

THE HUMANITIES IN A UNIVERSITY OF TECHNOLOGY

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The idea of a university of technology seems to link two otherwise incompatible terms. Technology has come to refer to the way we do things, while the traditional pursuit of a university is the search for reasons for doing anything. The first is concerned with skills, the second with knowledge or understanding.

This simple distinction however obscures reality. Knowledge and skill are intertwined, and in learning how to do something we learn also something about why we might want to do it. Similarly, all learning involves some exercise and development of skills. When we learn about the history of cities, we may not learn how to build walls and lay roads, but we do have to learn about the principles which govern both of these activities. On the other hand, if we learn how to make things, we must learn also about their functions and relationships--that is, about the principles that govern their construction. The question of whether principles or practice comes first is a matter of pedagogy, not of function, although it can easily be erected into a matter of ideology.

A university of technology should take both elements of its title seriously. As a university it is concerned with all knowledge, but technology can provide a focus for this concern. This implies that its aim will be to integrate theory and practice in the search for a better community. The pursuit of individual excellence by both staff and students is a necessary part of this endeavour, but it is not the ultimate goal. Nor can the task of integration be seen as the prerogative of any single discipline or group of disciplines. Rather, the teaching of every subject should be seen in terms of both ends and means.

The acceptance of this aim implies that the humanities and social sciences will be directly involved in the teaching of technology, and that courses in humanities and social sciences will concern themselves directly with the function of technology in society. This presupposes an understanding of the relations between the individual, society, and the production and use of knowledge. In this paper I seek to clarify these relationships and show how they affect the proper concerns of a university of technology and the place of the humanities within it.

I

Although technology can be defined as the application of knowledge, or more narrowly of science, to human needs, this usage conceals the distinction between technological equipment and its use. Tools and machines have always embodied human capital, the value of the human labour that has gone into making them. Equipment of this kind also embodies the accumulated

skills incorporated in its design. It enables skills developed through labour to be used to carry out new tasks with less labour. But the electronic equipment of computers and information technology takes this process much further, for it does not merely facilitate the use of labour skills, but replaces them. The owner of the technology purchases with the equipment a labour value previously passed on through generations and now made surplus.

When Mr Dawkins and Senator Button speak about the needs of business and industry, they mean the needs of a society dominated by a technology operated in the service of capital and in accordance with the ideology of a free market of goods and services. Such a market depends however on some measure of equality between suppliers of goods and of services, between capital and labour. Although no such equality has ever existed, at least in historical times, in industrial societies the trade unions have until recently maintained some kind of balance. That they are no longer able to do so effectively is a result not only of the rise of the New Right, with its passion for untrammelled bargaining and the victimisation of anyone participating in collective action, but of changes in the nature of production.

While individual workers now exert unprecedented power over the human and physical environment, they do so only by means of a technology which is totally owned by others and which removes them both from the consequences of their labour and from the possibility of controlling its use. Because the original skills and knowledge which produced the equipment are different from those needed for its operation, neither producers nor operators have control of the whole process, nor of themselves. A consequence of this separation is that the original divisions of labour produced by industrialism are now internalised, so that all connection is lost between people as workers, as consumers, as citizens and as family members. At the same time, the power of the technology distances its users from the natural world and the society to which it is applied. The divisions between nature and culture, and between the individual and society, become absolute. Technological and vocational education, narrowly conceived, merely strengthens these divisions, making people less capable of possessing themselves or their world. Recent examples of technological disaster, civil and military, are a direct consequence of the kind of fragmented education demanded by contemporary business and industry. The desperate attempts of some engineers to push nuclear power as the answer to the greenhouse effect are further evidence that the technologists have still to learn the meaning of hubris.

At the same time that technology has extended human power over the social and physical environment it has brought into being an autonomous financial system which not only dominates production but replaces it as a source of national and individual wealth. Braudel has shown how one of the effects of the industrial revolution was the establishment of an autonomous economic sphere alongside those of the direct production and exchange of goods. (1) This sphere operated by exchanging and accumulating money. However, even after the abandonment of the gold exchange, there was a direct relationship between money and the material value of labour accumulated in goods. Modern electronic banking and the accompanying acceleration and computerisation of financial transfers have completed the destruction of that link. Figures like Australia's vast overseas debt represent only entries in electronic memories, yet they are political and economic facts which control the lives of millions. Finance has become the ultimate fiction, a symbolic system representing only itself. Supposedly vocational courses merely teach students to manipulate this system. A true university concerned with technology would study its dependence on and control of electronic technology and develop means of breaking this control.

The third and most important aspect of technological alienation is that between our animal nature and the social and physical environment. The whole Green Movement is in one sense an attempt to overcome this separation, and to avoid the profound threat it offers to our existence, by a return to a supposed arcadian age of integration and harmony. But the movement is flawed, at least in its practice, by its failure to recapture economics from technologically-based ideologies of measurement and growth.

