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e-Universities: - Business and Technology (An Australian Viewpoint)

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ABSTRACT

This paper will briefly discuss the current environmental changes and the need to provide computer training for students and staff by offering online computer based training materials. Further, it discusses the reason why Australian Universities are using On-line teaching systems and also describes some of the technologies being used.

Keywords: electronic commerce, higher education, training, On-line Teaching Tools.

INTRODUCTION

Western societies are moving from an industrial to a knowledge-based economy. One of the major impacts of this change is that universities are becoming business oriented as they respond to two major sources of environmental change - reduced government funding and the increasing 'push' to use computer technology in teaching and learning (and the supporting administration systems). This paper will discuss the increasing need to provide computer on-line teaching technologies for students within an Australian context.

THE CHANGING HIGHER EDUCATION ENVIRONMENT

Higher education in Australia has changed rapidly in the last few years, in response to environmental change. A combination of factors might be suggested as contributing to the change. These factors include: changes in the Australian federal government education policy; an economic rationalist approach to managing the economy; the effects of 'globalisation' and 'internationalisation'; the introduction of computer and technology based instructional systems (particularly internet technology) into education; and what has been termed the third wave of global change: 'knowledge production and management' (Toffler 1998)(Zohar, 1997).

The changing higher education environment offers economic progress and also dilemmas. In a globalised economy the labour force has two major opposing factors, low wages or well-educated and highly qualified manpower. In countries like Australia, where wages are high the development of a "product" critical to its economy. Australian universities have recognized this and have started to move towards becoming international knowledge producing units and undertaking a larger role in society by participating in and contributing to the stimulation of the economy and its growth (Pellert, 1998).

On the dilemma side Clark (1998) argues that global force create another level of demand on universities who have to deal with factors such as fluctuating funding sources changing policies of governments, and varying perceptions of universities as workplace trainers and places for the socially upwardly mobile. In addition, universities not only compete with other universities internationally but with knowledge producers in other segments of society.

Further, universities have to achieve contradictory goals in order to control their own destinies. For example, universities have to do more with less money, they have to maintain cultural heritage while meeting a high demand to develop new fields of study and thought, and develop an entrepreneurship/strategic approach rather than a government funded approach (Burton-Jones, 1999).

To conclude, Australian universities are still changing as they respond to their new environment, and the one key area of change is in their core area of business - education. The next section will discuss the changing learning environment and its impacts.

THE CHANGING LEARNING ENVIRONMENT

Learning needs have changed because of a changed learning environment. Tsichritzis (1999) posits that there is an increasing need for an attitude of 'life-long learning' in relation to further education and professional development training to accommodate the changes in the work environment. Rather than as Tsichritzis (1999) wryly observes, the temptation for universities to see the current economic climate and 'globalisation' as temporary, and so defend the existing structures and roles, and wait for better days. Tsichritzis proposes that universities – once designed for a captive market of somewhat elite cohorts of post-secondary
school students – have to address the changing spectrum of student profiles (older-age students, international students and professionals). Furthermore, Twigg (1994) argues that physical or manual work and the notion of one career will gradually disappear. He states that forecasters envisage that in an average work life people will have several different careers, each requiring new skills, new attitudes and new values. Retraining then will be the constant, as the ‘technology’ of each profession also changes.

Learning needs will change because it is predicted that those participating in learning and training will not always be able to attend classroom sessions, but are best taught in the workplace – on the factory floor or in the office, out at sea, and in the home. Learning will not always take place with books, overhead projector or a whiteboard. Learners will use tools such as computers and all the accompanying software applications and Internet communication technologies, cable television, video-conferencing and CDs to name a few (Twigg, 1994; Bastiaens, T.J., & Martens, R. L., 2000). Examples of these technologies will be looked at later in the paper.

The ensuing outcome means that academics will require skills in using computers in order to teach in new learning environments. Furthermore, because the student cohort has changed, academics will be teaching to students who have a range of learning needs because of their varied backgrounds, ages and stages. Thus, academics will need to go beyond the traditional classroom lecture and explore the range of computer based educational materials, to accommodate the different learning environments and learning arrangements (Twigg, 1994; Bastiaens, T.J., & Martens, R. L., 2000).

THE CHALLENGE

The challenge then is: how do universities in the context of a dynamically changing global environment, who are increasingly needing to be entrepreneurial and business-like, and increasingly using computers in education and the accompanying automated administration systems, support their students and staff, to learn, work and live with computers?

It is suggested in response to this challenge, a systematic and coordinated training approach to support staff and students is taken (Mulholland & White, 2000). One of these approaches is the use of online computer based training materials, as it is accessible and easy to use (via an Intranet for example), it can support current training courses and can complement any computer training embedded in tertiary subjects. It also resolves many of the issues inherent in more traditional education paradigms. The most apparent is its ability to:

- distribute information both locally and globally;
- provide flexibility, that is students and staff can study at their own pace and in their own time;
- provide additional features such as electronic mail, bulletin boards, different types of media delivery and automated testing;

- incorporate an administrative system for monitoring and tracking student progress.

