Creativity, culture and citizenship in primary design and technology

RESEARCH

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Abstract

This paper draws upon research undertaken in response to three themes that have assumed a growing importance in curriculum debate and official documentation in recent years. The publication of All Our Futures – Creativity, Culture and Education (NACCCE, 1999) was hailed as a reaction against an increasingly narrow, subject-bound curriculum, and the inclusion of Citizenship within Curriculum 2000 (DfEE/QCA, 1999) signalled the UK government's commitment to a broader educational agenda. The meanings of these terms and the political agenda driving the change are, of course, open to question. Yet, we argue, their relevance to primary design and technology is considerable, though as yet largely unexplored. Using case studies of typical design and technology projects gathered over the past year, we draw out significant strands of creativity, culture and citizenship that have hitherto been implicit in primary practice.

Introduction

Design and technology is still being 'squeezed' in primary schools – but what is it that has been extracted and lost? We believe it is the notion that design and technology is a subject that is above all else one where children can be learn to be creative. The 'slimming down' that resulted from numerous curriculum changes in the early 1990s removed any consideration of how design and technology would contribute to the education of our young people in a wider sense. Curriculum 2000, with its acknowledgement of the importance of broader themes in education, offers design and technology educators the opportunity to restate the opportunities our subject offers teachers and children to access these themes. We have selected three – creativity, culture and citizenship – that constitute important emerging dimensions in primary education and to which we believe design and technology has important contributions to make.

Creativity

Is re-inventing the wheel creative? It is if you have never seen a wheel before. Creativity is ability and a willingness to produce something that is new to the individual. It is often the ability to make connections between previously unconnected ideas. Within the primary design and technology curriculum there is a great deal of potential for creative though and action. Indeed, the paragraph that opens the programmes of study for design and technology – 'The importance of design and technology' – states that, through design and technology.

> ...pupils learn to think and intervene creatively to improve the quality of life. The subject calls for pupils to become autonomous and creative problem solvers... (DfEE/QCA, 1999: 15)

It is interesting to note that all but two of the 'importance' statements in the current National Curriculum for England (QCA/DfEE, 1999) claims to contribute to children's creativity, yet design and technology is the only one to mention it twice! This emphasis is not new. In the original proposals for the subject, the National Curriculum Design and Technology Working Group (1988) identified: 'The development of design & technology capability 'to operate effectively and creatively in the made world' as the overall objective for the subject'. (para 1.2)

Over the years this intention seemed to get lost. By the 1992 revision of the Order, the focus had shifted to the application of '...practical ability to apply knowledge and skills when designing and making good-quality products.' (DfE/WO, 1992: 5) Through the Dearing Review of 1992-3, the concerns were to do with clarity, manageability and flexibility of the curriculum with little time to consider a rationale for the subject. Fryer (1996) discovered that amongst teachers and lecturers surveyed there was 'a pervasive view that creativity is only relevant to the Arts'. Our target should be that everyone involved in the education of young children not only perceives the subject as one which can stimulate creativity, but understands how it can be presented as such.

We need to consider what is known about climates that will promote creative thought and action and how these relate to primary classroom practice in design and technology. Freeman (1998) summarises the finding of research into essential pre-cursors for 'high-level' creativity, which are:

- motivation and encouragement
- knowledge
- opportunity
- acceptance of one's own personality
- courage to be different
- creative teaching style.

How do these relate to design and technology? The QCA Scheme of Work for Key Stages 1 and 2 offers plenty of opportunities for creativity, and the knowledge of materials and techniques children need to give them confidence to approach design briefs. But if followed slavishly it can produce uniformity – the danger is that we give children so much 'support' that they get the

message that only certain kinds of outcomes are acceptable. By celebrating original or 'quirky' responses we can give children the courage to be different. Once we become familiar and confident with the units of work in the Scheme, we need to find fresh approaches, novel contexts or extra dimensions to 'weave in' to our practice, in much the same way as children may add materials to a construction kit. In this way we will not only preserve our own sanity, but create a 'culture of creativity' in our classroom. Culture itself can provide much of the 'added value' to our practice, as discussed below.

Culture

Cultural education has always been a part of the thinking underpinning the National Curriculum, and has now been identified as one of the central themes (DfEE/QCA, 1999). Design and technology is particularly well suited to providing opportunities for teachers to develop children's cultural understanding – helping them to understand their place in the world and the contribution they can make to it. A number of meanings of the word 'culture' are relevant here:

1 The cultures to which children belong

Different groups and communities have differing values systems between which children move and within which they clarify and develop their own unique values. Decisions taken related to design and technology are value-laden, therefore children should be made aware of the implications of their own values, those of others and constraints which can lead to tensions between values and pragmatic solutions. design and technology activities should be set in a range of different contexts that can reflect the diverse cultural experiences of the children and the pluralist nature of our society. This aspect of cultural education through design and technology can be approached in two ways: multicultural approaches (for example, evaluation of breads from different ethnic traditions in QCA unit 4B) to celebrate diversity. antiracist approaches (for example investigating the innovative and creative use of materials in the Majority world – see Siraj Blatchford [1996]) to explicitly confront potentially racist attitudes and behaviours.