It is absurd that an economist should be able to include in his published assessment of a development project the assumption that there will be no environmental effects. Everything has environmental effects, and the effects of high technological development are usually costs. Because these are difficult to measure they are omitted from economic projections, or scorned as merely 'imputed costs': a neat phrase which conceals its admission that the measurers are unable to perceive what they are purporting to measure.

The development of alternative and appropriate technologies is one way of combatting this distortion, or rather disjunction, of economics. Tactically, such measures are important, but as a strategy they are defeated or marginalised by their very virtue of smallness. They leave untouched the

fiction of money which produces the electronic marketplace and controls worldwide the availability of land, shelter, jobs and income. The rainforests of Tasmania or Brazil are destroyed by the need for land and jobs as much as by the insatiable demands of production and profit. They will be saved only as the destroyers are forced to pay the true costs of their products, which in turn requires a new economics. The proper attribution of costs, including the costs of destroying natural and human resources, is a necessary condition of a balanced as opposed to a stagnant economy. Without it, dreams of a zero-growth economy will remain just that: dreams.

III

If the nature of work in a technologically advanced society is to monopolise the ownership of knowledge and the manipulative power it confers and to alienate individuals from themselves as well as from each other and their product, what possibility is there of a form of technological education which will enable people to integrate themselves and their society and regain power over their lives? Or, to put it more simply, how can we enable students to learn to live comfortably with themselves and their environment?

In part, our answer to this will depend on our understanding of the nature of reality.

The technological vision is based on the view of a society of autonomous individuals in a fixed universe which they can exploit for their own ends by means of rational choice through the market place. Technology is merely a means to their

independent ends, a way by which with less expenditure of effort they can satisfy their desires. These desires are expressed through the market place, which responds by investing in more technology to lowering still further the costs of producing what the people want. At the political level, this is expressed in Professor David Kemp's recent definition of politics as the means by which individuals reduce uncertainty in realizing their own values. (2) In education, it is expressed in the linked ideas of freedom of choice, equality of opportunity and vocational usefulness of courses. Students choose the courses which will maximise their ability to gain income. The perceived social consequence is a healthy economy in which individuals use their skills of manipulation and exploitation to expand the national income, measured in monetary terms.

The contradictions in this model are as easy to spot as the model itself is difficult to displace. Individual goods can add up to social disaster: vide the rainforests. In a fixed universe production cannot expand indefinitely. Nationally and internationally, the profit of one implies the loss of another. And so on. But the fundamental fallacy of the model is its atomisation of nature and experience. Nature is presented as something apart and to be exploited, individuals as separate from their fellows, to be manipulated or enjoyed for the satisfaction of independent needs.

Now there is no doubt that this model arises from a dominant theme of western culture. Attitudes to nature have varied through the centuries, and in times of trouble like the present people have always dreamed of the return to nature. But a

continuous theme, from Homer and Plato to the present, has been the central importance of the individual, and consequently the importance of individual freedom. Technology is a consequence of individual efforts to expand knowledge of the natural world and to empower us as individuals to turn it to our own use. The whole study of the humanities is also a part of this tradition. In the middle ages the humanities were an instrument for bringing the individual to a knowledge of God. In the renaissance they became a way of perfecting the individual in this life. After the industrial revolution they became first, in the British public schools, a means of training those individuals who would have power over others, and later, in state grammar schools under the influence of Arnold or American public schools under the influence of Dewey, a means of rescuing the individual from the pressures of a mass society. Science may have been the means of giving individuals power over nature, but the humanities gave them power over themselves, and thus over others.

This is a noble tradition, but it no longer works. Teachers of the humanities could once emphasize individual freedom because those they taught were already separated from the masses and destined for power and authority. Just as the code of chivalry bridled the aristocratic thugs of mediaeval Europe, so the humanities tamed the heirs of the ironmasters and the civil administrators of European empires. But in a technological society everyone must be trained, and power comes from manipulative skill more than from inherited wealth

or attributed authority. Although the humanities can enhance skills, and can be used quite effectively to manipulate others by controlling their language, this is not their central concern. They therefore risk relegation to the last preserve of the individual--the pursuit of leisure. Through the humanities and the arts, it is argued, individuals can use their leisure to achieve the excellence and harmony which the world of work denies them. At the same time, we can afford to allow a few universities to employ a few scholars to keep this tradition alive, just as we can afford to maintain professional golfers to entertain us during our leisure and assist us with our own game if we decide to become active participants.

There is however another function for the humanities to fulfil, one which is essential in universities of technology if they are to be something other than a means of processing people to meet the supposed needs of industry. This function depends on our recognition of physical reality not as something fixed and apart, but as a process of which we and our perception of it are alike parts.

