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G. Singh
University of Wolverhampton, UK

J. O'Donoghue
University of Wolverhampton, UK

H. Worton
University of Wolverhampton, UK

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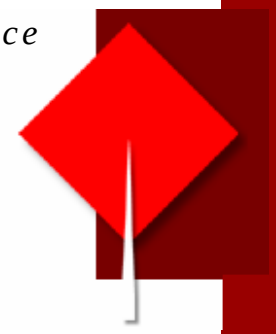

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Gurmak Singh

John O'Donoghue

Harvey Worton

University of Wolverhampton

j.odonoghue@wlv.ac.uk

Abstract

The Internet is a technological development that has the potential to change not only the way society retains and accesses knowledge but also to transform and restructure traditional models of higher education, particularly the delivery and interaction in and with course materials and associated resources. Utilising the Internet to deliver eLearning initiatives has created expectations both in the business market and in higher education institutions. Indeed, eLearning has enabled universities to expand on their current geographical reach, to capitalise on new prospective students and to establish themselves as global educational providers. This paper examines the issues surrounding the implementation of eLearning into higher education, including the structure and delivery of higher education, the implications to both students and lecturers and the global impact on society.

Introduction

ELearning is construed in a variety of contexts, such as distance learning, online learning and networked learning (Wilson 2001). In the context of this paper all of these instances will be considered to describe learning that utilises information communications technology (ICT) to promote educational interaction between students, lecturers and learning communities (Holley 2002). Volery (2000) argues that the fast expansion of the Internet and related technological advancements, in conjunction with limited budgets and social demands for improved access to higher education, has produced a substantial incentive for universities to introduce eLearning courses. Volery (2000) continues, that if universities do not embrace eLearning technology that is readily available, they will be left behind in the pursuit for globalisation. Ribiero (2002) argues that if universities are to maximise the potential of eLearning as a means of delivering higher education, they must be fully aware of the critical success factors concerned with introducing online models of education.

Many commentators describe the relative benefits of eLearning in higher education, however, there are ramifications for unprepared, technology focused institutions, when trying to implement distance learning courses. O'Hearn (2000), contends that university structures are rigid and unproven, regarding the incorporation of technological advancements. Holley (2000) states that eLearning is difficult to implement without the full cooperation and support of lecturers, as the degree of interaction between lecturers and students is still predominant in eLearning environments (Volery 2000). Finally, are traditional universities able to compete with other independent education providers in relation to social demands for 'life long learning' and globalised education services? (O'Hearn 2000).

The Organisational Structure of Universities

Over the past decade the structure of higher educational institutions has changed, partly due to the introduction of technological initiatives. Scott (2000) supports this opinion and contends that as eLearning is now facilitating a more flexible learning approach, contemporary institutional structures are less robust than in previous years. In addition, Shaba (2000) states that technology in general has not only improved knowledge storing methods and learning techniques but has also acted as a catalyst to combat the barrier of inflexible organisational structures. This view suggests that to fully experience the benefits of technological advancements in higher education, such as eLearning, universities must have flexible organisational structures. According to Scott (2000), the structure of today's universities must be 'changeable' in order to integrate distance learning courses, and those institutions that will not or cannot change their structure to incorporate this technology may be bypassed by other educational providers, such as virtual universities and independent educational services. It might well be the case that corporate universities which hitherto only offered training to its employees will be in competition with the higher education sector.

Darling (2002) argues that such a wide acceptance of eLearning methods in higher educational institutions will create broader repercussions regarding organisational structure. This point is illustrated by Shaba (2000) who suggests that universities are currently inexperienced concerning the acceptance and incorporation of eLearning and other technological changes into their organisational structures. Shaba (2000) considers that this lack of experience will initiate the following reactions within universities. Firstly, ambiguity towards future technology strategy and how to incorporate new technological advancements into organisational structure and secondly, how to cope with the diverse range of teaching courses and learning programmes ongoing within the university comprising of full time and part time students. Shapiro (2000), suggests one of the challenges facing traditional universities intending to transform organisational structure to incorporate technological innovations is coming to terms with the process design for distance learning courses, without ignoring the organisational, managerial and financial constraints.

