e.g. facilitating assignment assessment, feedback and marking processes) but also strategically aligned (e.g. technology is expected to facilitate processes of 'double marking' for final year dissertations, as stipulated by Senate).

Current technological provision is therefore stretched to cater for higher-end users. Future VLE provision should therefore be operationally aligned with institutional strategic imperatives as closely as possible.

STRATEGIC IMPLEMENTATION OF E-LEARNING

There was concern about a lack of strategic guidance for e-learning usage:

> *"I think the decision has been made at strategic level to use u-Link but without having an informed view of how, operationally, it could support the Schools."*

Collaborative selection of e-learning provision and appropriate consultation between Schools and strategists was therefore considered vital.

Furthermore, there was concern about a lack of clarity regarding Brunel's strategic stance on e-learning.

> *"The University should take a stance about what e-Learning means for the University. Once that is clear then the School can engage accordingly according to the local needs because [School X] is going to have different needs from [School Y] and therefore deploy the tools as well as amend/ expand the strategy according to the needs that particular Schools might have"*

INCREASING THE PROFILE OF LEARNING AND TEACHING

This was recognised as an important aspect of engaging with teaching and learning initiatives, including e-learning.

> *"I think teaching and learning has been the poor brother or the poor sister for way too long and the NSS is showing the results of this"*

To implement e-learning in a School context, incentives are required, including recognition of individuals championing the initiative. This is difficult if unsupported at a strategic level.

BRUNEL: THE FUTURE OF E-LEARNING

In this section we turn to the future, addressing the strategic decision about the future of the VLE at Brunel (the choice between Blackboard and Moodle), the development of IT in support of learning and teaching beyond the VLE, institutional issues of change management implied by these developments, and finishing with a proposed vision for e-learning at Brunel.

THE CHOICE OF VLE

The use of technologies to support the student experience is in its early stages and considerable development is likely in future years. As part of this, the VLE is likely to continue to play a central role in conjunction with a range of other technologies. The VLE represents a considerable investment of financial, technical and human resources and is therefore a key strategic decision.

As VLE applications are under continuous development, there is the need to periodically review the choice that a university makes – Brunel currently uses Blackboard. With the current licence running out in 2012, the time is right to review the options. Most universities agree that the choice is between Blackboard as the leading commercial supplier and Moodle as the leading open source option. Blackboard's Vista system (which evolved from WebCT) is now regarded as 'outdated technology' and will not be supported by Blackboard beyond 2012. A new generation VLE has been developed: Blackboard Learn. In the mean time, Moodle is evolving into Moodle 2.

CHOICES IN OTHER UK UNIVERSITIES

Many universities across the UK are in the same position as Brunel in relation to e-learning. They adopted commercially produced VLEs as a way of promoting e-learning and developing policies. . Similar issues to those experienced at Brunel have been experienced across the sector and universities are now reviewing their provision and strategies including considering the option to switch to open source VLE applications.

The key alternative is Moodle, which a number of universities have switched to following similar reviews to the VLESWG. For example, in London, UCL, City and the LSE have all migrated to open source solutions in recent years. We will use a recent report from UCL on the rationale for switching as it provides a detailed comparison of Blackboard and Moodle.

UCL RATIONALE FOR SWITCHING TO MOODLE

The evaluation of Blackboard against Moodle was conducted using the following criteria:

- Functionality and extendibility
- Cost of licence
- Technical support

- Access to non-University users
- Open-source

FUNCTIONALITY AND EXTENDIBILITY

UCL conducted an extensive feature comparison between WebCT and Moodle.

We have to take care in interpreting this comparison – because both systems have developed considerably since this analysis was reported in May 2007. Notwithstanding this, the features used in the UCL evaluation provide a valuable template for comparison and the results provide interesting indicative findings.

PEDAGOGY

This consisted of eight criteria:

- Presentation
- Interaction
- Feedback
- Reflection
- Assessment
- Flexibility
- Support for autonomous learning/PDP
- Extendibility

Overall neither application was superior in the area of pedagogy.

