Research Underpinnings of the UK

eUniversity

INTRODUCTION

The UK eUniversity, run by the organisation whose full name is UKeUniversities worldwide, will start taking students in autumn of this year from all around the world, studying almost completely by remote e-learning. Already there are three fast-track pilot consortia developing material and around a dozen more in negotiation with the eUniversity, generating a conceptual "footprint" on over 40 universities already. The impact of the eUniversity on UK HE thinking on e-learning is likely to be as influential in the longer term as the setting up of the Open University was on distance learning.

What is not yet well known is that behind the setting up of the eUniversity lies a comprehensive set of studies drawing on best practice in e-learning theory and practice, pedagogy and technology, at university level both in the UK and beyond. While some of this has become visible via the PriceWaterhouseCoopers study material made public by HEFCE, the annexes to these – and much more recent material – have not been released for reasons of commercial confidentiality until the key agreements were in place. Now much more information can be given and the theories (and proposed practice) exposed to dialogue with e-learning experts in the wider community. Apart from its intrinsic research interest, the eUniversity understands that pilots will have to internalise and adapt the information to their own situations, and to do this requires a deep understanding of the thinking, not just the surface recommendations.

This symposium takes the form of a "Master Class" comprising presentations from three individuals who have been closely involved with the development of the eUniversity concept. A discussant will engage the presenters in dialogue and the session will conclude with a general discussion inviting contributions from the audience.

Particular themes from the conference agenda that will be particularly exercised are:

e-learning, e-tutoring, the e-university

working across boundaries

new technologies for supporting networked learning

design and pedagogy of networked learning

the move from distance learning to networked learning

collaborative and cooperative learning

the potential of networked learning in professional and lifelong education

networked learning and the global university

case studies of networked learning: models and approaches.

The first presentation by Professor John Slater will look at business and institutional models for a global e-university, drawing on the eUniversity business modelling papers from PWC and benchmarks from across the world. The second, by Professor Paul Bacsich, will look at the conceptual architecture behind the e-learning system, including a discussion of content and standards issues. Finally, Professor Robin Mason will address pedagogic issues with particular relevance to the handling of collaborative learning. Since the three presenters have overlapping skills and experiences, yet come from somewhat different standpoints, there promises to be a lively debate at in the final discussion session of the symposium.

Review of E-Learning for Education and Training

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ABSTRACT

Although e-learning builds on over 150 years of practice of distance education, it differs markedly from previous technological innovations and does not yet have an established research base. So far e-learning has not produced a new theory of learning; in its present form it can be analysed and interpreted using existing theoretical models. E-learning has, however, defined a new paradigm for learning; a way of working, studying and problem-solving which reflects the growing connectivity of people and learning resources. This paper reviews current research findings on e-learning in both higher education and training.

Keywords

What is meant by e-learning?

Overview

A review of the e-learning literature reveals considerable ambiguity and often contradictory conceptions about what e-learning actually is. This is particularly true in the training and workplace use of the term. Some definitions of e-learning carry strong overtones of computer-based training transferred to the Internet. The emphasis is on the electronic nature of the content, not the communicative potential of the web. The UK's Chartered Institute of Personnel and Development takes a different view, however, emphasising the importance of connectivity over stand-alone approaches such as CD-ROMs, satellite broadcasts, video and audio cassettes:

> Learning that is delivered, enabled or mediated by electronic
>
> technology, for the explicit purpose of training in organisations. It
>
> does not include stand-alone technology-based training such as the
>
> use of CD-ROMs in isolation. CIPD 2002.

In the higher education literature, there is greater consensus that online learning or e-learning means electronic access and interaction with learning materials, fellow learners and tutors. The focus here is on the communicative potential of e-learning, rather than content delivery.

Practitioners of e-learning who emphasise the communicative nature of e-learning draw on constructivist and social practice theories of learning, often very overtly aiming to transform the role of the instructor to that of a facilitator of knowledge construction, and to create a social environment in which learners learn from each other online. Practitioners who emphasise the content delivery side of

e-learning very often have a behaviourist or cognitive conception of learning, whether consciously or not. They focus on the development of clearly presented content, facilities for testing the learner and multimedia materials for increasing learner motivation. Access to training, reduced costs and speed and retention of learning are the attractions of e-learning for them.

To date the primary application of e-learning has been the delivery of structured programmes of study, or courses. While other approaches to learning do flourish in some organisations, the formal course leading to an award or qualification is still dominant. Within the 'course' model, however, approaches vary significantly.

Web-based training

In corporate training, technology is used primarily to deliver content to the end user without significant interaction with (or support from) tutors, peers or managers. A significant industry has grown up around this form of e-learning, spanning content authoring, content asset management, instructional design and learning management. Key objectives of this form of e-learning are *throughput and efficiency* of development, management and delivery of content to learners.

A cursory survey of 30 courses at 16 US companies identified three factors which contribute to the take-up of this form of e-learning in the workplace (ASTD & The MASIE Center 2001):

º Marketing: face-to-face and email promotion, internal champions, testimonials.

º Support: time to take the course in work hours, linking the content to business objectives, status and importance accorded to completing the course, help in transferring the learning to the workplace.

º Incentives: intrinsic motivations contributing to personal development are more powerful than extrinsic factors.