Although advocates of traditional approaches to higher education may argue that courses should be taught in fixed locations using somewhat rigid organisational structures, the opinions of many writers suggest that eLearning methods will greatly change future higher educational systems. Volery (2000) describes how the broadening geographic distribution, flexible learning environments and variety of educational models that are offered by distance learning facilitate improved education, and if universities do not embrace this technology they will be left behind in the pursuit for globalisation and technological development.

The impact of eLearning initiatives will have direct effects on the future structure of universities on both strategic and tactical levels (Shaba 2000). Strategically, universities will experience issues concerning face to face versus virtual environments, how many buildings to keep and most importantly whether to maintain the existing organisational framework. On a tactical level, the changing role of lecturers, the changeable learning environment and the design of eLearning facilities will all contribute to a potentially more flexible organisational structure. Despite the apparent dysfunctional effects the implementation of distance learning techniques can assert on university structure, O'Hearn (2000) adds that contemporary university structures must be changeable and adaptable, able to embrace new learning and communications technology offered through eLearning, or face the consequence of limiting students direct access to global knowledge repositories that have the ability to extend higher education.

Higher Educational Institutions links with Industry

Researchers have indicated that a more business-focused approach to higher education in conjunction with improved technology has resulted in an increased number of university to business alliances. Henry (2002) explains that in today's information age traditional universities must compete with other educational providers, such as education centres and corporate universities, if they are to attract and retain suitable students. In contrast, whilst such alternative educational sources are expanding steadily, traditional universities should distance themselves from these developments and concentrate more on internal progress and improvement (Shapiro 2000). Fry (2001) offers that universities are driven to eLearning as a marketing tactic to attract part time students and to maintain market position, and the rise of alliances with other organisations is inevitable due to social demands for knowledge and the lack of public and government funding in higher education.

The range of eLearning providers is broadening rapidly and Henry (2002) suggests that the number of corporate universities may outnumber traditional universities within five years. Teare (2000) debates the credibility of such corporate universities, which offer product specific training within a number of disciplines, and believes that they only seek alliances with traditional universities in an attempt to take advantage of universities respected reputations. While traditional higher education institutions endeavour to learn more about implementing eLearning from external organisations, they are extremely cautious with regards to connecting themselves to potentially precarious organisations (Dobbs 2000). Due to social demands for flexible learning, the business marketplace is now progressing on the more traditional realms of higher education (Teare 2000), and if traditional institutions are to remain a dominant education provider and advance technically they must embrace the knowledge and experience of external clients in the latest distance learning revolution (Jones 2000).

Incorporating eLearning in Organisational Strategy

Fry (2001) expresses the view that if universities are to compete in a global higher education market they must embrace the technological advancements and use them as a strategic tool, capable of transforming educational and business practices. Fry (2001) considers that eLearning initiatives will not only give universities a new channel of educational deployment, they will also support strategic objectives by assisting asynchronous discussion consortiums and networked communities. It may be that eLearning strategies within universities could be orientated around technological capabilities. Darling (2002) opposes this assumption and contributes that higher educational institutions should not be influenced by features and functionality of software, instead of focusing on eLearning as a tool to support learning. Darling (2002) further advocates that eLearning is a valuable strategic business tool, that when implemented 'properly' could modernise higher education, but when deciding an effective strategy it is imperative to consider that distance learning is a means to an end, not the end itself.

Hartley (2000) details that any university incorporating eLearning initiatives into organisational strategy must take into consideration the following; the financial constraints of the strategy, suitability of the technology, implementation of the technology and the range of eLearning requirements within the institution. If sufficient attention is given to all these considerations, the university is in control of it's distance learning future (Hartley 2000).

Darling (2002) asserts that a number of established universities are embracing the use of technology in higher education, especially in distance learning disciplines, without understanding or addressing the business or educational requirements. In the opinion of Shapiro (2000) this could be fatal for universities, who must not let fundamental educational processes be overshadowed by the implementation of new information technology strategy. The inference is that universities which do not incorporate eLearning effectively as part of an overall learning strategy will do so at the expense of survival.

