

# **DISTRIBUTED HIGHER EDUCATION: STRATEGIC ALLIANCES IN HYPERMEDIA PUBLISHING**

**Stewart Adam**

The full text of this paper was originally delivered at AUSWEB95 under the title "Distributed Higher Education: Strategic Alliances in Hypermedia Publishing." and is available for viewing at the World Wide Web (WWW) site -

<http://www.scu.edu.au/ausweb95/>

The author and Campus Review thank Southern Cross University for permitting publication of an adaptation of the original paper. An update of the paper is available for Campus Review readers to view at the World Wide Web site:

<http://www.bf.rmit.edu.au/~stewart/disthed3.html>

Stewart Adam is Senior Lecturer in Marketing, RMIT BUSINESS, Melbourne.

**Keywords:** Education, online, communications, interactive, convergence, technology, hypermedia, and publishing

## **AN INTRODUCTION TO THE ISSUES RAISED**

The full paper points to a new phenomenon in higher education – "distributed education" – enabled by electronic communication. The paper examines the place of publishers in history as well as their changing role due to this unprecedented convergence of technologies. It is pointed out that academic institutions are both cause and effect in this technological convergence. The paper highlights that the University of the late 20th Century is no longer a fixed address that solely draws students to its doors. It is noted that their customers, whether school-leavers or those in the workforce participating in education and training, demand that universities accommodate their mobility. This is particularly true of those enrolled in MBA courses. This need is being met by alliances of universities in Australia or by alliances of a single University with its client.

## **PUBLISHING - A BRIEF HISTORY**

Some 10,000 years, humans began to communicate - firstly using language, and much later through development of the written form.

The earliest textbooks are half as old, and followed on from the first use of alphabets by some 1500 years (Tebbel, 1987).

Much later, in Paris in 1150 and Bologna in 1200, it was the rise of the book trade that led to the rise of universities with university officials and graduates acting as the marketers. Books were first sold at universities in Europe soon after 1440, when movable type was introduced (Dessauer, 1989).

While the contemporary paper based book offers many benefits, not the least of which is its portability for the reader and relatively low cost, it also has its disadvantages. The main disadvantage relates to the fact that one of the things it is designed to do—circulate—can lead to lesser returns to authors and publishers than originally intended. The issue of copyright and royalties to authors is of paramount importance, particularly due to the development of modern digitising equipment and the rise of electronic publishing within the education sector. These developments allow paper-based books to find their way into another form that is more easily, and often more cheaply, distributed in ways the original publisher and authors had not anticipated.

The paper shows how the modern publishing industry developed and how such publishers now make their money. Contemporary publishing draws 20 to 25 percent of its revenues from general fiction and nonfiction - trade books - and 75 to 80 percent from educational, business, scientific, technical, and reference book publishing. While trade books may give the publisher its image with the reading public, it is usually reference books, textbooks, religious or medical books that provide the profit. In the US, some 25 percent of publishing revenue comes from textbooks alone. The publishing sector underwent its own series of mergers and acquisitions during the 1970s and again in the mid 1980s. Additionally, it is this sector of the publishing trade that has changed most due to the knowledge explosion that has taken place since World War 2 and the inception of the digital computer.

### **TECHNOLOGICAL CONVERGENCE AND HYPERMEDIA PUBLISHING**

Because of technological convergence, the paper-based publishing industry faces external threats, and the book as it is seen today may go the way of the dinosaur. The question is 'when' rather 'if' for many authors and publishers. Technological convergence offers what has largely been a missing element when one moves away from person-to-

person delivery modes in education: interactivity. The following areas are involved when we attempt any meaningful discussion of the likely impact of hypermedia publishing on the World Wide Web:

- **Computing:** Hardware; Software; Networks; ATM; CD-ROM; CD-I; Peripheral devices such as modems
- **Office Equipment:** Copiers, Facsimile machines, Scanners and Printers
- **Consumer Electronics:** Digital cameras
- **Communications:** PSTN; ISDN; PABX; Satellite; Pay-TV (Narrowcast and Broadband)
- **Publishing:** Books; Journals; Music; Databases; Film & Video
- **Services:** Education, Financial, Medical, Property among others.