FUNCTIONS

This was evaluated on:

- Navigation
- Notification
- Multimedia
- Consistency
- Customisation
- Course design
- Accessibility

Overall, both packages were equal in functionality: Moodle was better at notification, WebCT at consistency of navigation.

TOOLS

- Quizzes
- Surveys
- Assignments
- Calendar
- Communication tools
- Glossary
- Database
- Group signup sheets
- Lessons
- Wikis
- Peer assessment
- Grading forms
- Selective release

Overall the two packages were comparable. WebCT was better at quizzes, surveys and file management, Moodle was better at communication and database tools. At the time of writing, Moodle did not offer selective release; this has since been added to Moodle.

MANAGEMENT REPORTING

WebCT was superior in providing usage reports.

STUDENT MANAGEMENT BY COURSE LEADER

Gradebook, registration, grouping and student tracking.

Overall, equal performance was evident, although WebCT was better at registration tools and reports.

TECHNICAL CRITERIA

User authentication, interoperability with existing University systems, support for standards for reusable learning objects, standards for quizzes, scalability, system architecture, support arrangement, updates modular development for the ad hoc needs of the organization.

Both systems integrated with existing institutional systems (SITS, user authentication system). Moodle's simpler architecture and the compatibility between PHP and MySQL meant that there was greater local experience of working with technologies deployed by Moodle – system development opportunities were therefore greater in Moodle.

SUPPORT

WebCT support was considered to be problematic and patchy – sometimes failing to respond and slow and unhelpful responses.

Moodle – no corporate support, but a large and active community provides support through online forums. Commercially available support was available.

COSTS

Increasing costs of Blackboard products were evident (doubled in the 4 years to 2007).

RISK ANALYSIS

MOODLE

Conversion resistance: medium to low risk. There were conversion tools to move from Blackboard to Moodle, although there were particular issues with quizzes. The likelihood was that users would want to create new module content; there would be a conversion cost.

Time for conversion (including retraining): two years. Planning would be required – running down WebCT, and starting up Moodle in parallel and moving people over time.

Potential future charge for Moodle: low risk, and likely to result in spin off into the open-source community.

WEBCT

Upgrading: problems of conversion / change of functionality.

Technical problems in running new versions of WebCT and in support.

SUPPORT AND TRAINING

Similar support and training to that provided for WebCT would be needed for Moodle:

- Training courses
- Drop-in sessions
- One-to-one support
- Documentation
- Test courses available for training.

It is evident that, as with many complex IT applications, there is increasing convergence between commercial and open source VLE applications. We can expect many of the problems experienced in the current build of Blackboard to be fixed in the next version and Moodle is a continuing project of development with increasing commitments from leading universities in the UK.

The key arguments against continuing with a commercial VLE are:

- Lack of flexibility within the period of a particular version of the VLE
- The focus is on using a proprietary software solution rather than on development and engagement
- Likely increases in costs over time
- Problems of integration of emerging e-learning applications
- Basic functionality becoming routinely available as part of DMS developments

THE BLACKBOARD OPTION

Peter Lunt and Phil Alberts attended a presentation by Blackboard to representatives of UK universities. The Beta version for the new Blackboard Learn application was demonstrated.

In the Q & A sessions it was evident that a number of universities across the UK are taking this moment to review their VLE strategy. A number of key concerns about Blackboard in the past were voiced in this meeting, including problems

with responses to enquiries and fixes for technical problems, the continuing problem of anonymity in electronic submission and the limited integration of Blackboard applications with other applications that contribute to e-learning.

Blackboard is likely to become more open to integration with other e-learning applications. Building Blocks represent technologies that can be seamlessly linked to Blackboard Learn. These could be selected according to the needs of staff. There is quite a variety and some of them are free. For example, the Browser Tester may be worthwhile to consider. This will enable students to check whether their home / portable computers have the correct settings to access the VLE.