Supported online learning

In higher education, the majority of the content of the course may be delivered through lectures or through distance-education textual material, but the course is categorised as e-learning because interaction with the tutor, dialogue with other students, the searching for resource materials, conduct of collaborative activities, access to course outlines and supporting material are all conducted online. A recent review of 100 research papers about e-learning in higher education identified four major features of good practice (Coomey & Stephenson 2001):

Dialogue: using e-mail, bulletin boards, 'real-time' chat, asynchronous chat, group discussions and debate, the tutor or moderator structures interactive opportunities into the content of the course.

Involvement: includes responses in structured tasks, active engagement with material, collaboration and small group activities.

Support: includes periodic face-to-face contact, online tutorial supervision, peer support, advice from experts, feedback on performance, support services and software tools. This is the most important feature of successful online courses, as reported in nearly all of the 100 papers surveyed.

Control: refers to the extent to which learners have control of key learning activities and are encouraged to exercise that control. Responses to exercises, pace and timing, choice of content, management of learning activities, navigation through course content, overall direction and assessment of performance.

Informal e-learning

Beyond these 'course-based' approaches to e-learning are the growing opportunities for technology to support *informal* learning in the workplace. Informal learning is intimately related to job performance; it may not be formally organised into a programme or curriculum by the employer, but it accounts for a good deal of the learning arising out of interactions between colleagues, *ad hoc* personal studies, and the experience of work itself.

The technologies of most relevance to informal e-learning may be grouped into two clusters: information retrieval and knowledge construction. The former covers all forms of search and retrieval software including databases, data mining applications, information services, electronic performance support and, of course, the web. The latter covers all forms of communications technology from simple email to virtual whiteboards. Focused on the processes of human dialogue and exchange, they serve to extend the learning

opportunity as follows:

> Through web pages and text, audio or video conferencing, the range of people to interact with can transcend physical and functional boundaries.

> Through online discussions, there is an opportunity to reflect on and reconceptualise knowledge in its expression to others.

> Through online interactions, tacit knowledge is exchanged across a wider spectrum than amongst those who are physically co-located.

> The technologies keep a record of interactions, files and web materials that can be retained for later use by those directly involved and others.

An e-learning typology

This summary of three applications of e-learning demonstrates, therefore, that the scope of the term e-learning extends across a wide range of pedagogies and learning theories. The key characteristics of the three applications are summarised in Table 1.

Web-based training	Supported online learning	Informal e-learning
Content-focused	Learner-focused	Group-focused
Delivery-driven	Activity-driven	Practice-driven
Individual learning	Small-group learning	Organisational learning
Minimal interaction with tutor	Significant interaction with tutor	Participants act as learners and tutors
No collaboration with other learners	Considerable interaction with other learners	Multi-way interactions among participants

Table 1: Applications of e-learning

These distinctions help to clarify apparently contradictory findings in the research literature, for example, over learner engagement with online material, with indicators of success and uptake of online learning, with drop-out rates and evidence of cost savings. In some cases the findings are based on the web-based training model and in others the findings come from a version of supported online learning. Much of the visionary literature draws on the e-community concept, while much of the negative doomsday writing has the CBT-on-the-web concept of e-learning in mind. All are commonly referred to as e-learning, yet they are very different kinds of learning experiences and serve different markets and purposes. Although these three concepts of e-learning represent relatively distinct examples of current practice, in this emerging and fast-changing field, there are bound to be other models which overlap and combine aspects of these three.

Implicit in the typology are different underlying expectations of technology – differences which will diminish as corporate trainers, especially, increase their awareness of the value of peer-to-peer and peer-to-tutor interaction in leaning. Commentators such as Deborah Schreiber, however, argue that awareness raising may not be sufficient, and foresee the need for a more radical reappraisal of e-learning strategy:

> …many companies procure new [e-learning] technology but often see limited return
>
> because they do not know how best to employ it. Designing and implementing
>
> distance training that contributes strategically to the organization requires not only a
>
> new organizational chart but often a transformation of the corporate culture itself.
>
> Schreiber 1998: 393.

Is e-learning a new paradigm?

How different, then, is e-learning? Does it represent a new paradigm, or will it pass into obscurity along with educational television, learning machines, overhead projectors and other media which in their day were hyped as revolutionary for learning?

There is a long tradition of research into educational technologies which compares learning through 'conventional' means with learning through technology. The outcomes of these studies have been collected together by TeleEducation New Brunswick (2001) under the title 'no significant difference'. In summary, the conclusion is that technologies rarely affect the learning outcomes – when measured by standard end-of-course examinations. While

these results apply to e-learning, what the studies fail to account for is the new paradigm which technology, particularly communication technology, has engendered in society at large and hence in learning as well.

> A large part of the so-called new learning paradigm involves a shift from what has been
>
> characterized as an atomistic perspective to a more holistic perspective (Spector & Anderson 2000).
>
> The atomistic perspective emphasizes individual units of learning (specific and discrete
>
> conditions, methods, and outcomes) and tends to treat learners in a similarly isolated manner
>
> (focusing assessment on individual learners and evaluation on aggregates of individual assessments).
>
> The atomistic perspective can be contrasted with the integrated or holistic perspective,
>
> which views a person as a member of a society and as a member of various language
>
> communities and communities of practice. . . This social perspective, and the realization
>
> that learning is most often aimed at integrated collections of human activities comprise
>
> a holistic perspective of learning. From the holistic perspective, learning is ultimately aimed at
>
> improving the understanding of various phenomena and situations and not merely about
>
> recalling specific facts or solving specific problems. Spector 2001: xv-xvi.