(Adapted from Adam, 1995a, and Brenchley, 1996)

From the early 1980s to the present time the microcomputer has been developed and commercialised. The computer, particularly miniaturised variants such as Notebooks and handheld computers offers productivity and interactivity. Among benefits offered to many industries by this ubiquitous technology, is the aid it has provided to the typesetter and printer. It now dominates the field of information technology generally, and communications specifically. With the release of IBM's OS/2 Warp operating system and the August 1995 release of Windows95 has come greater public access to the embodiment of the convergence of the computer, communications, information, education and other technologies: the Internet; particularly the World Wide Web. Microsoft can lay claim to 80 percent of the computer users worldwide (Crow & Zampetakis, 1995) and a global revenue of \$US4.7 billion in fiscal 1994 (Advertising Age, 1994). Its joint venture with Telstra in Australia, OnAustralia, also offers access to the Internet even though this was not the partners' original intention. At launch time, OnAustralia, or Microsoft Network (MSN) as it is also known, was to stand alone. This decision may have been prompted by US Justice Department concerns and a Trade Practices Commission investigation that ultimately approved the \$AUD9 million joint venture in Australia. (Crowe, 1995.) Telstra has since gone on to join forces with IBM and Lend Lease in another commercial networking venture in 1995 - ISSC.

There has occurred convergence of News Corporation's Fox Television and production facilities with the carrier Telstra in Australia, and in 1996 Australis Media's Galaxy microwave service (MDS) may join this alliance, if the now renamed Trade Practices Commission permits it. The formation of the earlier Pay-TV company, Foxtel, as well as the formation of the writhing competitor in telephony and data, Optus Vision, ensures a crossing of the bridge between these technologies as elsewhere in the world. Also, one should not forget that Microsoft's Bill Gates has stated plans to launch over 800 high orbiting satellites in competition with Motorola's 64 low-orbit satellites. This move, among other, further illustrates the convergence that is taking place.

The development of high-speed modems (v34bis.) enables voice, graphics and text to be transmitted into the workplace and home in Australia (Hayes,1994). Overseas use of modems with high bandwidth fibre optic cable is yet another welcome development that will see use of Asynchronous Transfer Mode (ATM) networks that further enhance image, sound and data distribution.

Taken together, these developments mean that technological convergence may force change for many educational institutions; particularly those that include class-room based instruction as their primary delivery mode. High speed (100 Mb per second) local area networks are becoming the norm, however faster access to the Internet from these networks and from remote sites using the public subscriber telephone network (PSTN) is still an issue in many Australian sites, access ranging from 64 kilobytes per second (Macquarie University) to 10 Megabytes per second (RMIT). Developments such as ATM promise faster access for students using campus-wide information networks, however this technology has some development time ahead of it.

A major unknown is whether or not CD-ROM and CD-I developments in tandem with Internet and network developments might lead to a centralised higher education system whereby standardised curricula are developed by a number of specialist Universities and Colleges of TAFE, and merely delivered by agents in the field. After all, such a delivery system is already used by a number of Australian universities in South-East Asia. Also the NSW TAFE system has its Open Training and Education Network (OTEN) and other technology based delivery systems in other States of Australia (North Coast Institute of TAFE, 1995). Coupled with this question once again is the issue of the

lifespan of the paper-based textbook. Already we see products such as Bill Gates' book The Road Ahead offered with a bundled CD-ROM by Penguin Books. Also, the Australian government has provided seed funding for what are termed Cooperative Multimedia Centre (CMCs) to help drive Australian content and promote export earnings.

The installation of fibre optic cable within buildings and across nations, as the public subscriber telephone system is upgraded, means greater access speed for users and will also enhance the use of dial-in services (such as Internet access of CD-ROM/I data) offered by higher education institutes. It is to be remembered that optical fibre can carry 500 television channels simultaneously. Fibre optic cable and integrated services digital network (ISDN) make possible the widespread introduction of two-way interactivity. Multi-point, desktop video-conferencing (and more) systems are set to enhance the delivery of education and are set to become a more widely used delivery mode than the point-to-point systems have been used for some time. The estimated \$AUD4 billion costs associated with installation of fibre optic cable past most city-dwellers in Australia by Telstra and replicated by Optus Vision is proceeding but remains a contentious issue (Quiggin, 1996). Among many reasons is the fact that it is not yet known what level of on-line or interactive service customers will adopt and pay for (Potter, 1994.) Commentators such as media owner Kerry Stokes (ABC-TV Four Corners program on Monday 6th March, 1995) point out that the fibre optic infrastructure should be owned by the Australian people not individual carriers such as Telstra nor its immediate competitor Optus Vision. The opposing view is held by the CEO at Optus, who points out that telephony is where the money is made, and that online services such as education are yet more cream on top of the Pay-TV and telephony cake (Lewis, 1996)

Returning to the traditional publishing industry, we see that it is reliant on textbook sales to higher education students using a multilevel marketing channel that begins when a specifier(instructor) decides to adopt a particular textbook and then advises students to purchase the text or recommends that the text is accessed via the relevant media resources centre (library for books). Channel members in this pipeline currently include publishers, distributors, bookstores, specifiers (instructors) and finally the end-user, the student. The WWW is the latest distribution channel for many publishing companies such as Gramercy Press and now for some higher education institutes.

