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# Teachers' confidence as a factor in addressing cultural diversity within design technology education for young children

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## Abstract

*This paper presents findings from an ethnographic study of a small number of teachers in one school. The aim was to identify and understand some factors which may affect the ways in which teachers address culturally diverse issues in the classroom at key stage one. The approach adopted for the research is one in which teachers and researcher are working as co-researchers, plotting the teachers' professional development. Regular informal interviews provided a profile of teacher experience. The research, undertaken by teachers and myself as co-researchers, initially addressed the issue of teacher confidence.*

*Data indicated teachers were lacking confidence in their own ability to teach design technology. This related to practical, manipulative design and technological skills, and there was perceived deficiency in the knowledge base required for delivering a curriculum which reflected cultural diversity. This lack of confidence was felt to be in part attributable to lack of suitable resource materials. Teacher confidence emerged as the major factor in the lack of engagement in addressing cultural diversity when teaching design technology.*

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## Introduction

National Curriculum Design and Technology Statutory Orders<sup>1</sup> introduced many teachers to the notion that reference to cultural diversity can take place within the teaching of design technology; that it had an important part to play in preparing pupils for life in a multi-cultural society. The entitlement for all pupils, regardless of ethnicity, was that they should be encouraged to develop interest and experience in aspects of cultural diversity within design and technology.<sup>2</sup> Historically the teaching of design and technology has often ignored the contribution of skills from different cultural traditions. National Curriculum documentation, from its initial consultations onwards, included statements to redress this imbalance.

There are rich opportunities ..... to demonstrate that no one culture has a monopoly of achievements in design & technology<sup>3</sup>

A recent survey indicated that a substantial number of schools were requesting assistance from advisory services to address the issue of cultural diversity within the teaching of design

technology.<sup>4</sup> The reasons, for this identified need by teachers, appear not to have been researched. Experience of In service education of teachers (INSET)<sup>4</sup> indicates that making reference to cultural diversity in their teaching was problematic for many teachers. This paper indicates findings from an on going intensive ethnographic study of a small number of teachers in one school. The aim was to identify and understand some factors which may affect the ways in which teachers address culturally diverse issues in the classroom at key stage one.

## Context

This research developed from discussions which evolved during the course of a number of staff meetings which, at the request of the school Design Technology Co-ordinator, I led. The first three month period of school-based research was spent in building trust between researcher and teachers, responding to needs which teachers expressed rather than imposing my own views.

The school in which the research is being conducted is situated in a small town which

has lost its industrial base. It has very few children of minority ethnic origin, and none in the classes used for this research. The teachers were at different stages of their professional careers. Three members of staff were established teachers with many years of experience. These teachers had received no training in design technology other than through a brief INSET event. The teacher who had responsibility for design technology co-ordination for key stage 1 was not specifically trained in this area and had accepted the role through personal interest. One teacher was recently qualified and had received basic training in design technology. This training was felt to be of little practical use as it did not relate to the age range of children which she was teaching.

The approach adopted for the research is one in which teachers and researcher are working as co-researchers, plotting the teachers' professional development.

### Background

Discussions during the staff meetings indicated differing perceptions of the nature and purpose of design technology. At this point we looked at a range of definitions of design technology and the one which was selected as a best match to our perception of the subject was that suggested by the Assessment of Performance Unit<sup>5</sup>

An understanding of design and technology comprises the skills, knowledge and values by which men and women, and therefore boys and girls, come to grips with the problems of living in, and exerting their influence upon, the man-made world.

### Negotiating ground rules

As the research was seen as co-research teachers were involved in every aspect of the procedure. This necessitated the need for clear negotiated ground rules. An initial meeting of the project followed on from the staff meetings. The rules which were established at this meeting have remained constant .

#### *Ground Rules*

A primary purpose is to help all co-researchers to develop their professional practice in design technology by :

- a) encouraging each other to improve knowledge and skills in design technology- both practical and theoretical
- b) working as a team to support each other's practice
- c) sharing expertise
- d) having an appropriate level of self assessment, supportive advice and critical reflection
- e) keeping an agreed record of group discussion
- f) ensuring that records of all personal interviews will remain confidential
- g) making sure that proposals will be followed by action
- h) allowing co-researchers to record dissent without fear of acrimony.

Regular informal interviews would provide a profile of teacher experience. These were recorded in my diary as notes and form the basis for the account of the research conveyed in this paper. An overview of the data is contained in tables 1 and 2.

There were indications that teachers were lacking confidence in their own ability and that there was a sense of nervousness and hesitancy in sharing one's feelings with colleagues. This uncertainty was in part due to relationships between individuals. Interviews with teachers at this stage indicated that there were widely differing approaches to teaching the subject area. Expertise was seen as being limited to practical skills in working with wood or electronics. Value issues were confined to limited discussion of environmental issues when using recycled materials.

