Learning acceptance of on-line learning and e-learning
Brian Whalley

Background/Definitions

It is useful to separate the terms 'on-line' and 'e-learning'; although in practice there may well be considerable mixing of these educational styles and students may not differentiate between them at all. E-learning is where student and tutor/teacher interact and mediate the educational process with (usually) computer technology. E-Learning is best thought of as part of Information and Communication Technologies ICT which can include items of equipment such as electronic/interactive whiteboards. On-Line learning often includes use of a virtual learning environment (VLE) or Learning Management System (LMS). (We use the term 'tutor' here as a general term (= instructor in the USA) of a teacher at school or in any form of post-compulsory education.) This may be completely electronic - on-line learning (sometimes associated with distance-learning) and blended learning - a mixture of *traditional* and e-learning styles. As such, there are many aspects or components of e-leaning which can be used independently and thus evaluated separately. For example, e-mail and blogs are very similar technically but educationally tend to be used in distinct ways although both require internet connections. Interactive whiteboards, common in schools but rather less in Higher (Tertiary) Education (HE), are usually classroom devices and thus have rather different tutor use and student responses from a networked VLE.

As technology, both hardware and software, develops rapidly, so does use. However, although early adopters may use the latest ideas, many tutors may still envisage that 'PowerPoints on the VLE' are their contributions to e-learning. Hence, there may be distinctly different viewpoints of delivery of materials and thus recption by students in their learning. A fully on-line course (as distance learning) may have been developed for television (as with the Open University) and developed with CD, delivers as well as printed course materials. More recently, have used class blogs or wikis and on-line tutoring to aid learning. Most 'traditional' (face-to-face, f2f) courses may use only limited elements of e-learning. Some recent attention has been focused on web-based lecture technologies (WBLT) which may blur definitions even further (Woo et al. 2008) and which will be touched upon below.

In the first instance, our review relates primarily to undergraduates whose education involves some 'e-learning' in general rather than complete on-line courses. With the latter there is an element of compulsion, although good practice in synchronous and asynchronous online learning activities frequently allows a much better tutor-learner relationship (and therefore feel for the process) than e-learning that just supplements tutor-to-many lectures. Some of this involvement is given in Salmon's 'E-tivities' (2002).

Evaluation of these diverse elements is thus continuous and changing. In the UK, most work on student and tutor appreciation of e-learning in HE has been performed under the auspices of the Joint Information Systems Committee (JISC) which supports post-compulsory education. In the UK JISC's TechDis service supports student accessibility with ICT. For school education BECTA is the lead agency for ICT.

Findings from research

Many individual institutions across the world have carried out their own evaluations of e-learning, use of VLEs, use of computer networks etc. The enthusiasm for VLEs of various kinds has often been been driven from managerial (efficiency) grounds in the main and

student as well as tutor uptake and use has been significant. However, figures of uptake of a VLE from a tutors point may be of a document repository which student can consult as in a remote library. For students this means easy access of materials, no bad thing in itself but use of the word e-learning here is a rather watered down form. Nevertheless, VLEs can, and do, provide opportunities for running a wide variety of creative e-learning facilities especially for distance learning.

In particular, experiences of disabled students to e-learning, for example have been investigated by via TechDis' project, LExDis. A volume of ALT-J (14, 1, 2006) was specifically concerned with disabled students in which Seale (2006)provided and overview: 'Disability, technology and e-learning: challenging conceptions'. Given the diversity of e-learning styles there are few studies which have investigated the efficiency of e-learning overall. Exceptions might be considered the use of a VLE (or specific implementations such as the Open Source Learning Activity Management System - LAMS). Digital Inclusion is also included in the Teaching and Learning Research Programme-Technology Enhanced Learning sponsored by two UK research councils (ESRC and EPSRC).

The report by Burns (2007) on the use of a LAMS with 34 'English for speakers of other languages' (ESOL) at Barnet College of Further Education gives an indication of student ease with the technology. For example 32 of the 34 wanted to use LAMS again and 19 students enjoyed using LAMS 'very much' while only 7 enjoyed it the same or less as traditional methods. Burns points out that LAMS (and other such systems would, presumably, also be similar) is most effective when there is management 'buy-in' of the benefits but that time is necessary to train tutors (and perhaps show how effective the system is).

The enthusiasm for VLEs or has been been driven from managerial grounds in the main yet student as well as tutor uptake (use) has been significant. However, figures of uptake of a VLE from a tutors point may be of a document repository which student can consult as in a remote library. For students this means easy access of materials, no bad thing in itself but use of the word e-learning here is a rather watered down form. Nevertheless, VLEs can and do provide opportunities for running of a wide variety of creative e-learning facilities. Thus we restrict the following to examples of such facilities.