One way of looking at the benefits of e-learning is to disaggregate the pedagogy, the technology and the social dimensions of e-learning. The technology component is the most volatile element of the three. Already we see considerable convergence onto the web: stand-alone CD-ROMs, video- and tele-conferencing – all have web counterparts or integration mechanisms. The web itself will evolve beyond recognition with higher bandwidth, smaller 'screens', mobile access, multimedia communication and further. The pedagogy element is somewhat more complex. In many ways there is 'nothing new under the sun' regarding learning; there are just fashions and recycling in clothing, ideas, approaches and understandings about how to teach. It has been argued that tutoring online is not a new paradigm; there are skills and tips and good practice, but fundamentally, a good teacher is a good teacher in any medium (Mason 1991).

However, just as grandmother's clothes never quite come back into fashion, educational ideas are also helix-like: when they circle back around, they are subtly different – recognisable but differently combined or formulated. So it is with e-learning. The components of e-learning could be defined as:

> 1. multi-way communication amongst learners and between learners and experts
>
> 2. hypertextual rather than linear presentation of material
>
> 3. integrated access to resources both inside and outside the learning package
>
> 4. multimedia forms of interaction and presentation of material.

While these elements may have been available individually before, the combination is new. Furthermore, connectivity over distance

and time has had a profound effect not just in terms of learning opportunities, but in a wider social context. Communication through mobile phones has contributed to these changes, but the result is a different expectation about communication and access to information and people. To summarise, e-learning may not require new theories of learning to account for the nature of the learning experience, but many researchers (such as Harasim *et al.* 1995, Koschmann 1996, and Spector & Anderson 2000) conclude that it *is* defining a new learning paradigm:

> Profound changes at all levels of society and technology demand new educational responses.
>
> The paradigm for education in the twenty-first century that is emerging is network learning.
>
> Based on global interactivity, collaborative learning, and lifelong access to educational
>
> activities and resources, it provides an approach that emphasizes international connectivities
>
> and engenders new ways of working, studying and problem solving. Harasim *et al.* 1995: 278.

What are the benefits and limitations of e-learning?

Overview

Interactivity with course content, and particularly with fellow learners and tutors, is increasingly seen to be the most significant element of e-learning. Evidence of its value in higher education is exemplified by the comments of a student on a supported online Masters programme offered by the Open University:

> The opportunity for student-student collaboration has to be, for me, the most
>
> stimulating part of the programme and the greatest opportunity in developing online

learning. IET 2000.

The results of studies of individual e-learning programmes have shown that support and feedback are the most highly valued aspects of the provision and contribute directly to successful uptake and completion (ASTD & The MASIE Center 2001). It would be hard to find research evidence that interactivity – whether with people or with learning materials – was unnecessary or undesirable. On this basis, far from a diminished role for teachers in technology enabled learning environments, Spector foresees an increased function:

> In the 1990s it was suggested that distributed learning and tele-collaboration would
>
> make traditional classroom teachers obsolete (see for example, Koschmann, 1996).
>
> This has not happened. What has happened is that learners, teachers, designers
>
> and researchers have realized that collaboration at a distance is often quite difficult
>
> and challenging. The role of the teacher is not likely to be eliminated by technology,
>
> although technology will surely affect the roles of both teachers and learners. The
>
> role of teaching in technology-intensive settings is more difficult and more crucial than
>
> ever before. Spector 2001: xiv.

Research does show that interactivity is costly however; costly in terms of running training events, but also in terms of time, both of the tutor or facilitator and the learner. In practice, then, it is reasonable to ask, 'If some is good, is more better?' Here there is evidence that more interaction can lead to overload, unread messages and inefficiency – even when the interaction has been carefully structured and managed (Mason 1999). Referring back to theories of learning, it is obvious why this is so. Learning consists of a number of elements and stages of which interactivity is only one. Designing a learning programme or event is about balancing all the elements for the particular learners and context in which the learning takes place. Researchers and practitioners of e-learning have drawn up lists of the advantages of the new medium as exemplified in Box 1. Such lists are inevitably 'context independent' and, in

practice, it is often noted how these advantages are simultaneously disadvantages as well. For example, the flexibility of the medium easily leads learners to allow other priorities to come before logging on to the course or group work. The much vaunted interactivity easily leads to overload. The ability to jump from one resource to the next on the web (ie hypertext) can be over-used so that relatedness becomes an end in itself, and meaning is lost.

Box 1: Positive features of e-learning

Stephenson (2001) points to the following advantages of e-learning:

o Easy access to and interrogation of high volumes of diverse learning resources, including texts, pictures, library materials, learning tools and other aids to learning selected by the instructor.

o Ease of access to other materials from other sources, including non-educational sources.

o Ease of access to experts, inside and external to the institution.

o Interaction in various modes: teacher-student, student-student, student-learning materials.

o Interaction in various time dimensions: in real time (synchronous) or over a period (asynchronous).

o Access to a range of personal support: by email with tutor and mentors, or through peer group discussions.

o Ease of navigation to sources and persons within and outside the training course or materials.

o Logging or tracking of activities for personal records, sharing or assessment.

o Multiple levels of engagement to different depths of understanding, different volumes of data, difficulty of learning activities, according to individual capacity or interest.

o Feedback loops, either from teachers, peers and others or from within the materials themselves through progress checking, quizzes and online assessment.

o Linkages to other media, such as sound, video and TV.

o Ease of access to simulations of dangerous or complex activities for learning purposes.

o Choice of learning styles within the same package according to the needs of the learner.

o Global connectivity and collaboration opportunities.

o Flexibility of access from different locations.

