

'Humanising Technology'
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For some years now Western higher education has been transfixed with the spectre of its own obsolescence in the face of a new and overpowering technology, that of Internet-based courses and programs which remove the need for the student to attend a physical campus at all. The student enrolls in, belongs to, is taught from, and communicates with, a 'virtual' campus that will never be visited in person and does not exist in the 'real' world. Two elements of this new technology make its imagined threat truly powerful. The first is that the Internet technology is, in some respects, much cheaper than face-to-face teaching on a built campus that must be maintained. The second is that in the speeded-up pace of Western life, with people finding that time, not money, is the crucial personal variable, the adaptability of this technology to a busy life makes it most appealing. It is especially so to the new generation of 'lifelong learners' who will keep on returning to institutions of higher education as they need to acquire new skills and bodies of knowledge. It may even be particularly attractive to the kids who have known about computers, computer games and the Internet all their lives.

What is even more disturbing to universities, which depend so much on governments for their funds, is that Western governments are virtually all scraping around for ways to reduce expenditure. The population over the age of 65 years daily increases in number but the productive workforce relatively declines. Governments have fastened on to the Internet possibility as a way of cutting costs in education. I have two quick things to say here. The first is that there is no need thereby to erect governments into villains. Western culture generally prefers a more efficient (usually meaning cheaper) method to a more expensive one, all other things being equal. The second is that high-quality education is relatively expensive however you do it, and the Internet is only cheap if you have decided that you are not interested in maintaining high quality. Please bear that in mind as I proceed with this talk.

Today I would like to present a different kind of argument, which can be summarised like this: we tend to overdo both the attractiveness and the threat of new technologies, not just in education but generally. I will go on to argue that the essence of education has always involved a teacher as well as a student, that advances in technology so far have never displaced the role of the teacher, and that the Internet and its capacities will not do so either. That does not mean that things will go on as before. It does mean, I think, that there will be a major

transition — but at the end of it we will still have students, teachers and campuses where they gather.

The Impact of the Book

It is instructive to consider the impact of the printed book, which first appeared in the late 15th century, perhaps two hundred years or so after teaching in European universities can be said to have started. Teaching in the Middle Ages had two elements: the teacher would read to the students from a book (in the very beginning, a hand-copied version of an original held in a monastic library somewhere), and then the teacher would elaborate on the text. Printing provided both the possibility of there being multiple copies of the text and the capacity for students to replace at least the reading-aloud of the text through their own study of a copy. It would be several hundred more years before books were very cheap, and early libraries often had their copies chained to the bookcases so that they would not be stolen. But the displacement of the teacher remained a possibility.

The first major consequence of the printing press was not the widespread availability of scholarly works but the production of the Christian Bible, so that all could have available to them the Word of the Lord. It was a fundamental precept of the Protestant Reformation that Christians needed no intermediary between themselves and God: to have, to read and to know the Bible would be sufficient. Yet the production of the Bible in tremendous quantities (it is still the most widely printed of all texts) has not displaced the role of the clergyman or priest, any more than the existence of scholarly texts has displaced the role of the university teacher.

The reason is straightforward. Knowledge is conjectural, to begin with: the more we know, the more we realise that some things we thought were so are not so after all, or need reformulation. The history of science is a continual reminder of this rule. Second, words can carry many meanings, and the role of the teacher is to help students uncover these meanings and develop their own approach to meaning. It is true that all of us can learn quickly on our own, especially if we are fascinated with the subject. But there soon comes a point when we need someone else, someone more experienced than ourselves, to help us deal with a problem, an uncertainty, an ambiguity. At its best, that is a principal role of the teacher.

