Lost contexts and the tyranny of products

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Abstract

While making products has always been an essential part of D&T, the motivation for doing so may have changed. Such change is illustrated in the National Curriculum (England and Wales) documents 1989 to 1999. In the Interim Report products are "developed in response to perceived needs or opportunities" and technology is identified as taking "place within a context". The current Order (DFE 1995) requires pupils to judge the quality of a product by assessing how the product meets a need and is fit for its purpose.

This paper explores the view that the curriculum is increasingly centred on decontextualised products where pupils acquire skills and knowledge to make products which are then evaluated against criteria which have little relation to a realistic context. Product evaluation is undertaken in a similar manner and the subject may be seen as `pure' technology.

Combined with increasing consumerism, this loss of contexts will have a significant effect on the image of technology being promoted and an uncritical technicist view, in which people are passive recipients of technology, could be encouraged. The paper concludes by exploring new cross-curricular initiatives and raises important issues for all those involved in design and technology education.

Keywords: contexts, curriculum, evaluation, policy, process-product debate, values

Introduction

Since the inception of the National Curriculum for England and Wales and the publication of the Interim Report in 1988, discussion about the nature of Design and Technology has continued. The purposeful nature of technology has always been stressed and there is general agreement that, in essence, it is about producing outcomes, artefacts, processes or systems. Differences in opinions emerge when questions are asked about the designing and making which actually takes place and the purposes and motives that drive it. Questions such as *Why do it?* create a variety of responses.

Needs and opportunities

The Interim Report, gave, at first glance, an answer to this question for products are "developed in response to human needs or opportunities" (1988:4). Further consideration, however, indicates that understanding what is actually meant by needs and opportunities is problematic. What are the differences between needs and opportunities? Whose needs are to be met? Which opportunities should be taken? It is not surprising therefore that in later documents needs and opportunities are not mentioned and the remit for design and technology capability seems to change. In the 1992 and 1995 Orders the emphasis was on making products and quality judged by the extent to which products are *fit for their purpose*. In the QCA `Work in progress' documents (1999) there is mention of *the ability to consider critically the uses and effects of design and technology* in the opening paragraph, but the emphasis in the Programmes of Study is still very much on products with references to contexts only present in the notes on *breadth of study*.

There are practical, pragmatic and educational reasons why the Design and Technology Orders have undergone revision. An additional reason may be the apparent change in, or a developing awareness of, beliefs about technology within society. Certainly writers

such as Ellul (1964), Toffler (1971), Pacey (1983), Borgmann (1984), Winner (1986), Franklin, (1990) and Barbour (1992), have been critical of the prevalent view that technology is automatically about progress and power; and critical of the *uncritical positive valuing of technology* (Waks,1994:35) They note that the effect technology has on all aspects of modern life are taken for granted, rarely critically analysed and seen as inevitable. This is typical of a technocentric perspective or belief, a mindset that looks only at the artefacts and material components (Franklin, 1990) and which is:

> "... a particularly insidious ideology because, being based on scientific and technical reasoning, it lays claim to 'value neutrality'... the Technicist game of 'reducing to procedure' - focusing on the procedures in a technical way which ignores values, implications or consequences of the outcomes." (Lally, 1991:17)

It is also a 'Uncritical valuing of technology a new faith that … people can believe in' (Monsma, 1986:24)

This faith in technology leads to a belief that in today's society:

> "- everyone has a right to a rising standard of living;
> - there is no upper limit to the standard of living that we can achieve;
> - man has the wit and the power to control his environment. There may be crises, but science and technology will get us through in the future as it has in the past
> - a rising standard of living means increased happiness;
> - the chief aim of government should be material prosperity." (Montefiore, 1990:1)

This focused view of technology is one which separates the processes and products of technology from human behaviour and relationships. Pacey (1983) called this a restricted view which involves only technical knowledge, skills, techniques, and equipment. It is akin to deterministic technology: technology which 'has a life of its own', which is self-perpetuating and developed for its own

sake. This separation or isolation of technological processes and outcomes from contexts could be seen as 'pure' technology.