Collaboration in supported online learning

Turning to the supported online learning model, in which the focus is on the communicative and collaborative opportunities of e-learning, the evidence is less critical, but still mixed. There is considerable research demonstrating the value of online peer learning, collaborative small group activities and discussion and debate, although much of the evidence comes from areas of the curriculum which lend themselves to reflection, tacit understanding and diffuse knowledge domains. However, there are research studies which identify the problems and dissatisfactions with e-learning in the supported model. Three drawbacks are inevitably highlighted (Mason & Weller 2000).

1. The time consuming nature of online collaboration and discussion, both for the learner

and for the tutor/moderator/instructor.

The resistance of many students long practised in individual study, to undertake collaborative

activities especially those involving team assessment.

3. The need for experience and understanding of the dynamics of online interaction on the part of

the course designers and tutors in order to structure an online environment that encourages

students to interact regularly and positively throughout the course.

An emerging role for informal e-learning

Research addressing the benefits and limitations of informal e-learning is very scarce. The Education Development Center in Massachusetts has conducted substantial research on informal learning in manufacturing companies, and claims that 70 per cent of job related learning takes place outside formal training events. However this study is not specifically focussed on electronic forms of informal learning (Stamps 1998; Dobbs 2000).

A CIPD (1999) study examining workplace learning, culture and performance concludes that the visionary view of new technology and global competitiveness driving a new demand for informal kinds of learning in the workplace is difficult to substantiate with hard evidence. In fact, the study claims that most broad-brush surveys of employers' training practices are concerned with training that is pedagogically structured. Workplace learning based on experiential modes of learning and integrated into production processes and the way work is organised, is difficult to define, capture and record, especially with survey instruments. The study accepts:

We are mostly in the dark about the nature and extent of this kind of non-formal or

informal learning. CIPD 1999: 3.

However, the lack of data on informal e-learning should not be interpreted as lack of activity. In fact, almost every aspect of working and learning is being affected by 'network technologies' as Spector (2001) succinctly describes:

One change due to network technologies involves the blurring of the traditional distinction

between learning and working. Individuals may shift seamlessly from performing a work

activity into a system-initiated help environment. Workers may put one complex task on hold

while taking time out for a focused tutorial. Individuals may initiate background agents

to gather information on selected topics which are then pushed into windows that appear

in the user's desktop work environment. Workers may shift from working alone on one

isolated task to seeking guidance and advice from a networked community involved in

similar activities. Spector 2001: xvi.

A recent research paper by Gerhard Fischer and Eric Scharff (1998) on technologies for self-directed learning makes the following claim:

One of the major misunderstandings in our current debate about enhancing learning with

new media is the assumption that technological advances will, by virtue of their very

existence, improve the quality of learning. New technologies and media must be more

than add-ons to existing practices. New technologies and learning theories must together

serve as catalysts for fundamentally rethinking what learning, working, and collaborating

can be and should be in the next century. Fischer & Scharff 1998: 4.

A major finding in current business reengineering efforts is that the use of information technology has a more disappointing return on investment than expected. It is generally accepted that the major reason for this is that information technologies have been used to mechanise old ways of doing business, rather than fundamentally rethinking underlying work processes (Landauer 1995).

These studies of the application of new technologies to workplace learning present a picture not of technology failure, but of human failure to engage with the challenge technology offers for transformation. In many cases, the theories about how people learn and about how they learn in the workplace have not been applied in the design and support of learning.

Conclusion

Any media-related term which is popularised undergoes a similar trajectory: at first it is a buzz word; then it becomes over-used so the early-adopters move on to coin new words and concepts, and finally it either dies out completely or finds its rightful place as signifying a particular idea or practice. Already the early adopters of e-learning are looking around for new words or are adapting the term to cover new meanings. M-learning, meaning mobile e-learning 'on the road' or anywhere outside the office, is the latest buzz word. Meanwhile, e-learning is being re-defined as 'enhanced' learning or even 'experiential' learning.

These substitutions for 'electronic' reflect a realisation that it is not the electronic nature of e-learning which captures its true value, but rather the opportunity to integrate working, learning and community in the workplace. Furthermore, the earlier e-learning adopters have come full circle in rejecting an 'either-or' view of learning online versus face-to-face. So-called *blended* solutions often offer the most satisfactory outcomes: 50/50 models of face-to-face and online learning can combine the best of both worlds; even 75 per cent online with one face-to-face or residential meeting is successful in overcoming the limitations of online learning while benefiting from its overall cost-effectiveness and flexibility.

Importantly, blended approaches can encourage participants to make *better* use of face-to-face contact in the knowledge that preparations and follow up can be conducted online. Totally online courses should be reserved for those contexts in which it is impossible or unreasonable for learners to come together – typically international events and training courses, or projects in which learners cannot leave their operational setting. Synchronous technologies provide a partial substitute.

What does this mean for the continued investment in face-to-face and residential facilities of fixed location training? On the one hand, blended solutions to learning have strong pedagogical justifications: exposure to ideas through several different media definitely improves understanding and take-up (Collis & Moonen 2001). On the other hand, the provision of multiple media is more costly. The Open University has found that students are very positive about electronic tuition, but are less happy when it is a complete substitute for face-to-face tutorials. This has left the institution with all the costs of managing physical *and* technology-based support.

