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Equity issues in E-education

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Abstract

The potential of the World Wide Web as a medium for course delivery was early recognized, and universities were quick to take advantage of its possibilities for reaching a wider and more diverse student population. As the amount of course content being offered online increases, both to internal and external students, universities are increasingly exposed to the possibility that students may claim they are disadvantaged by either the mode of delivery or, in the case of overseas students, the content itself. In this paper we review the explosion in internet-based delivery of courses and discuss the areas where we believe there has been little consideration given to equity, both in terms of access and presentation of content. Finally we caution providers of Internet-based education that, unless attention is paid to these areas, they may be open to litigation by dissatisfied customers.

1. Background

Student numbers in the School of Information Technology and Computer Science at the University of Wollongong [UOW] are increasing rapidly. It is expected that at our current rate of growth, the number of undergraduate students will increase from 7,500 in 1999 to more than 8,500 by 2002.¹ In the School of Information Technology and Computer Science the growth rate from 2000 to 2001 was 40%, resulting in the current enrolment of 1144.

This phenomenon is neither unique to Wollongong nor to IT. Universities worldwide are having to deal with the twin challenges of increased student numbers and a more diverse student population; a situation that is unlikely to improve in the near future.² The developing countries have skipped a generation of development and as a result, have moved straight from the 'talk and chalk' delivery method to online education. This change has also been prompted by the need for developing nations to improve the quality of local education in order to compete globally. No developing country can or has the capacity to provide enough classroom space for all who need

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¹ Spender, L., "Access issue won't go away", *Australian IT*, 2001.

² Ramsden, P., "Lost in the crowd?" *Times Higher*, July 1992, p.15.

education.³ Thus many universities, including large number of Australia universities are offering web based offshore distance education in many of these nations.

Students are enrolling in UOW subjects from around the world, but primarily from Singapore, Malaysia and Hong Kong. As UOW deals with the challenge of increased student numbers, it also has to deal with the diverse student population. To support the subjects being taught, UOW as well as many other universities have initiated the use of a classroom management package to supplement the various types of lectures being delivered via various means of flexible delivery. These Web sites host important information and services. However, just how accessible are they to students in other countries or who have a disability of some sort that would impede their accessing the subject online?

This is a similar issue to that embodied in the concept of the digital divide. Allport says in her article in the NTEU Advocate: "The digital divide is a real one, both across national borders and within affluent countries. It has been estimated that the Internet reached less than 2% of the world's population in 1998⁴, it has however, grown to 6.6% in November 2000."⁵

To ensure that no student is disadvantaged as far as access to computer equipment is concerned, UOW has put in place measures to ensure that onshore students have access to computer facilities. This access is for eighteen hours a day in a variety of laboratory sites. Should students wish to purchase or lease a computer, an on campus shop is available, where a variety of computer and computer based equipment can be purchased at a reduced price. Onshore students must still find the means to pay for their own Internet Service Provider (ISP) to have off campus Internet access. This can put a strain on those less financially able.

Many of UOW's offshore partner institutions have low loan or lease options in place to ensure that all students have access to the requisite hardware and software. This does not overcome the infrastructure problems that inadequate networking, bandwidth or server problems raise within the institution or within their respective countries. As a

³ Gollin, S. and Kies, D., "Disadvantaging the Disadvantaged?: A Dialogue", The Learning Centre, Student Affairs and Services, University of Western Sydney, 1999.

⁴ Hubbard, A., "What It Means to Teach Online", *Computers and Geosciences*, vol. 24, no. 7, 1998, pp 713-717.

⁵ Aspin, M., "Is Online Education an Equity Issue?", <http://www.edfac.unimelb.edu.au/online-ed/mailouts/1997/sept12>.

partner in these endeavours both educators “have a moral responsibility to ensure that old barriers to access are not replicated in cyberspace.”⁶

This is not a new issue in society. Access to the Internet and computer technology in general has been a topic of great concern for years. Terms such as 'Information Rich' and 'Information Poor' has been bandied about in the press for decades and in education for as long as computer technology has existed in the school system. Equity and human rights issues are now being raised regarding a 'new class of the information poor.'