In their own words

The JISC report 'In their own words' contains a section by Conole et al.(2006) who point out that: 'The rich, interactive and engaging environment of games therefore has lead to an increased expectation of similar levels of quality for learning materials. There is evidence that there is a shift from passive to more interactive interactions across all aspects of their learning...' as student is quoted: 'Much of what I use technology for in my studies are taken from how I use it for my life.' and another, 'most of the technology listed above are used for all aspects of my life. I book coach trips online, play games on my computer, use the calendar.'

It has been suggested that students of the so-called 'Generation Y' do not take to Computer-Based Learning (CBL usually synonymous wih e-learning). Of course, this also means that it clarity in the use of CBL. The 'Learner Experiences of e-learning' (LEX) project (Creanor et al. 2006), like Conole et al. (2006), found that students did not always like using VLEs.

Conole et al. (p 95) also found that, 'One surprising result was that many of the students showed a marked lack of enthusiasm for VLEs. Only one person mentioned a VLE as one of the four technologies they like to use most, and ten listed a VLE as a dislike.' A student experience: 'The design of the 'learning environment' is far from ideal. It is not

intuitive to navigate around. Essential documents, uploaded only to this resource, are often hidden in strange corners only to be stumbled upon by a random series of links.' (p95). and a tutor, 'it (the VLE) is simply outdated. Incredibly poor UI (user interface) - terribly hard to navigate through the content. Tutors have no idea how to use it and administrate it let alone students. As such it is little used. However it is the main method of communication for tutors to their students. students...'. Appendix 3 of the LEX report (Creanor et al. 2006) is a useful diagram (Mind Map) summarising the complex influencing factors of the learner experience of e-learning.

Person-centred learning

The following is a list of benefits of Person-Centred Learning (PCeL = Student-centred learning) (Motschnig-Pitrik and Derntl, 2005)

- A rich choice of material can be made available to all quite easily.
- The Internet can be used for exploratory learning such that students search for material and choose and comment on resources they find most useful.
- Group workspaces for small teams can be provided such that students working in small teams can exchange and update documents independent of time and location.
- Knowledge can be constructed incrementally, both in face-to-face and online phases.
- In the case that the computer takes over essential parts of the transfer of intellectual knowledge, time can be spent to learn from the different and overlapping viewpoints of peers. Thus, social and personal learning are facilitated.
- Students who feel respected and understood tend to be more open, cooperative, constructive, acceptant and responsible themselves.
- Students can learn from multiple examples rather than just from a single one. This can be achieved if all documents delivered from students and corresponding comments from instructors and/or tutors are made publicly available in respective workspaces.
- Various and individual proofs of learning are a lot more feasible. Also, mixed modes of evaluation including self-, peer-, and instructor-evaluation are quite easy to adopt.
- Students who tend to be quiet and less expressive in face-to-face discussions often participate more actively in online activities that give them time to think before responding.
- Students tend to be more active taking on different roles, such as document author, team mate, coordinator, enquirer, evaluator, recorder, etc.

The students' reactions, from the same study were given as:

Students appreciate having choices regarding the problems they are supposed to resolve. In particular, they like to tackle real problems and invest more efforts into tasks that concern them personally.

- Most students finally like to work in small teams since they can complement one another. They mention that they need some time in the beginning to come to terms and share responsibilities but that working in teams, in general, is more rewarding than working on their owns.
- Students catch up attitudes on the fly. They appear more responsible, cooperative, and even constructive in the case that they perceive being trusted and respected.

- Students tend to prefer the Person-Centered style in the case that both, the latter and the conventional style, are explained. The facilitator asked students on completion of their introductory course on software engineering whether they would be willing to try PCeL in the coming term. All teams nodded unanimously, indicating their preference for the innovative style.
- Students find it difficult to evaluate themselves.
- Most students are quite aware of a more diffuse style of learning in Person-Centered group projects. Most of them (about 90%) appreciate this unique opportunity of social learning and acknowledge that it has a different quality to conventional learning, most probably a quality that will be more useful in their careers than fact learning. Nevertheless, some students prefer to acquire more consolidated knowledge they can apply as a resource in future projects.
- All students agreed that using the Internet to support their work has been a particular benefit in the context of the course (note, however, that our students were Business Informatics students with background in computer science).

