# On-line, on disk or on paper?
## Delivery systems for education

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nformed commentators have debated the impact of technological changes on education for many decades. Some claim each new development as the ultimate answer to perfecting education. For example, when programmed learning, and later, intelligent tutoring systems were introduced, they appeared to offer so much potential for matching student needs with defined learning goals that some teachers feared they might lose their jobs, but without exception the promises of technology in education have not met the expectations of their promoters.

Educators have been sceptical about the benefits of new technologies. As long ago as 1703 there was a lament at a teachers' conference that 'students today can't prepare bark to calculate their problems. They depend on their slates which are more expensive. What will they do when their slate drops and breaks?' While in *Federal Teachers*, 1950, an educator reported that 'ball point pens will be the ruin of education in our country' and added that discarding these pens undermined the American values of thrift and frugality. There can be little debate, however, that computer based technology can facilitate better physical and intellectual access to library education for all levels of learner within our profession.

Since the introduction of university courses in library and information studies the norm for students at all levels of education has been traditional face-to-face delivery of programs. Distance education centres in universities have made it possible to meet an increasingly diverse range of student needs by preparing mail packages of print materials that may be supplemented by study visits, telephone support and other materials such as audio and video tapes. While these approaches are effective and fit our predominantly print based society, the computer offers new possibilities and can cater better for students whose learning preference is for materials other than print.

### How does technology contribute to new delivery modes?

A primary benefit of computer technology to all students is access to remote resources and to experts whose names may be familiar from print sources.

The latter is of particular value to higher degree students who do not feel intimidated about approaching experts via e-mail. They often reply by e-mail to offer valuable support, information and unpublished papers from their own work. The asynchronous nature of computer mediated communication also contributes to educational flexibility, which is an important factor for students whose study revolves around work and other commitments.

On-line tutorials can encourage better relationships between students and their tutors. This approach often produces better learning outcomes for both on-campus and distance students. Deeper learning occurs when discussion points are in more permanent form than is possible in purely oral exchanges.

The World Wide Web offers many possibilities for internal and external students to engage more actively in their learning.

- Lecturers can identify and provide links to a range of sources and engage students in their own searches for further sites to share with others through electronic mail.

- Periodical articles that are not held by local libraries may be available electronically. This means in many cases that resource access is now instant and global, and students avoid the frustration of knowing that information exists but is inaccessible.

- Students can lurk on listservs where experienced professionals discuss very specific and usually current topics, while continuing education students can extend their knowledge of unfamiliar areas or share ideas with other professionals in their field.

- Where the education provider has a local server, students may be able to load their files onto the Web as well, thus extending their electronic resource management skills and learning to present their material in a different way.

- Students can mark up papers to share with others on the Web and engage in discussion about the content.

- A major bonus for distance students is on-line access to reference works, reviews of new materials, and on-line, interactive tutorials on such topics as Web searching.

- Learners can use world-wide library catalogues for bibliographic purposes or to consider the comparative merits of different automated library systems. While catalogues have been available through Telnet for some time, the Web simplifies initial access.

- Students can use sound, video and visual material via the World Wide Web, which enhances their opportunities for receiving information in alternative ways.

While most of the above ideas represent active ways of using technology in education, computers also deliver passive content in the form of a course delivered on CD-ROM, lectures on disk or text materials displayed on the World Wide Web. The advantage of this is that the content is searchable, the amount of material is not restricted by printing quotas, it is less bulky and it is easy to transport.

Some disadvantages of technological delivery for students are: much of the content is text and because of the discomfort of reading from screens, they cover the cost of printing; a relatively powerful computer, a modem and a subscription to an Internet service provider are necessary to access materials; limited computing skills and computer phobia may be factors to consider in first-award courses; and the higher telecommunications fees to access networked information are serious disadvantage for those in more isolated areas.

Of course, the shift towards educating on the Internet has caused some consternation amongst educators who recognise that education today can be truly global. Unlike their counterparts in the United Kingdom and the United States of America, Australian students have an established tradition of attending their local institutions, but with increasing competition and the opportunities that electronic networks offer, the local choice tradition is being eroded gradually. Networking offers access to course content and to staff expertise in the same way that it facilitates access to information. As distance from the provider is no longer an issue, students who have good previous educational qualifications will make informed choices.

One of the implications for students, ALIA's Board of Education and employers may be the consideration of how one identifies a first-level course that equips graduates appropriately for Australian employment. A further implication is that specialist continuing education may become available on a global scale, with students being able to choose courses offered by international authorities in the field of their choice. Computer delivered education certainly changes the educational environment. ■