

Long distance teaching: The impact of offshore programs and information technology on academic work

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Abstract

Australia's higher education system has become financially dependent on fee-paying international students and is constantly seeking ways to enhance its competitiveness in overseas markets. Offshore teaching programs have become an attractive strategy for institutions hoping to improve their profile and gain additional market share. Long distance teaching is also being undertaken via use of information technology. Academic staff are increasingly required to spend time teaching in offshore programs, and will be involved in greater use of information technology to deliver their services. These developments raise issues relating to quality control, curriculum development, increased workloads and job satisfaction. This paper overviews recent developments in these areas and discusses their implications for the future of academic work.

The internationalisation of Australian higher education

According to the Institute for International Education (IIE), the level of internationalisation within an education system can be measured by the proportion of international students to total enrolments (Davis, 1995). Using this criteria, Australia's university sector is one of the most internationalised in the world (Table 1). International students comprised a higher proportion of total university enrolments in Australia than any of the other leading host nations attracting international students. In 1993, these students comprised around 7.4 per cent of all undertaking higher education (UNESCO, 1996). In many Australian universities, international students account for over 10 per cent of total enrolments.

Following the decision by the Commonwealth Government to permit Australian universities to recruit full-fee paying international students in 1985/86, the numbers of international students grew rapidly. From 1980 to 1990 the average annual growth rate was 12.7 per cent (Kemp, 1990 :3, DEET, 1996).

Table 1: International student & total university enrolments - Major suppliers 1993*

Host Country	Foreign enrolment	Total enrolment	% of total enrolment
Australia	42,415	575,617	7.4%
France	139,562	2,074,591	6.7%
United Kingdom	95,594	1,528,389	6.2%
Germany **	116,474	2,033,702	5.7%
Canada	35,451	874,604	4.0%
United States	449,749	14,473,106	3.1%

* All figures for higher education only

** Figures for West Germany in 1991. Sources: (Unesco 1996)

Importantly, the Commonwealth gave the universities the right to retain the funds they generated from international student fees. Many universities now earn between \$28 and \$45 million per annum from this source. Any loss of such income would result in a dramatic shedding of both academic and non-academic staff and the reduction of numerous services (Mazzarol and Soutar, 1996).

Australia's university sector is therefore both highly internationalised and increasingly dependent on internationalisation for its long-term financial well being. The shift towards reduced levels of Commonwealth recurrent funding has coincided with these developments to promote an environment of competitive positioning and aggressive marketing among institutions.

Spatial pre-emption and forward integration

Education, like other professional services, suffers from several marketing related problems. By nature services are intangible; it is usually difficult to separate their

production from their consumption; they cannot be easily stored; and there is often considerable variation in the quality of service delivered from one supplier to the next (Zeithaml, Parasuraman and Berry, 1985).

A major problem associated with intangibility is the difficulty it creates for evaluation of the service prior to purchase. For professional services such as education, there is a higher perceived risk of making an incorrect purchase decision (Hill and Neeley, 1988). Most prospective students rely heavily on word of mouth referrals when making decisions on overseas study (Harris and Rhall, 1993; ELICOS, 1995).

Further problems arise from the difficulty associated with separating production from consumption in services. It is largely for this reason that the traditional approach to delivering international education has seen students travel overseas to study in the supplier country. Within other service industries the solution to the dilemma of inseparability of production and consumption has been to make the service available through delivery outlets (Allen, 1988). This explains the proliferation of fast-food outlets throughout most cities, and the growth of franchising in the services sector. Theories of competitive advantage suggest that service enterprises who are seeking to gain an edge in the market need to consider the placement of strategically located outlets as a key strategy. This concept is referred to as "spatial pre-emption", to describe the process of putting a service outlet in a location in advance of the competition (Bharadwaj, Varadarajan and Fahy, 1993).