The above considered a variety of views regarding the effect and potential effect eLearning can have on universities as organisations. The use of advanced technology in higher educational is inevitable (O'Donoghue, Singh and Dorward, 2001), it will contribute to the demise of communicational, geographical and inflexible learning boundaries. Henry (2002) remarks that when organisations participate in restructuring internal processes, eLearning will assist in optimising business processes and will eradicate inefficiencies through shared knowledge and improved communication between departments and employees. To be successful within any organisation, the evidence suggests that eLearning must be implemented as part of an organisational strategy to support learning. Shapiro (2000) argues that eLearning requires systematic implementation and if not structured properly could lead to chaos. Darling (2002) states that for higher educational institutions, an effective strategy does not assure success, as the technical issues in distance learning delivery will always be significant. Perhaps, this point highlights the inexperience of universities with regards to incorporating technology effectively, and justifies the need for external partnerships and alliances. This is particularly so for aspects of infrastructure and internal change management structures. This view is supported by Teare (2000) who comments that through alliances with organisations, eLearning course material can be designed to challenge students in real business situations in addition to underpinning academic endeavour. Rather than a paradigm shift to an online model, a delicate balance needs to be established between the more formal traditional structures and procedures of the university and the new administrative functions required to rapidly respond to changes in the online education market and ensure competitive advantage and ultimate survival of the virtual campus.

The Role of Teaching Staff

The dynamic nature of the IT industry in conjunction with evolving eLearning technologies has created a tension for lecturers in higher education. ELearning initiatives have reportedly created new educational issues for lecturers, such as changing work patterns and in some cases the reluctant integration of technology. Serwatka (2002) argues that sometimes student success can be achieved simply by preventing student withdrawals from eLearning programmes. The teaching techniques used by lecturers in traditional courses may also have to be reviewed and modified, as they do not always prove effective or necessarily transferable in eLearning environments (Serwatka 2002). Lecturers in networked learning environments modify their courses as they go along, meaning the longer a course is taught in a particular format the more effective it is (Volery 2000).

Many suggest that rather than changing the role of the lecturer, it will gradually disappear completely with the rise of improved eLearning technologies and methodologies. At Carnegie Mellon University (CMU) in America they exercise the concept of a 'wired campus', in which all students learn in a number of disciplines via eLearning. At CMU the traditional lecturer is considered a relic of the past that should be replaced by electronic tutors. Scott (2000) explains how in the future these electronic tutors at CMU will act as virtual teachers, if students make a mistake the tutor will be informed automatically and will offer helpful hints. Scott (2000) argues that virtual tutors will out perform traditional face to face techniques because in traditional lectures vital information flows past students, whereas the virtual tutor can wait until a student demonstrates a clear understanding of the information or knowledge repository. Rigid information management mechanisms which incorporate tutor invention and involvement must be facilitated in a variety of ways, as they would within the contexts of class based activity.

Volery (2000) maintains that technical expertise on its own is not of great value unless lecturers conceive effective ways to utilise it. Lecturers will always play a key role in the effective delivery of eLearning initiatives, as it is the lecturer not the technology that facilitates the students learning experience. Wilson (2001) suggests that three characteristics of the lecturer will control the degree of learning; attitude towards technology, teaching style and the control of technology.

In support of this view Holley (2002) concludes that students will experience a more positive learning experience if guided by a lecturer who retains a positive attitude towards traditional learning whilst promoting eLearning methods. The accepted acronym for such exposure being called 'Blended Learning'. Blended learning is an important building block of the new schoolhouse that offers students both flexibility and convenience, important characteristics for working adults who decide to pursue postsecondary degrees. Blended learning is a hybrid of traditional face to face and online learning so that instruction occurs both in the classroom and online, and where the online component becomes a natural extension of traditional classroom learning (Colis and Moonen 2001).

Enhanced Teaching Tools

The future delivery of education is envisaged through eLearning technology providing lecturers with superior teaching tools. Volery (2000) argues that online methods facilitate more effective education and offer significant advantages over traditional teaching methods. This can be via full blown technological implementation or limited technology based environments such as bulletin boards, virtual lectures and eLibraries. McClelland (2001) contends that in eLearning environments lecturers can offer constant educational support, as students are able to communicate with classmates and lecturers, visit web sites and view course material regardless of their time and location. To maximise the potential of eLearning teaching tools Holley (2000) advocates two methods to modify the learning process. Firstly, educational re-engineering that will revolutionise classroom practices and secondly educational fortification that will improve the learning courseware through technology.