Implications for practice

The Findings presented above show a mixed response for the VLE approach to e-learning. Perhaps this should not be too surprising. Like any teaching, especially in HE where it may be 'one to very many' students it is tutor attitude to the whole of the learning remit which is significant in proving a good student experience. The VLE (and even LAMS-type facilities) tend to be somewhat impersonal. Where e-learning can benefit students is in personal (synchronous or asynchronous) learning opportunities. They are provided by e.g. tutors rapid response to e-mail and facilitation such as 'e-tivities' (Salmon, 2002).

Technology

'Personal technology and social networking are fast emerging issues for e-learning and are issues which emerged strongly in LEX. They should be given priority in the design of future JISC studies of the learner experience.' (Lex report p 26; Creanor et al. 2006). This could be extended to any institution. General tutor experience (often?) suggests that the 'chat rooms' provided on many VLEs were not used extensively by students. However, it is generally accepted that many Web 2.0 (social software) applications are used widely by students at compulsory and post-compulsory education. Many students have their own pages on Bebo and Facebook. Hence they know how to use the technology. Examples coming to light however, suggest that they do not always appreciate the implications of what they might do. Use the intellectual property rights (IPR) of others (music, images), make comments that might be used by others - possible blackmail, or noticed by others – future employers). This is an area where student acceptance of Web 2.0 is growing so fast and tutors are not always aware of potential risks that care needs to be taken. It is generally considered good practice for tutors not to use FaceBook or Bebo for educational activities but to use a 'white box' application (ie open source software e.g. Ning). Research on these facilities and their use in HE is on-going.

Pedagogy

Certain pedagogic aspects of on-line acceptance are now becoming clear. It is likely that many aspects of good and best practice in learning and teaching have been the case since

before the advent of ICT in education. The need to investigate the part e-learning has to play has generated more research in its own right but web-based activities provide a greater breadth of examples and learning materials for students than 'pre-web'. These materials are increasing all the time and from a wide variety of sources, specifically educational or from entertainment, industry, commerce and academic origins. The importance of authentic activities in online environments has been stressed by Herrington et al. (2003). In particular, they emphasise the importance of learners to suspend belief, as in movies. This relates to problem based learning activities (e.g Land and Bayne 2006).

Student Satisfaction

Mason and Weller's (2000) paper on the factors affecting students' satisfaction throws a light on a web-based module. Seven issues are raised: skills versus academic content, students' previous computing experience, interaction through computer conferencing, online group work, online tutoring, students' lack of time, and revising a course in the light of evaluations. The paper dates from 2000 but it is unlikely that their findings would differ ten years on. Their conclusions are quoted in full as they point to both student and tutor aspects of satisfaction:

We have examined this innovative course from the students' perception of the issues raised by web-based teaching. The feedback from students indicates that the main issues were:

- the time it took to become competent with the PC, the Web and/or with computer conferencing
- the sense of accomplishment and satisfaction with the course and the experience it provides of the whole ICT world
- the appropriateness or not, of teaching ICT skills and of working in online collaborative groups.

The factors which most affect students' satisfaction relate to:

- the support of their tutor or other staff or students
- the amount of time, patience and motivation they have to devote to the course
- the extent to which the course content and presentation fit the students' expectations and learning style.

These findings are not inconsistent with the findings of other evaluations of web courses at other institutions.

4   Success factors

ICT has changed the face of education, at least in the 'developed world' from primary and home education to life-long learning. With the 'One Laptop per Child' (OLPC) project [1] there are hopes that the digital divide will at least be narrowed.

The ability to use cheap broadband and mobile phone technologies plays an important part of communications, as seen from the LEX report (Creanor et al. 2006). However, many applications are not used because they are not (yet) available on mobile phones, these being the main way students communicate. The most important factor is price of equipment that learners (and their tutors) will pay for. For students, mobile phones are as yet an incomplete

mobile learning tool, as are ultra-portable computers (netbooks). As computer hardware, especially laptops, become cheaper and the cost of broadband from home as well as access to public. As mobile phone technology (even before G3) becomes more sophisticated in use with hardware costs and phone capability increasing rapidly, This is likely to be used increasingly as a communication medium rather than internet access *per se*. However, as Skype (and similar voice over internet protocol VoIP) becomes more common then local computer networks may become a better way for student engagement than being forced in to chat rooms and using specific functions provided by an institution.

We are only just at the stage where we have fully functional palm-size computers running an OS directly comparable with an office machine, WiFi enabled and with reasonable size screens (with or without separate keyboards). These are about to see a merger with mobile phone technologies. As yet, commercial e-book technology only provides monochrome screens and are relatively expensive. Students are prepared to use thin clients with server-held applications but again, perhaps on their terms rather than an institution's.