The University could consider the hosted option to accommodate Blackboard Learn. This means that Blackboard will maintain our system on their servers and take care of upgrades; however, this option may be more expensive in the long term. If we desire 24/7 support for the VLE for the whole year, this option becomes viable.

Staying with Blackboard does not mean that there will be no significant changes in the VLE in coming years – there will have to be a migration to Blackboard Version 9 – and this will have to be managed as a migration of our existing u-Link provision and require refreshing of training and persuading academics to adopt the new system. In contrast, Moodle development is a continuous development philosophy rather than a staged transition to versions of software applications.

There are different options available for migration: a full 'cut-over' (all at once), or phased 'transition' (School by School etc). The first option will require a substantial initial 'support bubble'; the second option will require us to support two systems for the full migration period.

Regardless of the option chosen, we will need to have a 'test & pilot' period.

Module sections could be migrated by individual staff themselves or as batches by an administrator. Migration tools will be available.

Blackboard is aware of the need to enhance online training and these will be readily available for Blackboard Learn, including a full range of two-page PDF guides – for both administrators and academics. However, there will still be a critical role for the e-Learning Team in training and support.

'Skins' will be available for an institutions, for example to make Blackboard Learn similar in appearance to Vista, while retaining the increased functionality of Blackboard Learn.

It seemed that known bugs in the initial version would be sorted in time for Release 9.1 (April 2010).

The roadmap for development of Blackboard Learn includes:

- Teaching efficiency
- Effective course design
- Student engagement
- New and enhanced teaching and learning tools
- Enhanced openness to other technologies

More specifically:

- A wiki tool
- Embedding of external content (e.g. a YouTube clip)
- Lesson plan facility (e.g. for developing module outlines)
- Increased accessibility (use of cascading stylesheets)

- Integration with Moodle
- Integration with social learning networks (for example Facebook)
- Anonymous marking (initially for quizzes only)
- Drag-and-drop upload of files
- Learning object repository / learning content sharing and reuse.

RECENT UPDATES

http://bb.Blackboard.com/g/?I54OXETVYE:I54OXETVYE=ssID:643060926,email:linda.murray@brunel.ac.uk,mode:live

http://bb.Blackboard.com/g/?TDZXZ4YBAR:TDZXZ4YBAR=ssID:643059844,email:phil.alberts@brunel.ac.uk,mode:live

The changes that Blackboard are aiming to incorporate in version 9 will undoubtedly improve the VLE at Brunel and deal with some of the concerns of academic and student users. But, in relation to the way that developments of e-learning are beginning to happen in universities that are embracing open source solutions there is a danger that Brunel will fall behind some of the de facto benchmarks for e-learning practice in the UK. On the other hand, Blackboard responds to the overall needs of their clients in more than 72 countries world-wide.

COSTS

The projected costs of the two VLE options are as follows:

VIRTUAL LEARNING ENVIRONMENT COSTINGS

All figures in GBP & Excl VAT	**BLACKBOARD**	**MOODLE**
	In-house	In-house
Year 1: Implementation (Aug 2010 - Jul 2011)		
Hardware resources - initial *(one-off)*	£200,000	£200,000
Consultancy *(one-off)*	£50,000	£100,000
Installation/set-up/pilot *(one-off)*	£40,000	£50,000

Training etc *(one-off)*	£15,000	
Bb Licence *(recurrent) 80k in budget of Computer Centre*	£90,000	£90,000
Staff *(recurrent) 2 developer posts @ 50k = 100k*		£100,000
TOTAL	**£395,000**	**£540,000**
TOTAL: NEW MONEY	£315,000	£460,000
Year 2: Migration (Aug 2011 - Jul 2012)		
Hardware resources - full implementation *(one-off)*	£100,000	£100,000
Consultancy/Development/Migration *(one-off)*		£100,000
Bb Licence *(recurrent) 80k in budget of Computer Centre*	£90,000	£90,000
Staff *(recurrent) 2 developer posts @ 50k = 100k*		£100,000
TOTAL	**£190,000**	**£390,000**
TOTAL: NEW MONEY	£110,000	£310,000
Year 3: Finalisation (Aug 2012 - Jul 2013)		
Bb Licence *(recurrent) 80k in budget of Computer Centre*	£90,000	
Staff *(recurrent) 2 developer posts @ 50k = 100k*		£100,000
TOTAL	**£90,000**	**£100,000**
TOTAL: NEW MONEY	£10,000	£20,000
GRAND TOTAL OVER 3 YEARS	**£675,000**	**£1,030,000**