Despite the apparent advantages of eLearning teaching tools there appear to be certain practical problems with regard to utilising these techniques in educational learning environments. Teare (2000) explains that initially the process of teaching via eLearning may demonstrate features of educational enrichment but in reality eLearning methods prove highly problematic. Teare's (2000) studies suggested that some students who participated in online learning courses found the delivery of course content impractical and frustrating due to technological failures. These finding's imply that the problems with eLearning initiatives are not the value of the delivery methods but the reliability of the technology supporting them. Volery (2000) identified that university students who participated in Virtual lectures found the experience rewarding and rated them as a valuable learning tool. However, nearly two thirds of the students in the class did not participate fully because of technical problems i.e. frustrations in trying to connect and utilise the networked systems.

It seems that the teaching tools associated with eLearning may have the potential to equip lecturers in higher education with flexible channels and a model for the delivery of courses. Web based learning allows lecturers to disseminate up to date course content in relatively no time at all and students can complete courses just-in-time, giving them the opportunity to apply knowledge in contemporary situations (Teare 2000). ELearning courses can be structured and aligned with the requirements of today's workforce (Volery 2000). Also, teaching methods such as virtual lectures, sustain group interaction whilst broadening the flexibility of communication between students, indicating that eLearning teaching methods enhance student interaction and offer a flexible alternative to traditional time and place constraints (Holley 2000). However, many authors debate eLearning programmes regarding the reliability of technology versus the apparent advantages of learning delivery methods. Perhaps the reported technological failures are simply teething problems in the early life of the eLearning revolution and whilst there will always be fundamental problems integrating computers with humans in education (Scott 2000) the teaching techniques in eLearning offer lecturers enhanced teaching tools that are capable of moving higher education into the information age.

Training Staff in eLearning Techniques

Recent studies indicate that the success of eLearning methods in higher education can only be measured according to the effectiveness of delivery, training staff may be regarded as a major challenge in the adoption of eLearning initiatives. It is acknowledged that some academics working in higher education are reluctant in accepting aspects of technology in their teaching and learning.

Charlesworth (2002) adds that contemporary lecturers are not resistant to training in the use of technological applications, they are simply confused as to how to implement such into lectures or more formal teaching methods. Lecturers that enter the profession in today's information age are much more likely to have used computers and have significant access to the Internet than those in previous years and are more likely to accept technological advances in teaching methods. (Wilson 2001). Academics are often encouraged to "go online" by their institution, by either moving or supplementing teaching in an online environment. This could simply be attempting to replicate face to face teaching, in effect changing nothing; enhancing face to face teaching with the available technology; or transforming face to face teaching by the available technology. The approach chosen will be determined by several factors, one of which will be existing knowledge of the technological environment being used (Coldwell 2003)

Educators must be involved in all stages of eLearning course development, including determining the prospective audience, the purpose of the learning programme and the best format (Shank 2002). This view highlights the requirement for lecturers not only to be trained how to apply eLearning technology in higher education but also be attentive of the theories behind distance based learning. Proficient training includes both technical and conceptual issues, and if executed correctly will generate increased support for the merits of eLearning (Shapiro 2000). Lecturers must possess the appropriate facilitation skills if eLearning courses are to be successful. Shank (2002) argues that facilitation skills fall into three sections, facilitating real time events, moderating online discussions and coaching students. Shank (2002) continues, that if lecturers do not maintain a high level of facilitation skills, even the most effectively designed eLearning courses will be unsuccessful through inattention on behalf of the lecturer.

The evidence suggests that staff training is a central concern for universities implementing distance learning methods. It is essential that the opportunity to redesign and improve university teaching practises through eLearning is not usurped by a focus on training lecturers how to use the hardware and software (Shapiro 2000). Inadequately trained lecturers using eLearning in educational environments can become an obstacle in a finely balanced learning process and can lead to problems in application use and in the perception of students (Volery 2000). In contrast to traditional teaching skills, eLearning requires lecturers themselves to be committed to a constant and changing learning curve, which may involve an mixture of formal training courses in conjunction with conferences and other less formal techniques, if they are to acquire and develop the skills needed to be an effective eLearning tutor (Shank 2000).

Lecturers in higher educational institutions must accept and embrace technological advancements offered by eLearning. Holley (2002) explains that lecturers have to adopt new educational approaches in order to maintain the quality of courses. Collectively, the evidence offered on the role of lecturing staff in contemporary eLearning courses suggests that online learning should not be regarded as an alternative to a traditional tutor. Effective eLearning programmes use lecturing staff combined with the appropriate technology to deliver effective learning. In addition, the lecturer is not only the knowledge source but is also a knowledge navigator using the Internet as a teaching tool. This enables lecturers to transfer their skills in other business areas such as developing training and corporate courses (Ribiero 2002).