A significant factor, as mentioned above, is the credibility of the learning task, especially when related to problem-based learning.

Drennan et al. (2005) in a study of first year management students concluded that a) positive perceptions of technology in terms of ease of access and use of online flexible learning material and (b) autonomous and innovative learning styles

Issues and future directions

JISC, in 2008 annual review by the (then) chair Professor Sir Ron Cooke stated, '.. we make sure that ICT strategies are fully integrated into institutional strategies so that we are able to meet the challenges of rapid technology change, student expectations and the new Web 2.0 technologies, the challenges of the research agenda, including data curation and changes within teaching and learning.' In his presented speech he was concerned that tutors needed education in the use of ICT and e-learning

Thus a major issue may well be that, for e-learning devices beyond the simple ones of e-mailing, there may be an increasing digital divide. In this case between students (Google Generation/Generation Y [2]) and their tutors.

As noted in the report 'Exploring Tangible Benefits of e-Learning' (JiscInfoNet, 2008) academics do not take kindly to 'top-down' approaches, especially when trying to achieve quotas for e-learning. Conversely, institutions do need to provide support for both tutors and learners. The former need support to place their own initiatives in an e-learning context, to see what e-learning initiatives and technologies they may want to use and students in having facilities such as wi-fi.

Pressures and Drivers

Financial pressures face all UK HE institutions in 2010 and beyond. E-learning, especially via VLEs, was originally thought of, by institutional administrators in particular, as a way of saving staff time. However, the sector has found that as well as investment in ICT equipment, staff training and investment in ICT and educational developers is also required. Furthermore, increased fees paid by students will probably mean that students will live at home; figures already suggest this. However, students living at the parental home may not want to travel distances for a single lecture. Tutors, ICT specialists as well as libraries need to adapt to these constraints and use Web 2.0 techniques and facilities to accommodate students who, in large measure, are familiar with them on a daily basis. On the other hand, development of central university facilities such as 'information commons' are welcomed by students who are on

campus. Savin-Baden (2008) shows how learning (or affinity) spaces can be used to enhance student learning. Wherever these spaces happen to be there is increasing use of e-books (Teicher, 2008). Technology is advancing rapidly here and with netbooks as well as dedicated readers this is an area that will undoubtedly grow and see student use on or off campus. However, materials delivered in electronic format are not yet supplanting the use of traditional (print on paper) textbooks despite subscription services such as Safari Books online. Currently, such e-books (hardware, software and infoware) however do not take full advantage of technologies available (Whalley, 2006).

Technological change

Technologies are changing very rapidly. 'Traditional' VLEs (e.g. Blackboard, Moodle) provide resources institutionally although Personal Learning Environments (PLEs) are starting to become popular, especially as laptops become cheaper and WiFi-enabled and institutions provide easy access to broadband. As hardware technologies merge software and applications adapt. In all of these cases learners have used 'formal' instructional devices and are becoming increasingly adept in using 'Web 2.0' facilities in their leisure activities. Norman (1993) in his overview of interactions of human thought and technology has a chapter (10), 'Technology is not neutral'. 'The web' has meant easy access to information, including Wikipedia, from which students benefit and use widely, the downside is 'cut and pasting' and (possibly) enhanced plagiarism (Blum, 2009).

It really is not known how adaptive students will be to new technologies, not only Web 2.0 facilities like blogs and wikis but to internet/'cloud' computing. Collaborative work using, for example Google Docs is made much easier. It is not known if such student activities will increase plagiarism. However, capital costs might be reduced for both institutions and students with the use of Open Office as well as on-line versions of popular applications ranging from Photoshop to Dreamweaver.

An aspect of student 'learning' that is largely forgotten is behaving in a digital world. On-line security is an everyday problem that, one hopes, students will take in their stride but aspects such as IPR, creative commons and peer-peer file sharing are probably disregarded by most students (and tutors). How much vigilance needs to be paid by educational institutions is again, unknown and perhaps not even considered.

Conclusions

The LEX report (JISC 2006) concluded with the following recommendations:

1. LEX has shown the value of studies which focus exclusively on the learner experience and which are not supplemented by parallel studies using a different approach. JISC should endorse the value of such studies and plan to incorporate this element into future programmes
2. Personal technology and social networking are fast emerging issues for e-learning and are issues which emerged strongly in LEX. They should be given priority in the design of future JISC studies of the learner experience
3. While there are inevitable funding restraints, JISC and partner bodies should seek further opportunities for cross sectoral studies such as LEX.