Pure technology

Pure science is concerned with acquiring knowledge for its own sake; with developing theories and concepts to explain natural phenomena. Such theories and explanations are not necessarily expected to be applied, to be of practical use and, although humans are concerned in their development, theories and concepts stand independently of human actions, values and behaviour. Technology differs from pure science in that it is applied knowledge, concerned with humans and daily living. The processes of technology cannot be separated from the reasons *for* the technology and the reasons *why* the technology comes into being. Technology is always purposeful, always focused on outcomes, is context-dependent and cannot be separated from decisions and value judgements. A scientist can investigate the melting point of a newly created material and arrive at a measurement. A technologist has to assess the material within a context asking whether, for instance, the material is suitable for making a lightweight cooking pot, which can be carried by nomadic, or displaced, people.

In today's world the amount of pure science carried out is more limited than in the past and science education is increasingly concerned not with pure science knowledge but its application. Some science educators see design and technology as narrowly focused on what happens in school workshops. They see science as able to:

> "... go beyond the limitations of the D&T workshop to explore larger technologies and their implications for society..."

and

> "the explanations that science can offer will make them more aware of the impact of the products of science and technology on their lives, and more knowledgeable about how they work." (Millar and Osborne, 1998:19)

Such statements should cause technology

educators to give some serious thought to beliefs about technology, the image that design and technology has in the UK and its role in the education of young people.

Writers have used different approaches to explore and challenge prevalent beliefs and images of technology. Barbour (1992) identified three basic descriptors: Technology as liberator, Technology as threat and Technology as an instrument of power. That technology is liberating is evident in most aspects of modern life: in health care, relief from backbreaking work, sanitation, adequate nutrition, and transportation. One aspect of technology as threat is:

> "Mass production yields standardized products, and mass media tends to produce a uniform national culture…Technology leads to rational and efficient organization, …The criterion is efficiency in achieving a single goal or a narrow range of objectives; side effects and human costs are ignored." (Barbour, 1992:10)

Within his explanation of technology as an instrument of power, Barbour links technology and political power noting the 'interlocking structure of *technologically based government agencies* and corporations, sometimes called the *technocomplex'* (1992:16). Power and profit are of course linked; corporations cease to exist if profit is not made.

Consumerism

Related to how we see technology, the making of profit and the notion of the technocomplex is our behaviour as producers, users and consumers of technology. The motive for making appears to have moved from meeting needs to satisfying consumer demand.

The mass production of products means accessibility to standardised products promoted by mass media. This is clearly demonstrated by the 'need' for 'designer goods' by many and it is indicative of our changing society where people are described by what they possess. This move towards a consumer culture has become a growing area of study for sociologists who point out its significance:

> "The significance of consumer culture is thus to be found in the fact that the individual is no longer judged by him or herself or by society in terms of how well they carry out their duty or responsibility in relation to some wider collective or external morality ... but in terms of how well they exercise their capacity to make a (consumer) choice." (Lury, 1996:248)

With the growth of this culture in society over the last decade or so, the inclusion of product evaluation in the school curriculum may be about helping pupils exercise choice as consumers rather than valuing the contribution of design and technology makes to people.

Lost contexts

In addition to a move away from needs and opportunities and the rise of consumerist values, there is evidence that activities in design and technology education are more and more context-independent. Changes in the language used in curriculum documents and schemes of work illustrate this. There has been a shift in emphasis from:

> "design and technology is always purposeful, takes place within a context of specific constraints and depends upon value judgements at almost every stage." (DES, 1988:4)

Values seem to have disappeared from curriculum documents: in the QCA proposals interestingly, there is mention of contexts but this is in relation to products:

> "assignments in which they design and make products, focusing on different contexts." (QCA,1999:2)

While this may seem to require technology to be placed in context, this may not be the case. Designing and making activity arises from an exploration of contexts and does not necessarily result in making a product. It could result in a new way of using or modifying existing systems and products.