The Learning Environment

There is a notion that an eLearning environment offers students an improved learning experience when compared to a more traditional learning environment. Holley (2002) found that student participants on eLearning university courses using techniques such as virtual lectures and bulletin boards, achieved better grades than students who studied in traditional learning settings. Hartley (2000) maintains that the constraints of conventional university teaching practises with regards to group working are removed in eLearning environments, as students can participate in group activities without actually being situated in the same location. Indeed alternative relationships are developed within the context of an online community (O'Donoghue and Singh, 2001). This supports the view that eLearning environments loosen the time and space restrictions associated with traditional university practises.

However, although eLearning environments overcome the traditional time and space constraints, universities must be cautious when deciding if distance learning environments should replace the traditional methods, as students recognise the benefits of the eLearning environments but only when combined with traditional formats (Serwatka 2002).

Many writers propose that the current significant limitations of eLearning environments are not exposed by contemporary research. O'Connell (2002) proposes that students from non-technical backgrounds or those who are more accustomed to traditional face to face learning environments, experience problems absorbing course material in eLearning environments. Similarly, Holley (2002) suggests that even undergraduate students who are perhaps more assertive and motivated should be given focused training on how they can take full advantage of eLearning environments. IT skills can prove problematic for students on distance learning courses and if the requirement for training is not addressed, students will not experience the full benefits of the eLearning environment (Holley 2002). Furthermore, a lack of IT skills is one of the main reasons for student non-participation in eLearning courses (Wilson 2001). Whilst not looking to replace 'real' paper with technology based resource, it is the process of augmentation and enhancement with the 'traditional' resources to enable reflection, encapsulation, consolidation and extension of the written word.

Student Performance

The above suggests that students enrolled on eLearning courses perform better than those on more traditional schemes. It is important to clarify that in the context of this paper student performance considers the level and quality of learning outcomes as well as the student's grades in assessments. Lieberman (2002) explains that in higher education student participation is a primary feature of enhanced performance and in distance learning courses students are more likely to participate in class discussions and group work than in traditional lectures, as they are given more time to prepare questions and responses. O'Connell (2002) argues that quieter students will still be excluded from virtual discussions, as there will always be students who will monopolise conversations, even online! Also, controlling dominant students is far more difficult in eLearning environments when compared to face to face lectures (O'Connell 2002).

There is evidence to suggest that eLearning university students outperform those on traditional courses. Scott (2000) uses the example of Carnegie Mellon University (CMU) in America, where eLearning techniques have not only improved student exam results but have acted as educational bridges between subjects, breaking the ancient boundaries between disciplines. In addition, CMU students participate in eLearning initiatives that allow them to control their own company in a virtual working environment, students analyse competitors business plans, track the performance of their company and even trade virtual stocks. Students, full time and part time, would not acquire this valuable experience in case studies and traditional lectures (Scott 2000). The inference is that higher education institutions which utilise effective eLearning methods not only enhance the performance of students in assessments but also produce graduates who are theoretically and practically prepared for working in an information age (Holley 2002).

Accessibility for Students

One of the most valuable attributes of eLearning techniques and delivery are that they potentially give students greater access to education, in comparison to more traditional less flexible educational methods. Writers such as Hemsley (2002) express the view that full time and part time students can now partake in their chosen degree courses from any location, giving people who travel or who are relocated, a transferable and easily accessible learning resource and experience. Through the use of advanced technology, students who have previously not had access to higher education now have the opportunity to study at the location that best suits their needs (Sadler-Smith 2000). ELearning offers people with disabilities the opportunity to further their education from home (Brown, Cromby and Staden 2001). Although the views expressed propose the positive aspects of home working, there is still evidence to suggest that students who learn from their most convenient location will not engage in a positive learning experience.

Home access to education may seem a positive way forward but the learning process is often disrupted, as the surroundings are not necessarily conducive to study (Shaba 2000).