As students adjust to the notion and to the practicalities of learning online, and as the number of students with home access to the Internet grows, these replication costs may be the inevitable price of change and innovation. With each passing year, more and more administrative and tutorial services are being offered online, with greater and greater value evident in the investment in online infrastructure. However, in higher education, just as in the workplace, there are areas of the curriculum, types of experiences, and forms of tacit knowledge that for the foreseeable future still require face-to-face interaction to understand.

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An Innovative Model for eLearning Delivery: the United Kingdom eUniversity

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ABSTRACT

The eUniversity (eU) is being established as a partnership between the United Kingdom (UK) Higher Educational (HE) Institutions (HEIs) and the private sector. The latter will contribute the platform for eLearning, the overall architectural design of the organisation and platform, expertise in marketing and sales, and general commercial awareness. An HEI chosen to produce a given piece of learning will take responsibility for tutorial support, mediation of groupwork, and the award of appropriate credit. The aims are to arrest the decline in UK market share of a rapidly expanding global HE eLearning market and to provide a vehicle to help with the planned increase in the home cohort participation rate to 50%, especially involving students who are socially or culturally disadvantaged or who have an impairment.

Background

In June 1999, the UK Prime Minister, Tony Blair, announced an initiative to increase the UK share of the overseas higher education market. This was perceived as having both economic and cultural/diplomatic benefits. The specific targets set for the sector were to attract 75,000 extra overseas students to UK HE and to increase the UK's share of the fee-paying market from outside the European Union, in relation to English speaking countries to a quarter, both by 2005

The latter represents an increase of 50,000 students for a steady market but the market is growing substantially and so the two targets are roughly in line. At the same time, the then Secretary of State for Education, David Blunkett, was evolving plans to expand the UK participation rate in Higher Education to 50% from approximately 32%. This was to be accomplished without substantial extra building, or significantly more research expenditure.

The Higher Education Funding Council for England (HEFCE), following a number of studies and initiatives, decided to establish a globally competitive provider of higher education through virtual distance learning (eLearning). This would help to address both agenda and be in line with other government pronouncements (Blair et al 1998). It was given a provisional title of the eUniversity (eU) and was to be a public private partnership. The private sector was seen as helping to share risk and as providing expertise and skills in a number of key areas including marketing and sales. Academia was viewed as providing material, student academic support, and accreditation. A key facet of the model was that the eU would use existing structures as far as possible.

The UK has a good record in innovating in relevant aspects of HE provision. Specifically:

UK style pedagogy with its strong sense of tutorial support and independent work is widely congruent with the accepted basis for successful distance HE

Through the Computer Board for Universities and Research Councils and its successors the UK has led the way in providing IT infrastructure including the JANET and SuperJANET networks and the Distributed National Electronic Resource of research and learning support materials

Through initiatives such as the Computers in Teaching Initiative and the Teaching and Learning Technology Programme (Gershuny and Slater, 1989, HEFCE 1998, HEFCE 1999), funded by the Higher Education funding bodies, a cadre of individuals knowledgeable about the uses of technology for Learning and Teaching has been built up.

The Open University was the world's first and remains a highly successful distance learning university.

Partially as a result of these initiatives, a number of small-scale groups in the deployment of technology in support of learning have been established and sometimes maintained. However, large-scale deployment and especially reuse, are scarce (Beetham, Taylor and

Twining, 2001).

Competitiveness has not been helped by the funding regimes at use in UK HE. In common with most of Europe, the UK system is a heavily protected one. Any changes in user demand are responded to in a heavily delayed and damped fashion. This is a natural response to a system that strongly rewards universities that can maintain activities in areas that are not popular with students. This is because high quality research workers and hence genuinely free money can be obtained more readily in areas where there is an oversupply of talented academics and because of natural inertia in employment in the sector. At the same time, the costs of restructuring the syllabus are high and are thus often delayed.

By contrast, funds for innovation and investment in Learning and Teaching are essentially formulaic. The corollary is that actual achievement rarely matches the words put into institutional plans. Furthermore, the controls on student numbers mean that those most needing to innovate tend to be those with the least prestigious brands, and these are the most difficult to "sell" overseas.

UK universities are mostly modest operations on an international scale. Each tends to have a small unit that operates, within a central administration, essentially as a marketing unit for the university, manning desks at fairs and acting as a broker between potential student (and then actual student) and department. There are some conflicts of interest. Overseas students often want to study subjects that are already overprovided with students in the UK and so are rejected in a variety of academically subtle ways such as not responding at all to a request to accept. The priority for most universities is still to obtain full time residential students.

There are some excellent exceptions and not all have been driven to this by necessity. Some universities have opened campuses overseas. Some have joined international alliances such as Universitas21 or WUN. Many have created innovative local partnerships with organisations overseas and several have put in place key infrastructure at home so as better to cope with the overseas visitor.

idea of eu

The idea of the eU was that a single organisational framework would allow all UK HEIs to compete on and at an international scale by pooling key resources and using the private sector when appropriate. In this way it is intended that a UK university can better compete in a more open market environment.

An eUniversity can be characterised as satisfying three criteria:

Material is at HE level (programmes have an exit level of at least first year undergraduate level) and is accredited as such

Material is delivered through the pedagogic paradigms of HE, for example through the availability of electronic resources, tutorial support, groupwork, and a variety of assessments to fit the learning outcomes

Material is delivered primarily by electronic means, but not necessarily exclusively so.