Some Modern Equivalents

When I was myself a university teacher in the 1970s television had passed from being an entertainment medium to becoming a medium for instruction. Universities began to equip themselves with television studios and courses were being constructed around what was visual, on the principle that students were wedded to 'the box', and now lacked (or would soon lack) the capacity to read for any length of time. The Open University in Britain was a leader in providing televised and audio material, and I used some of it to teach one of my own courses. I made two discoveries very quickly. One was that the visual material

caused even more debate than the written, and that the role of an experienced, thoughtful teacher was even more necessary. The second was the rediscovery of just how much students could learn from one another — that the social context of higher education, in which students encountered one another as more or less equal seekers after the truth, was of great consequence to their learning.

So television became a useful adjunct to the book and the library, just as the radio broadcast and the audio-cassette did. These technologies have not displaced the relationship between the university teacher and the university student, or the relationship between students. If anything, they have intensified them. I would say the same of the computer, which has greatly assisted students and teachers to communicate, provided much better technologies for the solving of problems, and integrated university campuses in a useful way. But it, too, has not altered the relationship of the student and the teacher, or the relationship of the student to other students.

The Internet

The difficulty in coming to a measured conclusion about the Internet and its consequences is, I think, that we are rather more at the beginning of its impact than at the end. I say this partly because the Internet is indeed very young: as the then Chairman of the Australian Research Council I approved some capital expenditure only twelve years ago which allowed the formation of the Australian Academic Research Network (AARNet), the Australian arm or leg of the Internet. And it was not until the mid 1990s that teaching standard university classes via the Net had become something that might quickly be possible. I say it also because the early indications of that impact have not fulfilled the fears of the very nervous. In the United States of America, where much of the technology originated and where development has proceeded fastest, there were expectations that 'on line' universities would quickly make inroads into the normal, or 'on-campus' university.

So far this has not happened. The Western Governors University, an on-line institution sponsored by the Governors of the Western States, planned for 10,000 students in its first year, and secured fewer than 100; California Virtual University, its even more western equivalent, folded last year because it could not attract enough students. Even the fabled University of Phoenix, which is undoubtedly successful in financial terms, makes its money out of technical or trades courses, not in doing what traditional universities do. In Australia the traditional universities are, if not booming, then successfully holding their own, with increased numbers on campus and generally successful financial returns.

And yet what is most noticeable is the adoption by the traditional universities of techniques made possible by the Internet. In my own University, while only a few courses are delivered completely 'on line', perhaps half our academic staff are using facilities like 'WebCT' to provide information and interaction for students in particular units. This is, of course, an electronic enhancement of what we have always done, and it is proving successful with staff and students alike. We are learning how to provide information to our students when and

where they need it, rather than to try to provide it all in the Library. My guess is also that students spend less time actually on the campus compared with the state of things ten years ago, and much more time on the computer. I am also aware that a much greater proportion of my students is in part-time employment than was the case then.

Using the Internet Effectively

I would like to say something more about one aspect of these changes, and that is the use of 'WebCT' and its equivalents. These facilities require that the academic staff have been trained and are competent and enthusiastic in the use of the system, that all students possess or have access to computer terminals, and that all the administrative concomitants, like passwords, IDs, student accounts and the like, are in place. The outcome is that not only is the staff member in touch with all the students in the class, 24 hours a day, but that all the students are connected to one another, as well. This connectivity allows students to pursue issues that arise out of reading, lectures or tutorials with the staff member and with each other. Experience warns that academic staff do not spend less time with students through this system — they spend more — but the effect of their work is much greater. What is more, the staff are able to use their time in ways that are more efficient to them. They may, for example, spend two hours in the evening contributing to the continuing discussion which is on-line, but their contribution will be focussed and available to all the students who are participating, not to the one or two who might have pursued them after the lecture. Their control of the hours of the day, an important issue for all academics, is enhanced

What seems important to me in all this is not only the enhanced role of the university teacher but also the more vital role of the students themselves. If the best university education is a continuing and informed conversation about important and interesting issues, in which both teacher and student learn, then this new facility is a distinct improvement on what has been the case for some time. Students can contribute without the embarrassment (for some) of speaking up in a class; indeed, they can have an 'alias' that effectively hides their real identity, so that errors in argument or presentation need have no lasting emotional cost. The teacher can quickly see whether or not an important point has been understood; if it has not been properly understood, see where the deficiency lies; and so on.