GRAND TOTAL: NEW MONEY	£435,000	£790,000

Note that the licence costs for the first two years of the Moodle costing relate to the continuation of Blackboard while Moodle is being tested and installed over two years – there are no direct licensing costs for Moodle.

This means that, projecting license costs at the current rate into the future over the subsequent 5 years the license for costs for Blackboard would be £450K and nothing for Moodle. However, Moodle would require some development support to realise its potential and this would amount to a similar cost over the same period.

Consultancy costs have been estimated at maximum levels.

In short, our estimates of the real costs of the two systems are that they would, in the medium term, be very similar – and that they represent different approaches to e-learning rather than one system being more economical in real terms.

An important change at Brunel is that the DMS system will now be an open source system – which would have some collateral benefits to an open source approach to the VLE in terms of growing in house expertise with open source solutions.

EFFICIENCY AND ENHANCEMENT PROGRAMME

Measure number:	APDUEF01-10				
Measure description:	Virtual Learning Environment System Upgrade (for u-Link)				
Funding profile £ **Indicative, excl VAT**	2009-10	2010-11	2011-12	2012-13	Total
Blackboard NG 9		315,000	110,000	10,000	435,000
Moodle		460,000	310.000	20,000	790,000
comments	A positive decision will enable the acquisition of a new system for technology enhanced learning (e-learning) at Brunel for the next 5 - 8 years, with the resultant enrichment of the student learning experience. The present system represents outdated technology and will not be supported by the provider beyond Summer 2012. Year 2010 -11 represents the **implementation** phase, including initial hardware installation, (maximum) provision for technical consultation fees and training resources/services, and the licence shortfall (this represents the shortfall between the present allocation for a licence in the budget of the Computer Centre and the projected licence fee). Although Moodle is open source, pursuing this option will				

	require maintenance of the licence of the present Blackboard system for at least two years, to enable migration and rebuilding of academic content on the new system. Choosing the open source option, will also necessitate the appointment of two Moodle developer posts, to cater for continuous development / integration of the Moodle system (£100,000 per year). Year 2011-12 represents the phase of **migration** of content from the present system to the new system, including final hardware installation, and the Blackboard licence shortfall. Year 2012-13 represents the **finalisation phase**, including the Blackboard licence shortfall and the shut-down of the present system.
Assumptions:	Brunel will decide to upgrade to the new generation system: Blackboard Learn Version 9.2 **or** to the open source system Moodle Version 2.
Impact assessment:	Upgrade to latest VLE technology is essential in order to maintain and enhance the student learning experience - according to the expectations of new students. HEFCE, JISC and the HEA all have technology enhanced learning strategies for higher education institutions.
Risks:	The existing Blackboard Vista system is outdated and will not be supported by Blackboard beyond Summer 2012. Any delay in the acquisition of a suitable new system beyond Summer 2010 will result in insufficient time for the implementation of the new system and the migration of existing content to the new system. Both academic and administrative staff will also have to be re-oriented and retrained in time, to make sufficient use of the new features and the new tools available to them (whether the Blackboard or the Moodle option is chosen).
Opportunities:	Brunel lecturing staff would review their existing technology enhanced learning provision to their students, and use the tools and features of the new system to design and deliver enhanced provision.
Milestones:	As indicated above: **implementation** of the new system, **migration** of existing academic content to the new system, and **finalisation** (shut-down of the present system).
Measure owner:	Dr Phil Alberts, Head of e-Learning Ext 65802
comments	A VLE system upgrade project team will be initiated, including representatives of the APDU, the Computer Centre, Registry, and the Schools.
Measure lead:	Dr Linda Murray, Director (Interim) of the APDU Ext 65798
comments	Dr Murray liaises directly with the PVC Student Experience & Staff Development and the PVC External Relations & Teaching Quality.
Strategic plan alignment	Technology enhanced learning has a direct impact on the effectiveness and efficiency of learning and teaching at Brunel, as reflected in the Student Plan and