2. Flexible Learning

For the purpose of this paper, Flexible Learning is that mode of delivery that refers to “teaching activities that make significant use of resource based teaching models in which significant aspects of the educational process is conducted through the use of one or more educational, often information, technologies”.⁷ Concern does exist, however, that traditional academics are “simulating their lectures and tutorials online and thus offering an ersatz version of the ‘Real Thing’, which will almost certainly turn students off.”⁸

What is not being addressed is the mode in which offshore students are used to having their material delivered. Students in Malaysia and Singapore are accustomed to smaller class sizes, lecture delivery being conducted complete with support notes, followed up with tutorials that revise the delivered material. Memorisation plays an important role in their educational process, not the least to assist them in coping with learning in a second language. A typical offshore subject is delivered by a one week of intensive lecture schedule of between three and one half hours to four or six hours on the weekend. Many students are mature learners who work through the day and then attend this lecture system. A tutor at the respective offshore institution conducts follow up sessions, again in an intensive delivery mode. Subjecting these students to a system that consists of intense lecture delivery, followed up with notes on a web site, places an extraordinary amount of pressure on them to cope. In an attempt to alleviate the pressure and to provide a system of support, UOW

⁶ Hubbard, *supra* n.4.

⁷ NUA Surveys,
http://www.nua.com/surveys/how_many_online/index.html.

⁸ Weihart, L., "Give the Coneheads a Lesson in Teaching", *The Industry Standard*,
http://www.thestandard.com.au/articles/article_print/0,1454,9634,00
(July 3, 2000).

has begun to implement a system of web sites to supplement the content of the subject as well as provide a forum for questions or discussion.

The role of the academic varies when offshore versus onshore as well as from the traditional classroom to the online venue. While offshore, "the academic is moving from a free agent to that of an interdependent partnership."⁹ This partnership involves working with a fellow academic in a tutorial role who assists in the support of the subject. For many UOW academics, the team approach is new to them and calls for a new approach to subject structure. Roles are also moving from that of being the "font of knowledge" to being a "coach and facilitator of learning."¹⁰ In large classes the "font of knowledge" approach assists the academic in coping by designing a lecture and delivering it with no interruption to a large group of people. Indeed, students are familiar with this model and are quite happy to sit back in the lecture theatre and wait to be educated. The change that online learning brings to this situation is immense, yet little is being done to ease both the onshore and particularly the offshore students and institutions into this "brave new world". This leaves the academic and the institution open for potential litigation if a student believes that he/she has been disadvantaged in any way.

While acknowledging the inequity that potentially exists in the Flexible Learning area, little consideration is given to how the Universities should address the potential difficulties. In NSW, high school students must spend 50 hours a school year applying technology in a variety of fields of study. Other states in Australia have the same or similar requirements. Students entering an on-campus Bachelor's Degree at UOW are expected to have these basic computer competencies or they are enrolled in a mandatory subject to give them the skills required. When confronted with a web-based subject, they are supported by the academic, or in tutorials with the assigned tutors to help them through.

This is not the situation for the offshore students. Although they are computer literate and have the same basic competencies as our first and second year students, a flexible delivery subject would be new to many of them. In addition, offshore staff members may need training in the best means of supporting this mode of delivery both academically and in terms of the requisite hardware, networking and software purchasing. Essentially, the candidature from offshore is

⁹ Fox, R., Herrmann, A.L., Thornton, D. and Schrape, J., "Inquiry into Electronic Delivery", Centre for Educational Advancement, http://cea.curtin.edu.au/publications/de_inquiry.

¹⁰ Ibid.

facing an inequitable situation where they are expected to cope with new technology, and new subject delivery with little to no support.