Finally, since staff and students alike occupy a real university in real time, it is possible for them to add personal friendships and extra-curricular activities to the work involved in their course, and that is no small thing. I remain of the view that education lacking a supportive social context is a mean thing, however technically facile it is. And I would be prepared to wager that a socially supportive educational context is a major aid to good learning.

What I have said works very well, I think, for what is likely now to be seen as having been the 'traditional' student in higher education, a field in which, according to a UNESCO statement of 1962, 'the usual entrance age is about 18

years'. I think it is likely that we will go on having very large numbers of students who enter higher education at 18 years. Some of them, however, will combine work with higher education in a systematic way, as happens, for example, in very large firms, the military and some government agencies. For them, the Internet will very likely be more than just a useful facility available at their university. And there is another class of student that is rapidly emerging in Western countries, the professional returning to learn more, or to advance in a new direction, or to shift fields altogether. For these people the Internet is both a necessity and a preferred means. And I now want to say something about this relatively new class of student.

'Non-traditional students

In my youth one degree was thought sufficient for the small minority of people who went to university. Only academics needed more. But the great growth of human knowledge of the last fifty years has produced a drive to learn more, not so much more of the same, but more that is different and builds on what has already been acquired. Engineers discovered that after seven years they had become managers, and from their need to be good managers came the MBA. These days many people need up-to-the-minute training in computing, on top of a first degree in some other field altogether: thus the Graduate Diploma in Computing, and for the computer people themselves, whose field changes so rapidly, the Master of Information Technology. Australian universities now offer thousands of such postgraduate certificates, diplomas and degrees, and the customers continue to come back for more.

We have learned that these postgraduate students are very busy people, and they will not happily trek across big cities to classes at inconvenient times. They now have to pay for their further qualifications, and they expect much more attention to their needs. As I said at the beginning, for such people time is more important than money. Because Australian universities, despite all the advertising nonsense, offer courses of much the same intellectual quality, these prospective students will search the Web looking for a course that offers what they want in a form that is most useful to them. A few years ago we at the University of Canberra discovered that we had enrolled only a little more than a quarter of all the postgraduate 'coursework' students in our city instead of the much more than half we should have had, given our course offerings. Worse, we discovered that the universities with established on-line courses collectively enrolled more Canberra students than we did. The conclusion was obvious: we had to compete in that market, and we now do so, much more successfully.

Our experience of the last few years might seem irrelevant to some of those here. But I do not think it will be so for long, if it is really so now. The Internet is so useful in other ways that its use will spread quickly. The growth of knowledge is continuing. The need to educate our populations quickly and to a high level is a commonly felt national need. And no university has a lot of money — in our region, anyway.

Some Final Thoughts

I offer some concluding thoughts on the challenge posed by this newest technology. I should add that I do not expect the Internet to be the last such challenge in our time. I would not be at all surprised to see some quite new technological possibility enter higher education before long, and we will once again go into raptures or terrors according to temperament.

* The heart of higher education is a relationship between a student and a teacher, and it is hard to see anything improving the quality of education that does not at the same time enhance that relationship.

* Technological innovations will always seem more potent, in terms of this relationship, than they really are.

* The task for universities is to view the innovation from the perspective of quality enhancement: does it provide for enhancement? If it does, how best can we employ it?

* We may find competitors for some of the work we now do, but we are unlikely to find competitors for the student-teacher relationship of high quality, because that is expensive, however it is facilitated.

* That is a point that we need to argue cogently to our governments and to our other funders.

And I suppose I hardly need to add this last one:

* It is hard to convince governments of anything other than the rule that cheaper is better!