It is not certain whether there will be funding or studies as suggested by LEX. Nevertheless, the rapid development of technology and the uptake of Web 2.0 applications for everyday

(non-academic) use as well as the reduction of hardware costs suggests that students will continue to use many of the facilities provided by 'e-learning'.

In the last 10 years 'e-learning' has fostered an increasing interest in pedagogy (Bentham and Sharpe, 2007) that not only supports student learning, often as 'blended learning' (Allan, 2007) but student involvement and experiential education in developments such as e-portfolios (e.g. Stefani, et al. 2007) and problem-based learning (Savin-Baden and Wilkie, 2006). The benefits to students, not least the much more personal attention, provided by well-run e-learning in modules seems undeniable. the problem will not be uptake by students but imaginative use of the facilities available by tutors and institutions. The latter should develop educational policies (ie learning and teaching) which are inclusive of e-learning and not have a separate e-learning policy.

References

Allan, B. (2007) Blended learning: Tools for teaching and training. London: Facet Publishing.

Beetham, H., and Sharpe, R. (2007) Rethinking Pedagogy for a Digital Age: Designing and Delivering E-learning. London: Routledge.

Blum, S. D. (2009) My Word! Plagiarism and College Culture. Ithaca and London: Cornell University Press.

Burns, L. 2007 (2007) Using LAMS with ESOL students, in QIA/ALT p 57-60 www.alt.ac.uk/docs/usinglams.pdf.

Conole, G., de Laat, M., Dillon, T. and Darby, J. (2006) LXP: student experiences of technologies – Final report www.jisc.ac.uk/elp_learneroutcomes

Creanor, L., Trinder, K., Gowan, D., and Howells, C. (2006) The learner experience of e-learning - Final Project Report, York, JISC, www.jisc.ac.uk/elp_learneroutcomes. See also JISC 2006.

Drennan, J., Kennedy, J., and Pisarski, A. (2005) Factors Affecting Student Attitudes Toward Flexible Online Learning in Management Education, Journal of Educational Research, 98, 331-338.

Herrington, J., Oliver, R., and Reeves, T. C. (2003) Patterns of engagement in authentic online learning environments, Australian Journal of Educational Technology, 19, 59-71.

JISC, (2006) The learner experience of e-learning (Pdf report from this page)

JISC (2007) In their own words, JISC (see also Creanor et al. 2006; Conole et al. 2006)

JISCinfoNet (2008) Exploring tangible benefits of e-learning: does investment yield interest? JISC, Northumbria University . Case studies available at www.jiscinfonet.ac.uk/case-studies/tangible.

Land, R., and Bayne, S. (2006) Issues in cyberspace education, In: M. Savin-Baden, and K. Wilkie, (Eds.) Problem-based learning online. Open University Press, Maidenhead, 14-23.

Mason, R. and Weller, M. (2000) Factors affecting students' satisfaction on a web course. Australian Journal of Educational Technology, 16(2), 173-200. On-Line version

Motschnig-Pitrik, R., and Derntl, M. (2005) Can the Web Improve the Effectiveness of Person-Centered Learning? Case Study on Teaching and Living Web-Engineering, IADIS International Journal of WWW/Internet, 2, 49-62.

Norman, D. A. (1993) Things That Make Us Smart. Reading, MA: Addison-Wesley.

QIA/ALT (2007) e-learning – making it work. From the preserve of enthusiasts to organization-wide implementation. Quality Improvement Agency; Association for Learning Technology Individual (pdf) papers from www.alt.ac.uk/fepc2007.html.

Salmon, G. (2002) E-tivities. Kogan-Page, London.

Savin-Baden, M. (2007) Learning spaces: creating opportunities for knowledge creation in academic life. Buckingham/Maidenhead: Open University Press. McGraw Hill.

Seale, J. (2006) Editorial and special issue on accessibility. ALT-J 14, 1.

Simpson, O. (2002) Supporting students in online, open and distance learning. London: Kogan Page.

Stefani, L., Mason, R. D., and Pegler, C. A. (2007) The Educational Potential of E-portfolios: Supporting Personal Development and Reflective Learning. London: Routledge.

Teicher, C.M. (2008) Survey Shows Increasing Use of E-Books As Research Tool Among Students. Publishers Weekly, 6/25/2008.

Whalley, W. B. (2006) e-books for the future: here but hiding? Ariadne, October.

Woo, K., Gosper, M., McNeill, M., Preston, G. Green, D. and Philips, R. (2008) Web-based lecture technologies; blurring the boundaries between face-to-face and distance learning. ALT-J, 16, 2, 81-93.

Acknowledgement