

Education and Network Culture

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Computer based resources for teaching, learning and research, already common in universities, are set to become the primary medium of educational practice. Within a decade or so, the use of networks, both local, national and global, will have become a routine activity for teachers, researchers and students alike.

The enabling technology is still only twenty five years old and it is rapidly becoming more powerful and user friendly. Although there is likely to be overload for some while, given the enormous population of potential users, the expectation is that world wide educational practices based on networked resources will rapidly become commonplace (Pearson & Cochrane, 1995). The Internet is already an important teaching resource, despite the overload. Students entering universities now have extensive experience with computers, some of it involving networked systems. Those teaching and administering in universities will of necessity need to become au fait with the tools and practices of screen culture.

However, the encounter with these new technologies can be disconcertingly unproductive. Those who have tried to use computers for teaching often find that it is cost ineffective. In particular, trying to create new materials and systems takes a lot of effort. Worse yet, most of it is spent learning how to use the tools rather than actually producing anything that is particularly original or innovative. The computer skills of most university staff are principally to do with word processing. These do not always generalise to other computer based resources, such as the Internet. The techniques for searching and downloading are not difficult to learn, but those for creating new materials remain formidably time consuming to learn. Although things are improving, it is still generally impractical for lecturers to develop their own resources. The time when this is as easy as using the more homely audio-visual and ink-on-paper resources is still some years away.

These problems may be especially sharp for those of us who have reached a certain age. In a community like the university, this produces an interesting tension. It will soon be expected that university education will involve learning to use the Internet, since this is a transferrable skill and it looks good on a CV. Lecturers may find that they are therefore expected to become proficient in a technology with which their students, having been using computers since primary school, are already at ease. While screen culture may be youth culture, technophobia is set fair to become part of the midlife crisis.

However, the choice between old and new educational technologies is not that stark. Those wanting to create computer based resources can adapt what they already do rather than learn entirely new skills or create entirely new materials. Tools to do this are well developed and comprise systems to translate files of text, images and other materials into forms that can be handled by the various networking and presentation tools used in screen culture. This is not merely an exercise in moving from paper to screens. The transformed materials can be offered to the learning community in new and enhanced ways. Of particular interest is the making of hypertexts from teaching resources that are already well run in, as it were. The cross linking and interactivity of hypertext can add a new dimension to such material, especially as the lecturer is likely to have experience with how students react to it and to know, for instance, where definitions or illustrations are most needed. Indeed, at its best, hypertexts and their ilk are the teaching vehicle we've all been waiting for. In this exercise of recasting existing materials, it is possible to adapt resources and techniques developed elsewhere. The problem is, how do we learn to do it? Given the sometimes overwhelming amount of information about the area, it can be a problem to know where and how to begin. In particular, how can we find out about what is being done elsewhere and whether it can be adapted to meet our needs?

This is the significance of the Internet. The Internet functions as both a communications system and a library. In its library like manifestation it is a powerful way to inspect and sample the variety and quality of electronic support for teaching. In its communication like role, it is a means to

interact with a large community of people sharing similar objectives, and often having similar problems, to your own. The Internet is not a library in the usual sense and has distinctive strengths and weaknesses. At its best it is vast, rapid and virtually inexhaustible. Text, images, sounds, databases and other resources are quite reliably available (unlike books, they can't be 'out on loan') and often are presented in such a way as to encourage users to copy and to modify them. This has become easier to do recently, which is itself an index of how the Internet is developing. A common experience about a year ago was that while it was easy to retrieve files of information, it often turned out that they were useless until you had retrieved another file containing an application that allowed the information to be used. For example, it might be possible to view an image at a particular website and then to retrieve it, only to find that to display it independently of the Internet, another application was needed. Now it is more common to find that when retrieving files, if such a 'helper' application is needed, it is automatically retrieved along with the file. This fluidity and mobility of resources is part of network culture, with which education will inevitably participate.

The overselling of cybernetic wonders may make us skeptical of what can really be achieved, especially when, at its worst, the Internet can be a frustrating waste of time. There is a vast amount of poor quality trivia out there in cyberspace. Browsing through it will yield little that is useful. However, again showing how Internet culture is developing, the tools for locating what you want are getting better. More specifically, there are quite good software agents that help users to find information about a particular topic. These are sometimes called search engines. They are still relatively simple minded and a lot of unwanted things are likely to be trawled up as well as what is being sought. However, they are improving rapidly, and can be quite precise and very useful.