There are four relatively pure types of eUniversity:

Attached: In this model a, usually large and prestigious, university makes its material available through a separate organisation. Accreditation comes from that university. Occasionally a small group of universities may be involved.

Broker: In this model an organisation exists to market and sell products offered to it by a group of universities. Delivery is left to the individual providers.

Commissioner: In this model, an organisation makes available funds to universities and others to provide material which then becomes the property of the commissioner. There may be an element of competition in the process. Accreditation is subject to contract and delivery is usually on the organisation's platform.

Developer: In this model the organisation accredits its own materials, which it either sources itself, or commissions, or buys and then modifies.

In addition to this ABCD of eUniversities, there are a variety of hybrid models. The area is a new one and many early entrants have had significant problems. Attached organisations seem only to work well in a not for profit mode. Pure broker universities have often become purely broke. Commissioner models have had difficulty making agreements with providing universities, especially with respect to reusability, but work much better in a training environment. Developer organisations need to be large in size and are usually state funded "Open" universities.

In response to consultation and thought, it was decided that the UK eU (now formally called UK eUniversities Worldwide), would

take on the best facets of the BCD models. It was primarily to make available material from UK HE. However, it would offer funds to support development, albeit with a clear plan for recovering the investment against successful uptake. It would have its own platform for learning materials delivery. It would enrol and progress students, albeit using university accreditation. It would have its own marketing capacity overseas, possibly collocated with partners who might provide tutorial and other student support in country. It would have its own quality procedures, but these would use those of providing UK universities as far as possible.

The uptake of eLearning has been slower than anticipated and many rivals have over-invested in employees and developments. This makes the case for brokerage stronger and it is hoped that, over the next few years, the eU will learn from the mistakes made by early entrants.

eu brokerage role

The UK currently has:

Universities with developed material but no delivery platform

Universities with good developed material but no overseas marketing

Universities with good conventional distance learning material but no cash or knowledge base to convert it into good elearning

Funders anxious to invest in good product

High brand universities wanting to enter the area from a low overall knowledge base

Universities needing to find models that allow them to deliver more of their course in country to protect and increase market

Universities needing academic partners to help deliver overseas

Universities prepared to accredit non-standard pathways

Organisations with well developed matriculation, exam organisation, rights clearance, and physical distribution capabilities

Universities possessing good partners in some countries but not in others

Organisations with considerable knowledge of relevant pedagogy

Organisations with considerable knowledge of building learning materials from an appropriate level of academic design, for delivery in a variety of cultural backgrounds, and to a variety of learners, including those with disabilities.

Overseas there are organisations with:

Marketing ability local to the country, including an understanding of cultural sensitivities and financial and academic regulation

Ability to provide tutors

Ability to arrange finance and collection of fees

Ability to provide student support

All of this leads to considerable brokerage opportunities. In order to allow brokerage to work, however, it is necessary to disaggregate the functionality of the eU to the point at which activities can be brokered and to have clean interfaces. Disaggregation can occur in a number of ways:

By granularity –to configure for the needs of the learner, it is necessary for learning objects to be defined at a fine level of granularity, with substitution and independent accreditation

By functionality – potentially separate marketing, student support, provision of supporting resources, tutorial support, accreditation, assessment, administration, rights clearance etc.

The pedagogy

Significant effort has been invested in the investigation and piloting of the pedagogic models most likely to lead to successful eLearning at HE level with corresponding high retention rates (see Dearing et al 1997, HEFCE 2001). There is now considerable research into costing models and methodologies

(see Ash, Heginbottom and Bacsich 2001.

As a result of this work, it is possible to identify certain key components of any framework for the delivery of UK HE eLearning. These include:

Rich authorisation and security facilities

Provision of asynchronous tutorial support with key service levels and appropriate monitoring and audit trails

Provision of both synchronous and asynchronous groupwork tools to permit mediated and unmediated activity, using a variety of media and with various built in navigational and audit trail facilities

"Shoulder tapping" tools to remind learners and tutors/markers of impending or expired deadlines

Support for a variety of assessment types

Planning tools to allow for instance mapping of learning outcomes to assessments

Tools to improve marking and to facilitate consistent, quality feedback to learners

Facilities to support the monitoring and reporting of progress, for quality assurance and research purposes. Exception reporting needs to be properly supported

A pedagogy group was set up to advise the eU in its development phase. It identified the detailed learning object types required and prioritised these to facilitate the development. This will enable subsequent disaggregation of the design from the production process. Each of the first three fast-track pilot developments plans to involve an experienced producer of eLearning material working with the universities (EPIC with Sheffield Hallam, the BBC with York, and the UK OU with Open/Cambridge).

the platform

SUN Microsystems are providing the basic hardware and licenses and the overall architectural design of the platform. As strategic partners, they proposed that, especially for the learner facing and university facing components, a rapid prototyping and refinement methodology (RUP), be used. This permits considerable input from pilot development projects, from the group of pedagogic experts and from a further group of administrative experts from within the UK HE community.

Actual detailed development is being conducted by a consortium including SUN, various systems integration organisations, and key UK universities already active in the area. We are keen, for instance, to build in the hooks necessary to support a thorough ongoing research and monitoring activity.