On line learning and training also resolves a particular issue for Australia – overcoming the tyranny of distance. Australia is a vast continent, thousands of kilometers wide and separated from other countries at an equally vast distance. Online learning then offers an ability to accept students from neighbouring Asian and Pacific countries, and support students in the outlying country towns and regions.

The changing higher education and learning environments have caused new challenges for universities. Each university is responding the best they can. The following is a description of Deakin University’s endeavor to provide educational services that meet their student’s learning needs.

DEAKIN UNIVERSITY CASE STUDY

Deakin University has become the primary provider of off campus courses to undergraduate and post graduates students within Australia and focuses on the use of new on-line teaching technologies for staff and students.

In 2000, Deakin University had the following numbers of students enrolled (Deakin University 2000):

<table>
<thead>
<tr>
<th>Student Category</th>
<th>Total Enrolments</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full time (on campus)</td>
<td>9,959</td>
<td>35.3%</td>
</tr>
<tr>
<td>Part time (on campus)</td>
<td>2,702</td>
<td>9.6%</td>
</tr>
<tr>
<td>Full time (off campus)</td>
<td>1,337</td>
<td>4.7%</td>
</tr>
<tr>
<td>Part time (off campus)</td>
<td>10,773</td>
<td>38.2%</td>
</tr>
<tr>
<td>Full time (multi modal)</td>
<td>2,502</td>
<td>8.9%</td>
</tr>
<tr>
<td>Part time (multi modal)</td>
<td>919</td>
<td>3.3%</td>
</tr>
<tr>
<td>Total Student Numbers</td>
<td>28,192</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 1: Deakin University student enrollments (2000)

Of particular interest is the 10,773 (38% of all enrollment) students who are enrolled in off-campus mode. These students do not physically attend lectures and historically have received study guides to work from. The development of Technology has dramatically altered the way in which materials and courses are offered to off-campus students. The off-campus students face a number of problems, these include (Leitch et al., 2000):

- a feeling of isolation;
- difficulty in contacting lecturer;
- difficulty in gaining access to the same teaching materials as on-campus students.

The use of new technology has overcome many of the problems described. The most commonly used on-line technologies used with the School of Computing and Mathematics, Deakin University are as follows.
Email

This represents the simplest Internet technology that is used by off campus students. This is used to allow students contact lecturers, exchange information. Email also allows students to form self-help groups via the use of mailing lists.

The advantage of this medium is that all students have access to email since Internet access is a pre-condition of acceptance to Deakin. The advantage of email is that it allows student to directly contact lecturers and help to reduce the feel of isolation – that is a common problem for many off campus students. However as mentioned earlier, the lack of social context cues can also create problems.

Information Repositories

Deakin University, also makes use of Web-based Information Repositories such as the Web-CT learning and teaching system. This system is used as a central location so that students can find, for example lecture notes, course news and subject resources. A screen shot of Web-CT is shown below.

![Screenshot of Web-CT system](image1)

Figure 1: Example screenshot of the Web-CT system

Systems such as Web-CT are being widely adopted by Deakin University for a number of reasons (Leitch et al, 2000):

- ensures off campus and on-campus students have access to the same materials as on-campus students;
- help to ensure that there is no difference between on-campus and off campus students;
- the Web-CT system is web-based which allows easy access for all students.

Further, academics report that they find it useful as a teaching tool because it:

- does not require academics to learn “html” or web development skills;
- provides a standard user interface, that students and academics alike become familiar with.

Group Discussion Tools

There are certain academic subjects that require an element discussion as an important part of the academic unit. The requirement is outside the ability of standards Information Repository system such as Web-CT. Therefore what is required is the use of a more dedicated system that all students to post messages and allow those messages to be structured in a orderly manner.

The group discussion tool that is commonly used by Deakin University is called “FirstClass” (see the screen shot of interface in Figure 2). The tool is not web-based, therefore students are required to download a dedicated browser which enables them to connect to the Deakin FirstClass server.

![Screenshot of FirstClass system](image2)

Figure 2: Example screenshot of the FirstClass system

The advantages of this system, is that it allows (Leitch et al 2000):

- off-campus students to take part in discussions;
- reduces any distinction between on and off campus students;
- allows students to directly interact with each other whether they are on or off campus students.

Web-Cam

Deakin is also involved in trying to develop teaching technologies that can be used to assist students and staff. One of these new developments has been the use of web-based cameras. At the present a pilot study is being undertaken to connect student and staff in remote campuses (as shown Figure 3). It is intended to expand the use of Web-cams in future.
The advantage of this approach is (O’Conaill et al, 1993):

- allows direct contact between staff and students;
- makes it cost effective to directly contact overseas students, an important issue in the global education markets;
- equipment required for web-cams is relatively inexpensive.

However, disadvantages of video technology can be (O’Conaill et al, 1993):

- overlapping speech between student and lecturer;
- interruptions in the sessions due to the technology;
- issue of standards, due to variety of systems available.

CONCLUSION
Higher education and learning environments are changing worldwide. The aim of this paper has been a discussion about some of the keys issues and one university’s response using on-line teaching technologies to give Australian Universities competitive advantages over their rivals. It is predicted that this trend will continue to enable Australian universities to fight for their share of the global university market.

REFERENCES


Deakin University (2000). Deakin University – Pocket Statistics, Deakin University Planning Unit, Australia.