	the Mission of the University (producing confident, successful and versatile graduates).
5 Year plan alignment	Technology enhanced learning is an integral part of the central support service provided by the Academic Practice Development Unit (APDU) to academic staff and Schools at Brunel, in support of both the Students' Plan and the Staff Plan.

BEYOND THE VLE: TECHNOLOGY ENHANCED LEARNING (TEL)

E-learning is a fast moving area, as evidenced by JISC's horizon scanning publication *Learning Without Boundaries*. The perceived importance of mobile devices leads to the idea of m-learning.

JISC has produced an account of the future of students using a range of ICTs as part of their learning. They anticipate that students will be increasingly working, and be less available on campus; and have expectations of learning resources and contact with the University being technologically mediated. A shift in focus of learning is evident - to incorporate knowing how to access knowledge and where to find out how to do things, and how to bring together diverse forms of knowledge.

The technological infrastructure needed to support mobile access (through multiple platforms of PDA, mobile, laptop, desktop, kiosk) will include issuing PDAs to undergraduates, personalised web pages on login, access to collaborative software linked to the VLE, and access to content from personalised web pages.

Innovations include:

VODCASTS

Images supplemented by audio track – created using i-movie or similar.

E-PORTFOLIOS

This provides students with the equivalent of a personal webpage / social networking site in which they can build a portfolio of their activities as a student and can select what is outward facing for different parties – potential employers, tutors, etc.

REAL TIME FORUMS / SEMINARS

A number of specialist applications (e.g. WIMBA, Elluminate) are being developed that afford the potential for virtual classrooms / seminar rooms / discussion groups. A collaborative framework is being established that can be adapted to different teaching formats: supervision, office hours, seminars, class discussions, brainstorming, and sharing best practice on essay writing / dissertations

SIMULATIONS

Online contexts for simulation games are being developed, a transactional learning environment.

WIKIS

Collaborative content construction through web pages - for group project work, team work, peer and teacher review of work.

BRUNEL'S VISION OF THE ROLE OF TECHNOLOGY IN THE STUDENT EXPERIENCE

The use of technology for the support of learning and teaching is regarded as a mission critical component of the University's provision, and is an important part of producing the *'confident, successful and versatile'* graduates.

It is evident that lecturers have a range of needs in relation to the provision of technology-enhanced learning that cannot be met by a single technology such as a VLE. It is therefore anticipated that a selection should be made from a range of technologies (u-Link, PebblePad e-portfolio, SharePoint, Turnitin plagiarism detection, wiki, Ning / Facebook, Echo lecture recording, podcasts, online journals and books, online learning object repositories, etc.). The central provision of the selected technologies should be fully integrated, enabling single logon by both staff and students.

The first stage of the Brunel requirement is the identification, prioritisation, definition and provision of the University's technology enhanced learning needs. To provide for the University's needs, it is inevitable that the University will select a core product that has the best overall match to identified needs. It will then look to extend and integrate that core product, taking a JISC-recommended SOA (services-oriented architecture) approach, in accordance with the identified needs, the benefits to the University and the resources available.

A VISION FOR E-LEARNING FOR BRUNEL

"Academics will increasingly combine traditional teaching methods with the use a variety of e-learning applications in support of learner-centred learning experiences that are flexible, responsive and effective and meet the needs of all its learners.

E-learning will be at the forefront of innovation in learning and teaching and will be delivered making effective and efficient use of all resources whilst maintaining the quality standards to which the University is committed. E-learning technologies will develop in diversity, combining the VLE, specialist e-learning applications and greater flexibility in the use of the University data management systems.