3. Concerns

Distance education units are suffering both from growing workloads with no commensurate increases in resources and from a significant shortage of quality storage and non-desk workspace.¹¹ Problems arise in the intense delivery mode which calls for full day lecturing over a brief period of time, followed by little direct contact with students for the remainder of the term. At the end of the relevant semester the workload intensifies when the academic is called upon to either mark exams or to participate in some method of quality control. This uneven distribution of the workload results in a dramatically increased marking load for a brief period of time. The potential exists for errors to be made, again disadvantaging the flexible learning student.

The changed workloads also affect the support staff of the various departments. The inputs of offshore work often come at a time of intense work commitments onshore. It is difficult for the support person involved to maintain a tight offshore schedule when also confronted by the face to face demands of local staff. Any delay in the processing of offshore results, postpones the notification of marks received and distribution of testamurs. Without this information, students cannot apply for jobs or must wait for final approval until this documentation arrives.

Developing a subject that is suitable for intense delivery requires a flexible mind set, a subject able to be modularized and that the academic has the skills to develop a suitable web site to support the course material. Many staff find the new technology confronting and would prefer a slow entry to this area. Sometimes the IT skills of the academic lag far behind those of the students. The academic is called upon to learn 'on the run' as they prepare the subject, modify its format and learn new software in order to build their e-learning site. There is often pressure that anything mounted on the web will be better than nothing at all, consequently course structure is so poor that "students should be reimbursed for being guinea pigs in failed experiments."¹²

Today's students have grown up with the Internet and related technology, and are used to visually stimulating and highly interactive sites. "Adding richer content in the form of multimedia

¹¹ NUA Surveys, *supra* n.7.

¹² Weihart, *supra* n.8..

objects or animations, giving students a collaborative forum for discussions in 'class', and supplementing self-study with online real-time tutorials are ways of engaging the student in a rich learning experience."¹³ The more common web based subjects, where text is loaded and little else done to the site, have clearly not addressed this change in pedagogy. In addition it has been shown that we read between 20-40% less accurately off screen than we do off paper and we also tend to read differently off screen than off the printed page."¹⁴ An academic's failure to adopt richer content could be construed as a failure to provide adequate instructional support for students studying in these alternate modes.

These concerns affect only those students who are fortunate enough to have access to the latest technology and related infrastructure. However, there are still students with little prior IT exposure who are coming to university to learn how to use computers and the Internet effectively, there is a potential avenue of imbalance. Westwood recognises this again when he states, "Furthermore, the majority of students don't have the requisite plug-ins, bandwidth, processing power and memory for these animated gismos. If students are the customers, the emphasis should be simple-edge technologies for the masses rather than bleeding edge technologies for the few."¹⁵

The simple-edge technology approach must also be considered for effective offshore delivery. Many countries are entering into the technological age and have actually skipped several generations of technology. This still does not necessarily prepare them for the advanced software, which would require expanded desktop memory in lab computers, large file servers suitable for mass storage or networks capable of huge loads of traffic. If a class full of offshore students are simultaneously undertaking a lab based activity accessing an educational website the combined demand on the network could easily cause it to collapse, which again, would disadvantage those students.

Clearly the academic teaching both offshore and onshore must somehow deal with these conflicting needs. When developing subject websites they must juggle the need to avoid technologies likely to overburden the smaller bandwidth networks often found in developing countries, versus the need to supplement on-line text with richer content. Ultimately neither group of students may be satisfied.

¹³ Bottomley, J., "Review of Distance, Open and Flexible Learning at Curtin University of Technology", Curtin, December 1998.

¹⁴ Bond, A. and Bray, B., "Universal Design: Accessibility for All", WebCT Users Conference, June 2001, Vancouver, Canada.

¹⁵ Bottomley, *supra* n.13.

4. Equity Attempts

Universities such as Curtin and UOW, among others, have investigated electronic delivery and the possibility for inequity to arise. It is recognised that "while web technology may open up opportunities for some students, the same technology may exclude others."¹⁶ Surveys conducted at Curtin show that 75% of the students have access to the Internet.¹⁷ What is to be done about the remaining 25% is of continuing concern. As more and more subjects are being made available online, the issue of those without access can only grow. There needs to be a resolution as soon as possible.