In seeking to gain a competitive advantage in international markets, many Australian universities have established offshore teaching programs usually in conjunction with a partner in the target market. This process of "forward integration" has been identified in the literature as a means by which services enterprises can overcome the difficulties associated with being unable to separate production from consumption and the perishability of services (Nicouland 1989; Erramilli and Rao, 1990; Erramilli, 1991). The formation of a strategic alliance where an overseas college offers the degrees of an Australian university is commonly referred to as twinning. While the exact number of offshore programs is unknown, in 1993 there were an estimated fourteen Australian universities with such programs (Griggs, 1993).

The use of forward integration and spatial pre-emption via the establishment of offshore teaching programs appears to be a potential strategy for achieving a competitive advantage in international education (Soutar and Mazarol, 1995). Its popularity has grown in recent years. In 1993/94, for example, there were at least twenty-six universities offering postgraduate degrees via offshore teaching programs in Singapore, and a further twenty-five universities with similar programs in Hong Kong (Hamill, 1994). These institutions were from Australia,

the United Kingdom, United States, Holland, Ireland and Portugal. In Malaysia, there are some 150 to 200 private colleges which have twinning agreements with overseas universities (Ng and Ho, 1995).

As a marketing tool, twinning offers many advantages. It provides greater accessibility to the education service, secures a regular supply of prospective students from the sister institution, and frequently lowers the overall cost of the education to the student (Smart, 1988: 28). However, a major problem with offering courses through such strategic alliances is the maintenance of the quality of the service. Locally hired teaching staff must possess the same qualifications and skills as the Australian academics, and course content and teaching materials should be of equivalent standard, although this can be difficult to assure (Nicholls, 1987).

The difficulties associated with maintaining service quality make exporting service a more complex than exporting goods. Due to the high degree of producer/consumer interaction in services such as education, there is a strong desire for direct control and presence by the producer during the early phases of export development (Vanermerwe and Chadwick, 1989). Many service exporters prefer to retain control over the export channel until their overseas market experience increases (Erramilli, 1991). This involves sending Australian academic staff overseas to teach on offshore programs, ensuring greater control over the operation.

An example of this is Curtin University of Technology, which in 1993/94 had one in three of its students from the School of Management and Marketing located offshore in twinning programs (Assael 1995: 749). Academic staff are required to travel offshore several times during the year to deliver lectures and liaise with locally employed staff. Staff are frequently required to work over weekends during these visits. This is a pattern typical of most of the other Australian universities which have offshore teaching programs.

Academic staff are usually paid for their teaching in offshore programs over and above their salaries for regular teaching loads in Australia. Staff who participate in such offshore programs can earn substantial additional income, and enjoy international travel. However, as this offshore teaching is undertaken separately from regular teaching and research activities, the prolonged absence from Australia can impose stress. Staff engaged in regular offshore teaching activities are less accessible for local students and have less time for research and publishing.

Many universities treat offshore teaching more as voluntary or optional, although the need to maintain the quality and viability of offshore programs has seen this change. Recent job descriptions in advertised positions for business schools mention offshore teaching as part of employment requirements¹. It is anticipated that as the

trend towards offshore teaching programs grows, the ability to travel regularly and teach in such programs will become essential to academic work within many universities. This may have subsequent implications for academic staff who find it difficult to travel regularly (e.g. due to family commitments or health).

Technology and the virtual academic

The difficulties associated with delivering services over long distances include quality control and perishability. These can potentially be overcome via the use of information technology. A range of technologies are now available that enable education services to be captured and stored on electronic media for later use and reuse, or delivered electronically over long-distances.

In offshore delivery, use is being made of video conferencing as a means of delivering lectures long distance. It was not until the early 1990s that video conferences were first used by Australian universities. However, by 1993 some nineteen institutions had such facilities (Latchem, Mitchell and Atkinson, 1993). Video conference links have been used by Curtin University of Technology to link staff and students together in Perth and Singapore (King and Hedges, 1995). Deakin University is implementing desktop video conferencing to transmit digitised images, as well as graphics and statistics simultaneously to several students via ISDN.