The intention is to support a large number of students effectively. To this end the architecture uses commercial database and content management products when appropriate. It allows a number of standard conforming Learning Management Systems (LMSs) to be deployed. Many LMSs include facilities for groupwork and email and a variety of interworking tools. This can be inefficient and unpopular with some learners. The eU design uses tools at a much lower level, developed by Netscape and SUN for these purposes to give the required efficiency and scalability and allows the user freedom of choice in some key areas such as email.

The architecture follows an open "plug and go" model. Thus modules can be slotted in to support specific assessment types, to allow e-commerce applications such as book sales, to support the marketing and sales operations, and to support the administration of the eU itself. The portal (user interface) is essentially separate from the rest of the system and so can be configured for differing user communities, providing universities and quality of connection. Impaired learners can thus be supported so as to minimise their disabilities, and there are also options to access alternative objects or web pages according to similar discriminants.

The platform will support effectively the pedagogy features identified in the previous section. Thus it can be used as a service to universities wanting to mount their own material, either as part of the eU offering or outwith it. Alternatively, it can support disaggregation, at the junctions between academic design and material design and between material design and production.

marketing and sales

Originally it had been hoped to acquire a single partner to provide marketing and sales throughout the operation. This did not prove possible. Some publishers possess a good marketing organisation in some countries directed at selling learning but want to concentrate on selling their resources and this is unacceptable to universities. Overseas rivals offer good organisation in some areas but there are problems in not having a local person dedicated to marketing eU products and the worry that the eU offerings will be towards the bottom of a pile. The possibility of taking over a rival organisation was investigated but it proved impossible to agree a suitable price

Fortunately, a solution was at hand through the UK public sector and through recruitment. The British Council was keen to help us through its developing network of learning centres. Some of the services of its widespread organisation are provided freely but other more targeted operations are available.

The UK universities themselves have many local partners. These they are prepared to share with other UK universities provided that they do not thereby compete. Since the eU does not intend, in some cases contractually, to have products that essentially compete with one another this makes sharing possible. In some specific key cases, a UK university has a significant operation in a country and the eU is hoping to take up some spare capacity for the benefit of all its providers.

There is benefit in a single local partner handling marketing, tutor provision, student support, and local permissions and examinations. Thus many partners will be academic organisations with standing and brand value locally in their own right. This helps with the ongoing acceptability with local organisations and government.

Initially the eU will not have significant brand in its own right. However, by offering products from high brand UK universities, and by delivery of these and other products within a common quality framework, it will become possible to build up a brand. Thus initially the marketing of courses will be in an isolated fashion whilst over time a greater emphasis on the ability of the learners to put together their own pathways from a variety of providers will come more to the fore.

negotiating with a provider: the problem areas

Each course will have a business plan with clear understanding of what each party is investing alongside the nature of the return. The eU will typically take the greatest risk, especially where substantial investment is involved. To stay in balance therefore and to continue to expand the model, it is necessary that the on target plans show a profit for the eU in order to cover the losses on those courses that do not meet target.

This leads to considerable discussion with universities when drawing up contracts. They are convinced that their course will be profitable and so do not want to make an "insurance" contribution, but are not prepared to underwrite the profitability. A key part of the discussion is the terms on which an offering will be phased out if it is not successful: this covers both the timescale and residual ownership.

Since the eU is not seeking to own any intellectual property in the academic design of the material, it requires the university to warrant that it has the ability to grant the licenses to exploit the material. This includes clearing rights with its employees. Some universities are better developed here than are others.

Key to ongoing profitability is an update strategy, reusability conditions and continuity of the course without reliance on key persons. At other times the continuing association of key international names with the product is needed. This again touches areas that are new to many universities. There is a noticeable difference between sites and departments that view planning of modules as a teamwork activity and plan tutorial work, seminars and group activities carefully in advance, and more traditional academics. Fortunately, the former is largely to be found in disciplines with large numbers of students and these are precisely the areas that are being targeted initially. The ability to fix flawed offerings "on the fly" is less easy in an eLearning environment and is more costly and hence a proper planning and version control framework is essential.

choices in the production and delivery of materials

Inevitably there is a variety of opinions concerning the extent to which programmes and modules offered should be demand led or supply led. At one extreme is the "high-minded" individual who believes (or at least articulates forcibly) the view that only academic values and inputs can determine the learning objects. At the other extreme is the view of parts of the private sector that awards are commodities that can be bought –all the university need do is accredit a list of candidates supplied by the eU as having completed a learning programme defined by the demand of the learners.

The problem is to ensure that material is of an appropriate level, a good fit with the brand of university, meets a market need, and is

adaptable without loss of quality for different cultures, industries, and meets access criteria. To facilitate this, a learning outcome approach is adopted. The variations then become different ways of achieving the outcome. Differing assessments become different ways of demonstrating achievement. Not all UK academics are yet comfortable with this approach.

Initially, the courses on offer are largely supply led and were selected from responses to an open bidding process conducted with academic referees and following common academic selection procedures. Over time it is hoped that marketing input will lead towards a more demand led model.

Universities are already used to configuring assessment and examples for a specific set of learners or to meet the requirements of a corporate or industry segment. Thus MBAs with an emphasis on say petroleum or gas, or an ecology award in which there is a flavour such as forestry are existing concepts.

Most universities are equally at home with modular courses. Thus taking an MBA and replacing a particular module with say one in IT, law, or ethics, is a concept that will pose few problems. The idea of the "wildcard" being delivered by another department or organisation is also common.