Blended learning will, where relevant, be embedded in all University policies and procedures to ensure a consistent approach to e-learning while encouraging innovation and collaboration in learning and teaching. A broader consensus on e-learning will develop across the University reflected in the practices of academics, the experiences of students and the policies of schools"

RECOMMENDATIONS

A number of recommendations follow from the report:

1. **Currency of technologies:**
   Vista represents outdated technology; it is necessary to move on. There are underlying technology infrastructure issues and the current version of the VLE is being phased out by Blackboard. Therefore, the University should trial the new version of Blackboard and Moodle – the open source VLE.

2. **Administrative needs:**
   In addition to the VLE, we urgently need an efficient technology to handle assignment submission, marking and feedback; this is unlikely to be achieved under Blackboard applications. Alternatives include adopting specialist applications or equipping the SITS system to do this.

3. **Culture and staff experience:**
   Academics should be actively encouraged within their Schools to make use of training, individual guidance and advice available to them and to incorporate e-learning in module design. More broadly, the cultural aspects of resistance and distrust of e-learning needs to be addressed at University and School levels. A renewed effort to build consensus around the meaning of e-learning/blended learning and the aims and objectives of these is needed across the University. This needs to address the concerns expressed by academics and students about the existing VLE.

4. **Technical infrastructure:**
   Emerging e-learning technologies including specialist applications and Web 2.0 need to be encouraged and integrated with the VLE in the future, taking into account the new build for the University website. A single logon to integrate all systems at Brunel and enable seamless access is essential.

5. **Academic practice and training:**
   The e-Learning Team should continue to support academics centrally, but academics will only make progress if they adopt a proactive role in relation to their practice of blended learning. Technology has already influenced teaching immensely in the past (think of the printing press, film, video, sound recordings, overhead projection, interactive whiteboards, broadcasting), and will continue to do so in future as computer / web / digital technologies continue to evolve.

6. **Research, future development and innovation:**
   It is important to encourage research into e-learning within the University, building on the work carried out by the e-Learning Team and enhancing this with academic partnerships across the University – this has been shown to encourage take up and innovation in the use of e-learning at other universities.

7. **Student experience:**
   Students are institutional drivers of the adoption of e-learning technologies. They need to have a 'voice'. Inspiration works better than prescription. Collegiality is a key factor in driving innovative uses of e-learning. We recommend establishing School-based e-learning champions to promote this initiative.

8. **Strategy**:
   Reaffirm commitment to teaching by establishing a Learning and Teaching Strategy, which recognises the role of e-learning in driving the institutional mission. Cultural issues in relation to the adoption of e-learning need to be addressed, avoiding 'blanket' institutional approaches towards e-learning policy as this affects quality. Embed e-learning strategy within the Learning and Teaching Strategy. Allow academics sufficient autonomy, however, providing sufficient dissemination of e-learning practice across the institution to avert academic 'isolation'.

9. **Leadership:**
   Embedding the e-learning strategy at senior levels within Schools/ University management to encourage support and to ensure that the project meets current and future needs. *Senior / School management 'buy-in' to e-learning strategy is essential, ensuring "strong commitment and understanding of the project at senior level" (Breslin et al, 2007)*

10. **Governance issues:**
    Consider the issue of change management as part of the project management. Ensure a cycle of ongoing evaluation. Ensure involvement of staff at all levels in the formulation of strategy. Dissemination and communication are of key importance. Promote the project as a 'process'.

11. **Pedagogy:**
    Clear guidance / consultancy provided to staff which highlights e-learning pedagogy. Consider curriculum design as

a mechanism for embedding sound e-learning pedagogical practice into taught programmes from inception. Promote bespoke pedagogical approaches for different subject areas. Reaffirm importance of academic at the heart of learning design.

12. **Technology and change:**
    Technical infrastructure should create a 'culture of support'. Technology should support the Learning and Teaching Strategy, not drive it. Understand motivations of early adopters versus mainstream to provide targeted support.

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