In countries with small populations such as Australia, the publication of textbooks and allied educational materials is already a marginal business. Typically, a textbook with liberal use of colour reproduction that retails for \$50 (R.S.P.) might see a minimal net profit to the publisher after taking out major cost items such as a 10 percent royalty to the author(s), a 30 percent gross margin to the retailer and over 20 percent of R.S.P. for printing alone. The first comprehensive survey by the ABS of the book publishing industry has shown that as yet, the over AUD\$1 Billion industry has been unaffected by the convergence of technology. It seems the industry may be focusing its concerns on copyright law and ensuring obstacles to imports rather than concerning itself with the issues this paper raises (Bagwell, 1996).

It should be noted at this point that it is not just paper based textbooks that are involved. Newer products such as the CD-ROM based interactive, multimedia products are also involved. The slim margins referred to for these products are already an issue in publishing even before one takes into account the new threats from converging technologies. The major threat to the viability of a paper-based publishing industry, if unwilling to change, will come from widespread use of the World Wide Web for publishing in tandem with the adoption of CD-ROM and CD-I as the data storage media. This will be of particular significance where universities adopt the role of publisher and copyright holder. This, it is postulated, will further divide the market thus losing what little scale benefits exist in publishing, among other disadvantages.

Already universities in Australia have turned to the Internet, and more recently, the World Wide Web as a delivery vehicle. The Australian National University, Deakin University and Monash University, among others, are using WWW hypermedia materials to supplement, or substitute for face-to-face delivered materials and Open Learning / Distance Education materials. This is true whether courses are delivered to the home or via company training rooms. The Australian National University (ANU) has facilitated the development of a Contract Law subject that uses hypermedia materials and the World Wide Web for distribution. ANU are developing their programs as "part of a network of computer clearing houses, established at the direction of the Committee for the Advancement of University Teaching (CAUT), a committee of the Department of Employment, Education and Training." (Kitney, 1995 p.46.)

Deakin University has approached this on a number of fronts. One Internet-dependent approach concerns a Bachelor of Applied Science (Technology Management) program that uses a computer managed / mediated learning system has been offered to a number of corporate clients since 1991 in competition with private providers. This initiative was a joint effort by the university and Box Hill College of TAFE and to this day enjoys the patronage of large organisations such as Coles Myer Ltd, Ford Australia, BP and Australia Post among other clients. Marketing studies is one discipline offered to participants via the Internet (Adam, 1992.) In a similar manner to Deakin, Western Australia's Edith Cowan University is promoting its external studies courses under the headline: "The University that comes to you through the virtual campus." (Age, 1995 p.16.) It too offers Foundation Studies as well as a range of award programs that include the study of Marketing.

Monash University has piloted a cohort of Open Learning students undertaking the introductory marketing subject MAR11 using the WWW. Initially, a text based trial involved dial-in access to the WWW where students use the software SLIPKNOT as the text browser (Gilmour, 1994). The statement has been made, as in the Deakin Australia case, that the materials will ultimately be textbook independent.

The Department of Marketing, Logistics and Property at the Royal Melbourne Institute of Technology University (RMIT) is similarly engaged in developing interactive, hypermedia materials for the marketing subjects taken as part of the Degree of Bachelor of Business (Marketing). Rather than develop textbook independent materials, RMIT's departmental project group is taking an alternative approach whereby a strategic alliance has been developed with Prentice Hall Australia, publishers of the adopted textbook Kotler, P., Chandler, P., Brown, L., and Adam, S., (1994) Marketing: Australia & New Zealand. 3rd edition, Prentice Hall Australia, Sydney.

The alliance is enabling RMIT to publish hypermedia tutorials on the World Wide Web for use by enrolled students. Additionally, on-line testing materials are under development, based on testbanks developed by the publisher for use by adopters of this marketing textbook. Over time, it is intended to capitalise on Prentice Hall Australia's lineage within the communications industry. This will ultimately enable joint

production of interactive, multimedia titles that may be accessed by students through the WWW.