Deakin University has pioneered distance education via information technology and had an estimated 20,000 students studying externally via various advanced media in 1995 (Ashenden and Milligan, 1995). This has involved delivering education services to external students both in Australia and overseas using electronic mail. Students can access the university's mainframe computer to communicate with each other and their tutors. They are also able to access course material 24 hours per day, seven days a week, and take tests which are marked by the computer (Hamer, 1993).

In conjunction with the growth of electronic mail is the use of the Internet as a medium of service delivery. Currently the Internet or World Wide Web is a somewhat loosely organised network of computers covering an estimated 150 countries and 30 million users. The Internet has become a useful marketing tool for many universities, who now view their web site or "home pages" as a necessary element in their promotion. Its use as a medium of service delivery for education is still somewhat rudimentary. Although students make extensive use of the Internet for gathering information, it has not been widely used for interactive teaching or instruction. However, the potential is there for the Internet to be used for "real time" keyboard-based discussions or tutorials using Internet Relay Chat. Although some limitations currently exist on the practical use of the Internet for delivery of higher education programs, these

gaps will soon be closed, raising the question of how best to make use of this new technology?

The Massachusetts Institute of Technology (MIT) currently has many of its subjects on the Web. For example, the unit 6.004 Computation Structures has a home page that includes links to technical and administrative material, lecture notes, activities, lab instructions and test items. Another MIT course 4.605 Introduction to the History and Theory of Architecture has a home page that offers fully indexed graphics of architectural images².

New information technology opens an opportunity for delivery of education offshore both in real time and via packaged interactive multimedia (Hosie, 1993). It has been argued that quality control over the delivery of education services can be maintained via technologically-mediated learning (TML) (Hosie, 1993; Lundin, 1993). Interactive multimedia has been found to provide an effective medium for teaching mechanical and procedural skills (Fletcher, 1990). In cases it has reduced training time by 30 to 60 per cent, a substantial cost saving (De Bloois, 1982; Brandt, 1986).

Use of this technology within industry training is growing. A recent study of computer based training activity and multimedia among 519 United States organisations, in all industry sectors, found that an average of 10 per cent of all training effort was computer-based (Kemske, 1995). It seems only a matter of time before international education is increasingly delivered by TML.

As the communications and information technology advances, it seems probable that live academics can be replaced or supplemented with "virtual academics". The cost of overseas travel may make this attractive for universities with offshore teaching programs. A student's ability to access a "virtual academic" via the Internet or electronic mail and download interactive learning programs 24 hours a day offers universities an opportunity to expand service delivery anywhere telecommunications infrastructure permits.

Implications for academic work

The combined impact of offshore delivery of education and advanced information technology on academic work is likely to be both positive and negative. Important issues are the cost of production and the ability of staff to adapt to the new media.

Regardless of the availability and capabilities of the new media, a key problem will be the costs associated with producing high-quality interactive multimedia programs. These costs are likely to be high and involve substantial investment in both production staff and equipment (Smith and Delahaye, 1988). Unless adequate planning is undertaken the shelf life of courseware is unlikely to be long (Hosie, 1987). Further problems may arise from the lack of multimedia production expertise within many universities. Academics who are com-

petent in delivering traditional classroom lectures may need a new set of skills to communicate via television or computer screen (Hosie, Charman and Atkinson, 1991). Some have noted that while some science disciplines have embraced the new technology with enthusiasm, the humanities are prepared for change and risk being left behind (Illing 1996).

Higher education within Australia has tended to follow the British "tutorial model" with students presenting their ideas and having in-depth face to face discussions. Whatever the effectiveness of this method, it is labour-intensive and has been placed under severe strain in some faculties. As class sizes grow, the trend is towards more highly packaged presentations that can be delivered to mass audiences and repeated on demand. The new information technologies offer this option and have received support from governments seeking to expand access without increasing expenditure. The Open Learning programs currently screened in Australia are an example. Australia's Special Broadcasting Service (SBS) has initiated a five year plan to enhance its delivery of Professional and Graduate Education programs (Creer, 1996).

