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Technology and the humanities: opportunities for educating about value issues

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Abstract

In this paper a case is made for developing a curriculum framework for educating about value issues. The case is made in general terms for the interface between technological education and the humanities in the context of the National Curriculum in England and Wales. A provisional agenda for such a framework is set out together with a rationale for the multidisciplinary, cross-curricular approach necessary for its success.

How can the value-laden nature of technological activity be explored in schools and colleges? A multidisciplinary approach which recognises the complexity of the individual, of human cultures and of global systems offers one way forward. Through such an approach, challenging discussion about the aims of technological endeavour can be promoted in a way which explores outcomes other than those concerned purely with profit without at the same time being anti-industrial. In a world where people are increasingly socially and environmentally aware, the value judgements which are made by industrialists, by designers and by engineers have to be acknowledged and the responsibility for their decisions shared. This will involve looking beyond stated values to challenge assumptions - to look at the principles and beliefs which are being invoked in making the value judgements.

There are, in the National Curriculum in England and Wales, opportunities for exploring an often neglected area of technological education- that of the nature of values, their relationship with attitudes and belief systems, and, in particular, their role in decision-making with reference to basic human needs such as food, warmth and security. An exploration of value issues through technology might be given clarity by establishing explicit links with other areas of the curriculum such as geography, history and religious education which are also concerned with human experience and welfare in the broadest sense. Such an exploration would be concerned with the link between culture and values and would draw on a number of academic perspectives, ways of thinking and cultural traditions. It would offer some definitions and explanations of such terms as values, beliefs, assumptions, principles, morals, ethics, constructs, attitudes, ideologies, paradigms and faith, particularly in terms of their relevance to technological decision-making. The exploration could be made both at the personal and at the communal levels in the contexts of

schools, colleges, industry, commerce and religious and social institutions.

An essential starting point would be an examination of meanings for technology. The notion that technology is inseparable from a consideration of the development of human civilization is reflected in the definitions of technology which informed the development of the National Curriculum, for example: *"a disciplined process using resources of materials, energy and natural phenomena to achieve human purposes"* (Black and Harrison, 1985). To arrive at a meaning for "human purposes" requires not only a wide interpretation of technology, but also an understanding of what it means to be human and of the interplay between technology and culture. This can be illustrated through reference to key aspects of technology, namely needs, opportunities and processes in the context of issues in contentious fields such as those relating to, for example, the environment and biotechnology.

To identify human needs it is essential to be clear about the value judgements involved in the process of identification. The definition of technology given by Black and Harrison refers to human purpose. No attempt is made to define whether the purpose is beneficial or harmful: whether it is beneficial to a few people but harmful to many others. The same is true of needs. What is one person's need may be another person's problem or luxury. Decisions about which and whose needs are to be addressed requires an understanding of different cultural values, beliefs and norms. A second, popular definition of technology, illustrates the point: *"The holistic view of design and technology is, and always has been, about the realisation of appropriate solutions to human problems, problems which arise in every sphere of human activity."* (Thompson, 1989). This definition implies that technology is able to solve most human problems. In taking a value-

orientated and multidisciplinary approach to the curriculum, it is important to recognise also the limitations of technology, particularly within the spiritual dimension of human experience; to identify not what is an appropriate solution but what is an appropriate problem.

The notion of "identifying opportunities for technological activities" is also value-laden and predicated by cultural beliefs (Riggs and Conway, 1991). It is crucial to differentiate between needs and opportunities. This is particularly important within an economic framework especially in terms of the differential economies of industrialised and developing countries. It is also important with regard to understanding technology in both its industrial and educational contexts.

It is frequently said that the processes of technology are neutral. Only the discussion of ends is commonly regarded as ethically relevant, and if ethically relevant decisions have been made, the remaining problems seem to be only technological problems: *"We only dealt with the technical problems and had no influence on the determination of goals" - this is a type of excuse frequently advanced.*" (Monsma, 1986). This presents a view of technology as an instrument that can be used for good or ill. In such a view, blame for adverse outcomes rests not with the processes of technology but with its misuse. However, when the significant human problems of the day are recognised for their complexity, the falsity of such a view becomes apparent. Controversies over the greenhouse effect, the ozone layer, the use of embryo tissues are all related to the processes of technology. Technology is not culturally neutral (Pacey, 1983).

If technology is about human needs it is necessary to ask what such needs are. They may be life sustaining, such as the physiological needs for food and warmth (Maslow, 1970) or to do with quality of life such as the psychological need for security. Home economics, with its concerns of food, textiles, maintenance of health and care of children, is about understanding essential human needs and their provision. Exploring such needs is thus a legitimate part of technological education; no other subject area has quite the expertise.

There are also psychological and spiritual needs which are related to, for example, love, self-affirmation and worth. In one sense there is a shared responsibility for exploring these needs since all education is concerned with the identification, inculcation and evocation of knowledge, skills, attitudes and values. Such an exploration is about the spiritual, creative, aesthetic and social aspects

of being human. Technological education, like all areas of the curriculum, has its part to play. It is necessary to interpret technology through a variety of frameworks of meaning. This demands a cross-curricular approach. Links, for example, can be made with religious education which is concerned with the depth of human experience and affirms and values the experience of people as individuals and as social beings within a framework of reference concerned with divine or ultimate purpose.

A similar case for links between technology and geography through a consideration of technology as an agent of change with particular reference to the environment has been made by Dillon and Squire (1992). In the context of the National Curriculum in England and Wales, they suggested that technological literacy can be equated with the general meaning of technology proposed by Pacey (1983). As such it includes cultural and organisational aspects of technology as well as the technical aspect commonly associated with the development of practical capability. They argued that there should be cross-curricular responsibility for technological literacy and that, in the case of teaching and learning about the environment, this should involve collaboration between teachers of technology and teachers of geography at the very least.

A rationale for collaboration can be made in terms of the "interstitial" curriculum. This idea was proposed by Jeff Thompson of the School of Education, University of Bath, at an open meeting on the National Curriculum in Reading in 1988 and developed, in the context of technological education, by Dillon and Squire (1992). The claim is that through the interstitial curriculum the boundaries between subjects contributing to the National Curriculum can be explored without at the same time compromising the internal integrity of the subjects themselves. Each attainment target has an "intrinsic dimension" located within the subject and assessed through the subject and a "transferable dimension" which can contribute to multidisciplinary work.

Educating children for a changing world may sound like an old cliché but it is unavoidably true. Whatever the changes, society must hold onto an understanding of what it means to be human and to have needs. This has to be the bottom line: the core at the centre of all interactions and decision-making. Exploring what this means should be the core of educational practice - a practice which, in terms of the rationale set out above, is incomplete without due regard to the interface between technology and the humanities.

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