Practice in schools

Changes in curriculum documents influence practice in schools, sometimes quite dramatically. Increasingly decontextualised activities appear to dominate D&T in school with highly focused tasks under the title of design and make assignments: e.g. 'keep it safe' where pupils all make the same protective holder for a floppy disk. Research projects have indicated this was not the case and the only values discussed were economic ones such as: *Will the product sell?* (Riggs,1994, Conway, 1999). In answering such a question the only considerations were cost and durability and in attempting to answer these the products were not considered in different contexts of use. During a recent interview one teacher said: *They (pupils) don't do much design and work with contexts as there's too much to cover and no time!* (Martin, 1998). While acknowledging time constraints, teachers still have a responsibility to raise awareness of the value-laden nature of technology.

Pupil motivation is high when they are creative and designing and making for real people. It appears however that there is little time or opportunity for this to take place.

Tyranny of products

As well as making products, pupils need to be given opportunities to learn about the design and technological activities of other people and other cultures. There is more to design and technology than what can be made in a workshop. Providing opportunities for pupils to look at design and technological activity outside the school environment and beyond their own consumerism is vital. It appears that, regrettably, curriculum Orders have narrowed the focus of design and technology activities to the extent that products are being evaluated in an almost 'scientific' manner. The problem may not be addressed: for by talking about *product analysis* (QCA,1999), the notion of evaluating products, without reference to people or society, will be further perpetuated.

The influences of the Design and Technology Order

The questions this paper raises are: Do curriculum Orders help promote the major views of technology in society? Do they encourage criticism and critical analysis? Is a value 'set' being transmitted, if so, what is it? If a 'Technicist' view is being promoted, will design and technology education encourage overconsumption and increased manufacturing for its own sake? Are we educating pupils as passive consumers rather than critical users of technology?

Cross-curricular initiatives

Two forthcoming cross-curricular initiatives - Sustainable Development and Citizenship - open up opportunities for design and technology education. They also pose threats. Technology plays a major role in the development of countries, both economically and culturally. Design and Technology can claim to make significant contributions to Sustainable Development education. This will, however, only be taken seriously if the social and cultural nature of technology is seen as central to the subject. A technology education focused on products alone will make little contribution to the major debates in society and could mean that it will be marginalised.

In the QCA draft it states that 'Design and technology … helps pupils to contribute to their home life, the community … as they develop systems and make products which enhance the quality of life' (QCA,1999:1). This is in line with the thinking behind the Citizenship initiative. The challenge is ensuring that products made by pupils are not just about practising skills, and that products are analysed within human contexts.

Re-claiming contexts

As responsible educators we need to reclaim contexts and enable pupils to develop a more general view of technology (Pacey, 1983). This can be done by changing the way that design and make activities are introduced. For example, consider a design and make activity on the theme of *Carrying* where the teacher intends pupils to develop a carrier from textile materials. The task could be presented in one of two ways:

1. Design and make a carrying device to hold a range of foodstuffs.

2. Address the issue of an elderly shopper who needs the means of carrying his/her shopping back home from the precinct.

Both design activities may result in exactly the same solution but the second activity presents a much richer situation for pupils to explore and discuss a range of issues.

Conclusion

In conclusion, this paper raises a number of challenges for design and technology educators. These are:

- When evaluating a products, is this done by placing the product in the context in which it will be used?
- Is an awareness of beliefs about technology part of the Design and Technology Curriculum?
- Is the belief/value system that is being inculcated in Design and Technology education one that promotes consumerism?
- Is the view of technology being promoted in school a 'pure' one relating only to the acquisition of knowledge and skills?

Writing in 1993, David Layton believed that technology, more than any other subject, challenges the historic role of schools as institutions which decontextualise knowledge. Six years on has the challenge been made or has technology also become another area of decontextualised knowledge?

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