Using such tools, it is now possible to find thousands of websites related to a specific topic offering papers, hypertext webs, demonstrations, often involving audio-visual materials, discussion groups and software. (A sample of Internet Addresses is attached below.) It is now possible to gain access to the sites, read what is there, copy it, download software and other materials. Much of what is there also serves to put people with common interests in touch with each other. Powerful ways now exist to survey and select from up to date libraries of research papers, books, bibliographies and data. Such technology can enhance the quality of education by increasing access to resources. This global culture of electronic scholarship and the very nature of hypertext, it is suggested, radically change our sense of what a textual resource is and of how it functions in teaching and of learning, very much in line with the deconstructive thrust of modern critical theory (Landow, 1992).

This corresponds quite closely to what visionary educationalists such as H G Wells and Ivan Illich foresaw as the benefits of communications technology (Wells, 1993; Illich, 1970). For them, the effects were not simply confined to the amplification of conventional educational practice, but to the development of entirely new practices altogether. These are appearing, for instance, in the shape of communication driven education (Jones, 1995; Riel, 1993). Hypertextual and networked resources, and the skills to use them, are rapidly spreading through the education system. As they do so they will help free both students and teachers from the authoritarian relationships in which they tend to get trapped. Teachers are perforce given the role of possessors or distributors of the curriculum with students having the role of recipients. With ubiquitous global networks, both teacher and student are equally free to roam in the world electronic library. Each may find things independently. The role of student and teacher may become less hierarchical and more co-operative. The teacher may know where some things are and how to organise them around themes and issues, but students with more time to look around are likely to come across new materials and views different from those taught in their degree course. Indeed, who is being taught by whom may undergo a productive transformation.

This may be similar to what Ivan Illich had in mind when he wrote about "de-schooling" society. His agenda was not only to make learning more effective and satisfying, it was also to expose and to eliminate the curriculum of uniformity and consumerism hidden within compulsory education. This agenda is more relevant now than it was two decades ago when Illich proposed it. The freedom to teach in individual ways is far less than it was. The national curriculum in schools and the seemingly unstoppable spread of league table mentality in universities exemplify a trend

towards uniformity and the commodification of education (Harvey, 1990). The drive towards uniformity is not politically neutral. Standardisation is their to enable the comparison from which follows the differential allocation of resources. However, as a side effect, which for many advocates of such policies a welcome one, standardisation also creates an increasingly authoritarian attitude to what does and does not constitute education, and what may or may not be considered as part of a discipline.

In this context, we need perhaps to think quite carefully about the role of cybernetic resources for education. Will they promote uniformity and commodification or will they be part of the means to resist it? Presently, underfunded increases in student numbers have meant a severe strain on university resources. The indicators are that even further withdrawal of support is to be expected. Government and even some university administrators have maintained that there has been no drop in standards. This is not the experience of many of us working at the coal face, as it were.

The introduction of computer based teaching needs to be seen within this context. If computers can help with the donkey work of preparation and backup, then they will be a means to preserve quality. However, it is as possible that they will contribute to concealing a decline in quality. Computers are glamorous, dramatic, and symbolise where our culture is heading. This can mean that their introduction into education is often taken rather uncritically as being a sign of progress. Computers are cheap while people are expensive. Thus in times of declining provision for education, replacing teachers with computers is, in effect, merely downsizing in the academy.

There is no question but that computer technology will soon be the conventional medium of education at all levels. Education necessarily reflects the technology and media of the culture that surrounds it. Students are used to pacy and richly illustrated educational programs on TV. Lectures who prefer to have their audience actually in front of them and critically to talk through issues may soon begin to seem passé. It may, of course, go the other way. Students tired of canned culture may relish real-time, demanding lectures which leave them with questions and with work to do

Which ever way it goes, the introduction of computer technology needs to be carefully monitored. The realpolitik of university funding means that it will be seen, correctly, as the means for financial savings in the long run. These, however, may prove to be an economy too far. Computer technology is also the ideal vehicle for further destructive commodification of education. Once systems are in place that were designed to do one thing, they become the means to do other things. Schools and universities are already labouring under a variety of bureaucratic horrors such as research selectivity exercises, unrealistic comparisons of courses, performance related pay, bogus exercises in estimating teaching quality and so on. Once computer based teaching becomes the norm, the scope for such inappropriate practices is multiplied. Teaching support is one thing, teachin itself is another. It needs to remain person to person. This is not Luddism, but the necessary ring fencing of quality from misapplied technology.

As McLuhan pointed out, technology, and especially media technology, is not neutral. We need to be cautious if the impact of computers on education is, in effect, to be the replacement of humans by machines. As a number of examples in computer science and artificial intelligence show, some things that it was thought could be "done by machines" are now seen to be merely imitated. The problem, as cultural theorists are pointing out, is that the imitation can rapidly come to be accepted as the reality (Baudrillard, 1988, page 103). Education, like the law and medicine, is part of the cultural duty humn beings owe each other. Computers can assist with carrying this duty out, but they cannot discharge it themselves

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