Concern over accessibility for the disabled should not be ignored either. It is estimated that up to 20% of Australian's have some disability and perhaps 35% of the elderly are included.¹⁸ Commonwealth departments and agencies are obliged by the Disability Discrimination Act of 1993 to ensure that online information and services are accessible by people with disabilities.¹⁹

It is possible for people who suffer from various physical disabilities to overcome educational barriers if online materials are produced in a way that makes them accessible. This is possible because web based material; "eliminates transportation barriers, allows students to reveal their disability at their discretion and promotes equity and reduces discrimination."²⁰ This notion is supported by Gollis and Kies who found that: "many of the disadvantaged students (at DuPage) see technology as giving them an edge that draws them closer to the mainstream."²¹

The academic must be concerned with the presentation of the material on the web sites and all various flexible delivery systems. Adherence to quality standards such as that proposed by Bond and Bray²² effectively eliminates many of the more 'flashy' sites, that all may effectively use the website.

Online modules can be developed for, or used by, students with far less opportunity either financially or physically than the typical mainstream student. The "College Board Online' discusses the factors

¹⁶ Bond and Bray, *supra* n.14.

¹⁷ Ibid.

¹⁸ Allport, C., "eLearning and our future", *NTEU Advocate*, April 2001, p 2.

¹⁹ <http://www.theaustralian.news.com.au/printpage/0,5942,2705715,00>.

²⁰ Ibid.

²¹ Aspin, *supra* n.5.

²² <http://www.theaustralian.news.com.au/printpage/0,5942,2705715,00>.

that must be considered when constructing these modules. These are: "Access - an equal opportunity to gain entry, Process - a state beyond non-discrimination that is characterised by fair and just, but not identical treatment, Outcome - all students are provided educational experiences that ensure the achievement of certain uniform goals and objectives."²³ Failure to adhere to any of these again leaves the delivery partners open to claims of discrimination.

5. Legal Implications

The issues discussed in this paper relate to areas where members of the student population could hold the institution, the academic or both accountable for any perceived inequity. Firstly, discrimination could be claimed if a flexible delivery method does not cater for a particular disability or cultural difference. Secondly, inequality could be claimed if there is a failure to deliver the subject to all involved in the flexible delivery method that would include both on and offshore. Thirdly, failure to deliver the content in a timely and coherent manner could see a law suit regarding inadequate content or lack of service suits.

Of particular concern is the possibility that an offshore student may bring action in an Australian court, using Australia's anti-discrimination laws. Can offshore plaintiffs such as offshore students be able to sue in Australian courts for perceived damages arising from inequitable access associated with an on-line learning site? If so, all providers of on-line education offshore may need to rethink their approach. As has been shown the reliance on web-based materials with no supporting infrastructure offshore, is clearly discriminatory when compared with onshore.

6. Conclusion

Online education is providing the educator the opportunity to provide access to individuals to an extent previously not possible. Consideration must be given to the various types of delivery systems that exist, both on and offshore for the institution's students. As well it must be recognised that however much institutions are taking up online delivery, for many students and support staff, the course the academic is presenting could well be their first introduction into the area of distance learning. Without proper grounding in this area participants could be disadvantaged compared to those with more skilled instructors. As well, the academic may be entering to this arena for the first time, with little skill, less time and no opportunity to learn about the new delivery method and its most effective use.

²³ Ibid.

The potential for the disadvantaged student to learn is far greater now that flexible learning is possible. The educator must consider the needs of these students by designing the site to cope with their needs in mind.

Neglecting the needs of the learner can leave the institution and its academic open to legal action unless differences of students and institutions infrastructure are recognised and suitable flexible delivery sites constructed. Failure to implement these issues could be a costly exercise for all.

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