If eLearning offers students greater access to higher education, it is necessary to consider not only access to education but also the access to technology, as computers are an indispensable element of effective eLearning courses (Ribiero 2002). Students who have access to networked computers may have the opportunity to experience a more flexible learning process but students and indeed higher educational institutions could fail to benefit from this opportunity, due to students not being able to afford or gain access to a computer (Shaba 2002). Therefore, students with no computer at home are maybe disadvantaged in eLearning environments. In addition, as a major consequence of an increased participation in higher education, a large number of students originate from low income backgrounds and will have little disposable income to purchase computers (Holley 2002), therefore increased reliance on technology to deliver higher education may potentially lead to further divisions in society (Shaba 2002).

Untimely eLearning initiatives create unproductive learning environments in which students encounter difficulties with course material, are unsure how to prepare for online assessments and are reluctant to contact lecturers for assistance (Serwatka 2002). A major challenge for contemporary universities is to offer students a more client orientated educational programme (Hartley 2000) and this requires an educational understanding of the students need for a more flexible, easily accessible learning environment, which can be offered through distance learning (Fry 2001). Moreover, contemporary learners need to communicate and require the ability to share knowledge and skills from distance, therefore networked initiatives that are technically satisfactory and are highly personal offer students and universities the opportunity to customise the learning environment (Hemsley 2002).

The Concept of 'Life Long Learning'

The development of eLearning methods have brought with them the concept of 'life long learning'. Although it is fair to say that lifelong learning is hardly a recent phenomena. John Henry 'Cardinal' Newman circa 1850, in an address made in the 17th Century (with apologies for the limited gender definition):

> *"….He (man) profits by an intellectual tradition, which is independent of particular teachers, which guides him in his choice of subjects. . . . He apprehends the great outlines of knowledge, the principles on which it rests, the scale of its parts. . . . Hence it is that his education is called "liberal." A habit of mind is formed which lasts through life, of which the attributes are freedom, equitableness, calmness, moderation, and wisdom…."*

The notion that education finishes when someone enters the workplace or reaches a certain age is dispelled by the introduction of eLearning techniques and the provision of an opportunity to access teaching and learning resources remotely. Holley (2002), explains that the opportunities given by eLearning, such as the removal of time and location constraints, offer all people in society the potential to be life long learners whatever their location, age or occupation. In addition Serwatka (2002), argues that eLearning not only encourages 'life long learning' by alleviating physical constraints but also by removing some of the perceived barriers of higher education, enabling students to work towards their preferred course and goals at their own pace and ability.

Whilst society's enthusiasm for life long learning seems to be increasing, the question of which institution will deliver the learning seems to be unanswered. Shapiro (2000) suggests that the social demands for higher education are not always being met. Furthermore, when they are being met, it is not through the traditional university educational system. Does this suggest that the social requirements for 'life long learning' could contribute the downfall of the traditional university? This opinion is supported by O'Hearn (2000), who outlines the requirement for alternative learning facilities, that are not bounded by traditional academic structure but can offer the equivalent qualifications. In South Korea the government revised the Lifelong Education Law 1999, and allows private educational institutions to grant degree level qualifications (Jung 2000). The very survival of the traditional university may depend on how higher education institutions address the concept of 'life long learning'.

Global Education Services

The Internet has allowed universities to expand beyond their local campuses and create global learning institutions for today's information age (Wilson 2001). This globalised network of education services has resulted in enhanced domains of knowledge being available to students (O'Hearn 2000). Certainly, according to O'Hearn (2000), global eLearning programmes provide 'real time' connections between students who can share knowledge resources, such as databases libraries, from anywhere in the world. This may indicate that students who are studying on a global distance learning degree may be more prepared for a global work market.

This view is supported by Hemsley (2002), who studied Jones International University (JIU), which was the first university to be founded for the delivery of degrees on line. Hemsley (2002) stated that JIU have various degrees available all focused on the global expectation of today's work environment.

Nonetheless, Jung (2000) argues that successful deployment of educational technology on a global scale will be problematical for universities, due to the lack of an IT culture within educational institutions. Shapiro (2000) argues that universities will struggle to implement global eLearning courses, as worldwide implementation is unequal in terms of infrastructure and technical support. Students must utilise the IT tools efficiently to meet the academic demands of the course and this will increase the demands of both staff and students in eLearning environments, particularly when there are problems with the networks (Shapiro 2000). As a final point, the University of California Los Angeles (UCLA) propose that the introduction of Global eLearning courses would prove unsuccessful from both an educational and financial perspective. Wilson (2001) reported that UCLA students and prospective students were reluctant to enrol on courses anywhere in the world, instead, they would pay more to attend lectures on a university campus.