Although the humanities have always emphasised the importance of the individuals, they have also traditionally recognised the individual as a social product. As the forms of technology and society have changed through the ages, so have the ideas of the individual and of individual excellence. The humanities have also, at least since Kant, recognised the impossibility of defining the relation between the

individual and any external reality. While there is a physical reality which gives meaning to the concept of truth, our knowledge of it is a social construct, just as are our concepts of freedom or beauty. So, while the individual remains central to the concerns of the humanities, their methods of investigation are grounded on an understanding of both individual and society as dynamic. This view coincides, not accidentally, with the understanding modern physics has given us of a material universe which is neither static nor constituted of individual atoms, but is a complex of integrated and interacting forces. Consequently, we cannot understand ourselves as individuals standing aside from a fixed universe contemplating Platonic absolutes or pursuing independent choices, but as people constituted by and constituting the knowledge and activity of our own time. The essence of our individuality is social, just as our fate is to remain individual.

IV

Contemporary thinking in the humanities is dominated by the concepts of Marx and Freud, the one showing society as a dynamic of conflicting forces, the other doing the same for the individual. But although we all acknowledge the importance of this pair, and probably use methods derived from one or the other as our tools of analysis, in general we have not learned to combine their understandings and forms of analysis or to

direct them away from our own disciplines and out into the whole world of learning. So we are excellent at analysing the functioning of society or the development and neuroses of the individual, but we have not developed methods which make the one coherent in terms of the other. So even in the humanities the individual disciplines fail to talk to each other, and collectively we fail to talk to the scientists, technologists and businessmen who remain captives of their own fictions.

The problem with both Marx and Freud, and their followers, is that they each abstract one element or dimension of human experience and use it to explain the whole. In Marx, it is the purposive activity of the economic dimension, and the consequent conflict between individuals. In Freud, it is the purposeless element of play, the drive of desire, and the consequent conflict with the personal and social need for rational control. Neither allows for the third element of human behaviour, the game, that is, play which is controlled by rational rules but which has no purpose between the individual and society is controlled by the dialectic between these three elements of play, purpose and game. The ideal of the university, the pursuit of knowledge or learning for its own sake, is a pure expression of the idea of play, but in its practice becomes a game, played by its own rules and with its own purposes of power and prestige. Even academic politics is no more than the extension of this game until it loses contact with the play which

is its base. The extensions of technology, the games of business and industry, and the frenetic activity of international financiers are similarly games which have extended until they lose contact with any reality beyond that they make for themselves. In contrast, in vocational institutions we try to move in the opposite direction, playing the game of converting play into purpose by training students in tourism, recreation or the arts, to make money out of other people's play. (3)

The role of the humanities in a university of technology is to provide an understanding of the rules of these games and their relation to the other drives of purpose and play. This in turn leads to an understanding of technology not as a means to an end, but as one of the games by which we constitute ourselves and pursue our purposes. Because of the central importance of technology in constituting contemporary society, it is quite appropriate that it provide the focus of a university. As such, it can in fact serve to restore the concept of the university as place where the whole of knowledge can be pursued, rather than the contemporary reality of an institution where knowledge is divided up and doled out in separate packages to meet the assumed needs of different groups of students. But, while technology can serve as the focus, it cannot provide the purpose unless we intend to surrender power over our lives and our future. If the purpose of a university of technology is power for its students, this purpose will be fulfilled only as its academics are allowed to pursue their own game of learning for its own sake.

This game first should be pursued through the direct cultivation of those disciplines in the humanities which serve the wider purpose of furthering our understanding of the relations between the individual, society and environment. It is necessary therefore for a university of technology to have a strong arts faculty which will maintain this perspective in all discussion of the technologies both through the teaching of its own students and through the general debate on campus. I would expect the academics in these disciplines to be questioning the boundaries of their specialised areas as well as strengthening their base, and so participation in interdisciplinary research and teaching would be a normal practice. From such a base, the faculty would then be able to offer to its own students which apply this understanding to directly vocational purposes, and to students in the material sciences and technologies, and particularly in business, courses which would enable them to incorporate their particular skills and knowledge into a broader understanding of the human environment. This does not mean that these students would, as graduates, necessarily employ technology to better purpose. It would ensure that they understood what is at stake in any use of technology.

In the pursuit of this game of learning the humanities academics will develop incidentally, in themselves and their students, skills and knowledge which will serve other purposes.

Further, while the pursuit of learning for its own sake is play, it is also useful work, for it produces knowledge, and all knowledge is value. Academics in the humanities may even choose to join their colleagues from other areas by playing the entrepreneurial games which turn knowledge and skill into monetary value, and so earn money to further the play of their learning. But if they are forced to subordinate this central function of learning, as play, game and purpose, to purposes extrinsic to education they will educate their students neither for technology nor for life.

(1) Fernand Braudel, Civilization and Capitalism, 15th--18th century, three volumes, London, 1981-85.

(2) David Kemp, Politics and Authority: foundations of Australian political analysis, Melbourne, 1988.

(3) The concept of hum, an activity as a dialectic between play, purpose and game is indebted to Richard Lanham, Literacy and the Survival of the Humanities.