Referring to the influence of different forms of electronic media on similar communications, Marshall McLuhan (1964) identified that "the medium is the message". In the political arena, the effectiveness of a future national leader is now measured more on television image than on their policies. The "30 second sound bite" has become a dominant feature of political campaigns. Proliferation of the new media may reduce the depth of analysis and discussion.

The growth in use of multimedia within universities is likely to accelerate in the next ten to twenty years. Melbourne University has recently moved to place multimedia in the centre of academic decision making and has allocated funds "to redesign its curriculums in the context of multimedia applications" (Illing, 1996).

Multimedia technologies have a range of benefits for instruction. Muller and Leonetti (1992:17) have summarised these advantages as: timeliness; flexible training periods; effectiveness; multiple applications; and validated and documented effectiveness.

Earlier research into the use of multimedia for instruction has shown substantial cost savings (Brandt 1986; De Bloois 1982), and substantial reduction in training time (Gerber and Pribble, 1989). Other research has indicated that multimedia is more effective in delivering some training than more conventional means, particularly when instructional outcomes are well-defined (Fletcher, 1990). Much of the literature assumes that learning may be enhanced using multimedia, but the incidence of its use is often not widely reported or evaluated. While multimedia may be crucial for industrial training it also

has many broader educational applications (Hosie, 1993; Illing, 1996).

These benefits must nevertheless be tempered with consideration of the limitations of the technology. At present, such technologies are more a support media that do not fully replace the "live academic". Students involved with multimedia generally find it appealing, but many dislike working in isolation and favour small group learning (Vada, 1989). There are also limits on the delivery of full-motion video images via the Internet. Over time these technical limitations are likely to disappear; already the Digital Video Disc (DVD) technology available for computer games and training is highly advanced and enables full-motion, feature film length video, with multiple soundtracks in several languages.

Currently the publication of scholarly research is a key criteria for measuring academic performance. If widespread use is made of new information technology as a core teaching medium, academic staff may in time be assessed on such things as their ability to communicate via television or multimedia, or their "screen presence".

Conclusions

This paper has raised two distinct but related issues. The first is the apparent spread of offshore teaching programs by Australian universities seeking to gain a competitive advantage in international markets. The second is the emergence of new information technologies that enable the packaging and delivery of interactive educational services on demand over long distances. Employment must become more flexible if it is to accommodate these changes (Mueller and Cordery, 1989).

The expansion of offshore teaching programs is likely to impose an increasing burden on universities. The cost (both in time and money) of staff travelling to distant locations must eventually take its toll. The new information technologies offer a partial solution to long distance delivery. However, the cost of developing high-quality interactive multimedia may need to be carefully weighed against the cost of live teaching staff. Information technology is not a complete panacea. High quality multimedia is likely to be expensive (Meredyth and Thomas, 1996).

For academic staff, these two developments offer both an opportunity and a challenge. Those faculties which embrace the challenge of offshore teaching can enhance their overall international student intake and reap the financial benefits. Further, if they also develop the new technology successfully they will be likely to attract more students and retain funds for the future development of interactive multimedia programs. The possession of an attractive Web Site on the Internet is already becoming a necessity for recruitment.

The need to be absent from Australia for lengthy periods will place added pressure on staff. If frequent

trips are to be a core part of an academic's work, contractual recognition of these absences will be needed. The new information technology is also likely to lead to both a reduction in staff and change in the way academic work is performed.

The pace of change in both areas is rapid. There are few established paradigms that can be used to guide the development of academic work practices involving TML. While numerous opportunities for the enhancement of academic quality of work life are likely to emerge, attention must also be paid to the less desirable aspects.

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Notes

1. Advertisements for Business School teaching staff for Murdoch University and Curtin University of Technology advertised in the *West Australian* during July and August 1996.
2. Massachusetts Institute of Technology, *Education via Advanced Technologies, Final Report*, MIT Committee on EVAT, 1 June 1995.