Accreditation of prior learning and especially prior experiential learning is well understood by a smaller number of UK HEIs. This together with a freer approach to module selection lead to the need to have available a university with expertise in accreditation prepared to make it available to learners.

Reusability is high on the agenda. It is still a matter of conjecture why training providers and adult education have little difficulty with this concept that can enflame passion at HE level. The SOURCE project at the Open University, funded by the Higher Education Funding Council for England (Twining et al 2002) gives some pointers and a lot of further references to the conditions in which software based HE products are reusable. More work needs to be done to overcome the strong resistance within the HE community. Again these problems are minimised if developments are seen as group activities.

Sometimes it is the business planning process that shows the need to make material reusable or modifiable in order to respond to the needs of groups of corporate organisations. To give a trivial example, the extra costs associated with for instance, making available a US style version (eg modificationizing UK assessments to make them more familiar as US evaluations, standardizing spelling, and using a tool to deliberately and maximally split infinites etc.) and possibly even arranging alternative US accreditation, can be modest when balanced against the increased market.

These costs however should not be underestimated. To demonstrate retained quality while offering alternatives requires work and each variation and specific request from a given corporate needs to be funded by the sponsor or lead to a positive return. The exception to this is the area of making material suitable for learners for access and disability reasons. Here there is a governmental imperative (HEFCE 2001).

It is the intention that, over time, the vast majority of eU offerings will be delivered on the eU platform. To that end the development process above has been undertaken. The platform incorporates a pedagogical framework based on acknowledged UK expertise. Its use will help impose standards for reusability, quality assurability, and scalable use with predictable costs. It also imposes service standards. Nevertheless, initially it was decided to allow universities to develop for their own alternative platforms and to use the quality regime to ensure that learners were not thereby disadvantaged. The hope is that any special required features of such alternative platforms would over time be incorporated into the eU platform or found not to be necessary. In the meantime, a hybrid model with transmission of relevant data between the eU and university according to standards, and constant service levels provided to learners will be supported.

the structure of the eu

The main public sector input to the eU comes from a separate company, eLearning, which is limited by guarantee and in which almost all UK HEIs have a share. eLearning licenses the eU to use the trademarks that it owns and invests capital that it obtains from the funding bodies. In exchange, the eU agrees only to trade in the primary activities (providing eLearning and related services) under the marks of eLearning and to do so under a quality regime laid down and designed to ensure high quality. Key to this is the establishment and maintenance of a Committee for Academic Quality (CAQ).

The directors of eLearning are all heads or ex-heads of UK HEIs. Three directors of the eU are also serving vice chancellors but the other directors represent the other stakeholders. The Chairman of the CAQ, also a serving vice-chancellor, is entitled to attend and speak at Board meetings of the eU.

The role of the CAQ is to take responsibility for all aspects of quality that affect the learning experience. This will include:

- Learning and teaching standards
- The overall user experience
- Academic quality of learning materials
- Tutorial support
- Support materials (electronic and physical)
- Design of courses
- Detailed specification of courses
- Approval of courses after final production
- Monitoring performance against standards
- Reporting on the courses in progress

The members are typically serving or recent vice-chancellors or pro vice-chancellors who have had institutional responsibility for the Learning and Teaching area. Initially there is a lot of work to be done. The dual role of setting standards and then monitoring compliance has been recognised in the substructure with a committee on policy and standards and one on monitoring and research.

The approach being followed in defining standards is to rely on institutional quality procedures as far as possible. What the CAQ lays down is the areas in which standards and procedures must be present. As an example, there should be clearly defined standards for the time taken to mark and return an assignment but these may vary from course to course or institution to institution. Similarly, there must be tutor training in place, some of which will be generic but some course specific.

As a result of the activities of the Quality Assessment Agency (QAA), most institutions have in place a lot of what is needed. However, there are a number of areas that are often weak. These include:

Final assessment and accreditation decisions (the QAA has not looked at this process)

Escalation procedures – what happens when routine monitoring shows a problem

Procedures related to electronic delivery

IT standards

Wherever possible discussions will take place with the HEI to add to its procedures. This is likely to involve reference to another institution's procedures. There are issues with some institutions over escalation procedures and sharing information when things are not ideal: there is an inevitable tendency in any self-regulating system to deny that there are any problems.

monitoring and research

Again institutional procedures will be used and enhanced as required. The eU expects the internal monitoring documentation to be shared with it and to discuss any actions that result.

One key area is the identification and action on rogue tutors. In a campus based environment with small numbers this is often handled non-procedurally but here something more formal is required.

The institutional monitoring will be enhanced by some modest monitoring of learner progress. Some of this will be longitudinal to allow shifts in usage or opinion patterns investigated. This data will be cross-referenced against the institutional data.

Th eU will be equipped to undertake modest research. Mostly it will take part in wider studies, comparing with alternative suppliers. Its research is likely to be focussed on investigating hypotheses that are of direct relevance to its current or future activities. To avoid researchers feeling isolated, it is hoped to have some joint appointments with other institutions with a broader base.

Once quality standards and monitoring procedures have been defined, there is a need to bring to bear subject expertise. The actual development process will be steered in conjunction with a member of eU staff with knowledge of the process. In addition the CAQ will appoint a relevant subject expert to review the process and report to the CAQ on progress. Reports are likely on the overall proposal, the detailed design, the academic design, and the final version.

Subsequently, the same mixture will be used to review the monitoring data and the resulting actions. They will draw on generic expertise within and brokered by the eU as required.

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