O'Hearn (2000) maintains that access to less traditional educational providers is growing, and indeed, higher education is no longer restricted by fixed locations or inflexible academic structures (Hemsley 2002). The concept of 'life long learning' is now a reality with the introduction of eLearning into higher education, which gives people in any country access to university courses (Evans 2002). Brown, Cromby and Staden (2001) describe how eLearning has assisted in the education and rehabilitation of students with disabilities. Shapiro (2000) argues that the creation of a globalised education network may cause significant problems for traditional universities, not only on a technical level but also with regards to course format and support. Whilst technology makes it possible to deliver higher education globally, is it likely that traditional universities will continue to exist in such a flexible global market? (Hemsley 2002).

Conclusion

ELearning could have potentially major effects on the way higher education is designed, implemented and delivered. Until now, universities have been static in their structure and delivery of higher education courses. However, demand for learning has never been so high, and this in conjunction with the need to geographically broaden learning may prompt universities to introduce eLearning initiatives. The same demands for learning and the increased revenue of independent educational providers, has produced a real threat to the very existence of the traditional university. ELearning may provide universities with a means of exceeding the newly formed competition, by taking full advantage of their traditional, already established reputations.

For students, eLearning can provide an educationally-superior alternative to traditional lectures, in which learning can take place outside the lecture hall. eLearning can also provide a model for students on how to become self directed independent learners, which may assist them to become 'life long learners'. For lecturers, networked learning may cause changes in work patterns and even change their professional role, but in addition, eLearning provides them with the opportunity to test students in real business situations and new methods to evaluate each student's learning. The role of the lecturer is predominant in the successful delivery of networked learning initiatives, as lecturers have the influence to eliminate students technical frustrations, make students feel empowered and encourage students to interact with one another.

For lecturers, eLearning programmes represent a change in teaching style. The precise nature of the change is difficult to quantify, however allocation of sufficient time and resources, combined with managerial support, will help staff through the period of transition. Effective management can also help institutions to deal with any increase in lecturer workload by ensuring efficient use of resources

The last decade has seen a phenomenal growth in the use of the Web in university education, with various factors influencing the adoption of Web-based technology. The reduction of government funding in the higher education sector has forced universities to seek technological solutions to provide courses for a growing and increasingly diverse and distributed student population. Another impetus has been a shift in focus from teacher-centred to learner-centred education, encouraging educators to provide courses which enable students to manage their own learning (Sheard and Lynch 2003).

When considering the implementation of eLearning, educational institutions must be structurally flexible and be able to embrace the capabilities of distance learning as a tool to support overall learning. To utilise these capabilities successfully, higher education institutions must determine the most suitable environments and courses for eLearning delivery, indeed a successful eLearning course may be one that is blended with other more traditional face to face delivery methods. Pedagogical approaches have not radically changed over the last 25 years (Nabeth et al, 2004). So the concept of developing an holistic learning organisation which empowers the learner and moves away from the didactic delivery model located within the traditional lecture hall is a relatively threatening anathema to a number of staff and institutions. Granting more autonomy to the learner and at the same time adapting to systems which are less stringently controlled or supervised will create potential internal conflicts (Wolters 2003). These may not all be at the academic interface. The integration of numerous internal procedures and processes as well as multiple IT systems will all mitigate against the successful implementation of a cohesive and supportive eLearning context or environment. ELearning has a fundamental impact on the structure of higher education. Whilst the growth in demand can be accommodated by its implementation, the diversity of the new student population requires that institutions carefully develop programmes that will satisfy a broad range of learning requirements. This challenge is intensified by changes to the competitive environment where, in the wake of lifelong learning, traditional institutions are competing with corporate and virtual universities particularly for the mature student population. (O'Neill, Singh and O'Donoghue, 2004).

There is a need to acknowledge that active learning within a technologically-based environment necessitates the establishment of a theoretical framework as part of the learning process, (Manning, Cohen & DeMichiell, 2003). This realisation will mean that the use of technology is not about replacing learner process, but enhancement and extension of such. This is most important if we are not to simply 'cut and paste' content, which may have worked in the lecture theatre, in virtual and technology-based learning environments.

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