A cautionary note is however necessary when examining academic use of the technologies presented. While University administrators may well be conversant with the technology involved, and its future implications, 1995 research carried out among Science, Business and Humanities academics indicates that 46.6 percent see themselves as unlikely to recommend adoption of CD-ROM based textbook materials. Many (31.7 percent) did not know if they would recommend such an adoption. On the other hand, 55.9 percent of academics surveyed saw themselves likely to recommend that students adopt electronic communications hardware or software for student access of subject study guides and other materials on the World Wide Web (Adam, 1995b)

## **CONCLUSION**

Having examined a brief history of the development of written communication and the publication of educational materials, the paper postulates that strategic alliances between publishers and higher education institutes may be preferable to alternatives that see materials developed by competing higher education institutes that unnecessarily add to cost and may not represent a globally accepted view of subject matter. It is suggested that strategic alliances with publishers would ensure the global publisher remains a hub for the development of educational materials. This is in contrast to the situation where single universities or a group of said institutions in a single country develops a 'less open architecture' approach. The term 'open architecture' is well understood in the information technology (IT) field where proprietary systems have proven to be detrimental and costly, and against IT customers' best interests. In this case the customers are students and their employers.

## **REFERENCES**

Adam, S., and Burley, H.T., (1995), "MARKITS." Computer Mediated Learning in Marketing, Prentice Hall Australia, Sydney.

Adam, S., (1995a), "Technological Convergence: Bringing Interactivity and User Control to Online Marketing." Pacific Rim Real Estate Society Conference Proceedings, RMIT, Melbourne.

Adam, S.,(1995b), Unpublished thesis.

Adam, S., (1992), "Toward Marketing Competencies." Technology Management Report, Vol.3. Technology Management Centre, Deakin University, Melbourne.

Bagwell, S., (1996), "Book industry 'stable, strong'." The Australian Financial Review, (Jan 9): p.5.

Benson, K.L., Alison, S., and Arger, G., (1994), "Interactive multimedia in Accounting: A report on the development and assessment of a pilot program." Conference Proceedings: "The Application of New Technologies in Business", Monash University, 7-8th December, 1994.

Brenchley, F., (1996), "Mergers & Marriages - the new global giants." The Australian Financial Review. (January 8):p.9.

Crowe, D., (1995), "Market share query hangs over Microsoft." The Australian Financial Review. (March 13th):p.38.

Dessauer, J.P., (1989), Book Publishing: A Basic Introduction. Continuum, US.

Freeman, M., (1994), "LearnBF: An application in learning business finance." Conference Proceedings: "The Application of New Technologies in Business", Monash University, 7-8th December, 1994.

Gilmour, P., (1994), "Changing to off campus delivery of Marketing Units." Conference Proceedings: "The Application of New Technologies in Business", Monash University, 7-8th December, 1994.

Edith Cowan Advertisement, (1995), The Age, Melbourne, (March 11th):p.16.

Hanlon, M., (1995), "The Internet catalyses a new Renaissance." *Australian Professional Marketing*, December 1995/ January 1996, p.8.

Hayes, Dennis C., (1994), "Keynote Address: ONE BBSCON 1994." PC Update, Vol 11, No.9. (October): pp.32-34.

Head, B., (1995), "The Gates Mystique." The Australian Financial Review Weekend Review, (Jan 13): pp.1&5.

Head, B., (1996), "Apple stews in its own juice." The Australian Financial Review Weekend Review, (Jan 12): p.42.

Herther, N., (1992), "The Past, Present And Future of the Compact Disc, Multimedia And The Industry: An Interview With Dr. Toshi Doi." CD ROM Professional, (July):pp.17-21.

Jones, M., (1995), "Internet' surfers' an adman's dream." The Age, (Jan 19th):p.23.

Kitney, D., (1995), "ANU prepares to take study of law onto the infobahn." The Australian Financial Review, (March 17th):p.46.

Lang, C., (1994), "Cashing in: The rush is on to buy and sell on the Internet." Advertising Age, (December): pp.11 &13.

Lewis, S., (1996), "Optus keeps its eye on the prize." The Australian Financial Review, (Jan 11): p. 10.

Meredith, H., (1994), "Uni gets communications `parking lot'." The Australian Financial Review, John Fairfax & Sons, August 8: p.5.

North Coast Institute of TAFE, (1995), "Course Information - Taree & Tuncurry / Forster." New South Wales Technical and Further Education Commission, Sydney.

Potter, B., (1994), "Reality of Pay-TV will differ from promises." The Saturday Age, (November 12):pp.31 & 35.

Quiggan, J., (1996), "Pay-Tv's wasted millions." The Australian Financial Review, (Jan 8):p.13.

Ramsden, P., (1992), Learning to Teach in Higher Education. Routledge, London.

Tebbel, J.W., (1987), Between Covers: The Rise and Transformation of Book Publishing in America. Oxford. History from 1630 to 1980;

abridged version of the author's 4 volume History of Book Publishing in the US, Bowker, 197182.

Zampetakis, H., (1994), "New PABX is ready for the super highway." The Australian Financial Review, (Mar.28th): p.35.