2 Our 'technological' culture

Science and technology have transformed human perceptions of how the world works, our roles in it and the practical circumstances of our lives. However, this is by no means unproblematic – the results of science and technology have not always been positive. Teachers have a responsibility to support children in dealing with such issues. Examples include formal debates during which children are asked to explore the advantages and disadvantages of a particular project or technological development based on research from books, CD-ROM and Internet. This can lead to positive action along the 'think global, act local' lines of Agenda 21. For example, a problem regarding too much litter in a school playground could be solved by designing and making litter bins (a technical solution?) or educating others not to drop litter (a social and/or environmental solution?). The decision is a value-laden one that requires children to consider their own and other peoples' attitudes.

3 'High' culture

Cultural education involves helping children appreciate the links between the Arts and technology. Case studies collected during our research have focused on: children's engagement with the work of a particular artist enriched through related design and technology work; children actively involved in staging their own opera and a Shakespearean play (and designing and making costumes, stage sets etc.) We have also looked at ways in which children's involvement in contemporary and traditional cultural activities can be extended through design and technology, for example, through the use of multimedia.

Citizenship

Citizenship education within Curriculum 2000 is seen as giving pupils the 'knowledge, skills and understanding to play an effective role in society at local, national and international levels' (DfEE/QCA, 1999). Of course, many groups in society (particularly children) are excluded from such political participation. Indeed, they may not recognise the legitimacy of the state and its instruments (police, social workers, etc.) having suffered at its hands. The state may be seen as the enemy, and citizenship of such a state as having no meaning. For this reason we see the aims of citizenship education as emancipatory and empowering, in which respect it shares many of the ideals of design and technology, which aims to help children believe they can change things for the better. There is, to date, little published work on citizenship within design and technology yet the two 'subjects' share striking similarities. For example, in order to become 'informed citizens' in a technological age, children need the 'technological literacy' to 'read' the products around them, as in the following example:

Martin Palmer, design and technology co-ordinator at Ridge Junior School, Yate, adapted the QCA unit of work 4E, so that children should appreciate some of the social

impact of technology – particularly the widespread use of security lights, cameras and alarms.

Through a hands-on formative assessment activity, Martin was pleased to find that all the children had remembered how to construct a simple circuit from their Year 3 science work. He then showed them how a switch could be used to activate a security light (for example, attached to a garden gate). Groups of children designed and made prototype control circuits for Lego model houses, incorporating different switch mechanisms. Some modelled circuits on CD-ROM, changing bulbs and resistors whilst evaluating the outcomes. Children were asked to consider the effects of their designs upon those living in and visiting the houses.

Design and technology activity cannot take place without participation and responsible action, since to intervene creatively to improve quality of life requires that children participate in communities at different levels. The most obvious of these involving a formal institution with at least some notional democracy is the school. Davies (1999) suggests several ways in which children's perceptions of being school citizens might be explored, including power maps: 'Asking the children to draw a rough map of the school, using coloured stickers to show the places where important decisions were made or where the powerful people were.' Another approach was asking the question What if you want to change something? 'Small scenarios which presented a problem needing change invited children's suggestions for how it might be done.' (op cit. : 41) Both of these activities could clearly be design and technology related, since the power map could involve elements of planning and graphic presentation, whilst changing an aspect of the school environment (such as the playground) is an often-used design brief to contextualise designing and making assignments (DMAs).

In the original Order for technology (DES/WO, 1990) design and technology was supposed to take place within specific contexts: home, school, community, recreation, business and industry. Each of these contexts – particularly that of community – is a potential setting for children's active participation in projects to improve some aspect of the environment. For example, design and technology co-ordinator Sarah Munday chose to take advantage of the new housing development being built near Bromley Heath Infant School, Bristol, to provide Year 1 children with the opportunity of observing structures at various stages of completion and consider ways in which the development would impact upon the local community. She was also anxious to provide children with a sense of the social setting within which homes are bought and sold, so set up an estate agency in the classroom role-play area, complete with ICT-generated advertisements, index files, property descriptions and key tags. When children came to undertake the DMA she wanted them to be able to consider the particular needs of individuals, so set up a 'fantasy' scenario in which children would design for story characters. They were to group the resulting models in a housing development – 'Fairytale land'- which considered issues of access, space and traffic.

Conclusion

In this brief paper, we have only been able to scratch the surface of design and technology's profound contribution to creativity, culture and citizenship education in the primary curriculum. From our case studies we have evidence that these dimensions can be made more explicit by adapting standard 'good' practice in primary design and technology. A significant factor seems to be the awareness of the teacher during the planning process, pointing towards the need for continuing professional development in these areas. For a fuller account of this research, please see our forthcoming book: Primary Design and Technology for the Future: Creativity Culture and Citizenship in Education, published by David Fulton in September 2001.

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