Teaching the full range of design technology activities indicated in the National Curriculum Orders<sup>1</sup> has been a demanding task. Teachers expressed feelings that they were expected to be skilled in teaching a wide variety of craft skills in which they had little experience. The general view of the teachers was that this new curriculum area appeared daunting . Lack of experience in teaching design technology meant that the short term priority for the teachers was handling tools and materials.

Aspects of the design technology curriculum which received less attention were those

Table 1  
Data Collection - Diary - () Observation Notes, <> Interviews, {} Conversation

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Lack of classroom resources for children	()()	()()	{}	<>()		{}
Lack of classroom resources - teachers - planning	<><><><>()	()	{}		<>	()<><><><><>
Uncertainty- skills in teaching	<><><><>{}()	{}	{}		{}	{}
skills in design technology	()()()	()()	()()		()()	()
Pressure of time - can't fit it in	<><><><>	{}	{}	{}		
Enjoying aspects of design technology work	<><><><>	<>()	{}	{}	{}	{}
Children responding well	<><><><>()		{}		<><><><>	<><><><>
Negotiation Period	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6

Table 2  
Types of teacher response - confidence indication?  
Diary notes - () In classroom, <> Interviews, {} Conversation  
Teacher indicated by number eg. (3)

Seeking approval -	(1)(2)(3)(5) <1>	<3><5>	(4) {}	{3}<3><1><2>	<4>	
Asking advice - values ideas	{1}{1}<2><3>	{1}{1}		<4>		(1)<3><2><5>
Asking advice - technology skills	<3><4><1><4><2><5>{4}	{5}{4}{2}{4}{4}	{1}{2}{2} {}	{2}{2}	{5}{4}{4}	{4}{3}{1}{1}<1><5><4>
Offering ideas within group	(1)(5)(1)(4)(1) {}	(3) (1) <4>	(4) (3)(3)	(4) (4) (4)	(4) (4)	<1><3>
'Bouncing ideas' off me	<1><1><3><1><1><3>{3}	{5}{5}{3}{1}{1}	<3><3>	{2}{3}	{3}{3}	
	{4}{1}{1}{1} {}	{1}{3}{3}	{1}{2}{1}			
	(1)(1) (3)(3)(4) (5)(3)	(3)(1) (1)(1)	(3)(5)(5) (3)(5)	(1)(1)	(1)(1)	(1)(3)(3)(3)(3)(5)
	<3><2><1><4><5>(3)(3)	<1><2><3>	<4><5>		<4><3>	<5><2><1>
	{3}{1}{1}{2}{1} (3){3}	(4)(3) (3)(2)	(2)(1)		(3)(3)(1)	(2)(2)(1)
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6

which, it could be argued, promoted quality in the teaching and learning of the subject. This was addressed by Layton in a paper commissioned by the National Curriculum Council<sup>16</sup> but which had not been seen by teachers in this school.

Table 1 illustrates the responses made by teachers over the initial period of research. The frequency of the type of response indicates the changing pattern of teachers' feelings and reactions to the project.

The table is based on professional diary notes which record observations of classroom practice, informal interviews and comments made during conversations.

The initial phase involved the researcher working alongside teachers and children on design technology tasks in the classroom. Teachers' responses indicated that this strategy established my credibility as a teacher but also developed their confidence. Seeing procedures being used which they themselves could confidently use appeared to encourage self confidence. Co-teaching and providing informal Inset sessions built on this base and established good working relationships.

This strategy was found to be effective in fostering the formation of a context in which opinions, attitudes and comments could be exchanged in an atmosphere of trust. Supporting three of the teachers in the classroom was later cited, in informal interview, as an effective means of gaining trust. Seeing one another teach and observing children's reactions to new stimulus enabled professional development to take place. 'Ownership' of the class by the teacher was not immediately recognised as a problem, but on reflection it was considered to be an important factor in personal development. Relinquishing the class for even short periods of time was initially seen as a possible source of problems for the teacher. Linked with this was the fear that the teacher would have to continue teaching content or use an approach to teaching to which she was not committed.

The advantage of this long term contact was that ground work in establishing my credibility

as a classroom practitioner and a critical friend was made in the less contentious area of transmitting design technology skills. It was indicated, in response to later questioning, that this made the transition, from supporting design technology to eliciting their attitudes, towards values in the area of cultural diversity, less intimidating for the co-researchers.

As the research progressed the issue of teacher confidence proved to be the major concern. It appeared that teachers construed lack of confidence as the main obstacle to implementing a curriculum which addresses cultural diversity. It emerged as the major factor in teachers' lack of engagement in teaching design technology.

Table 2 illustrates the types of teacher response which indicate growth in confidence. The table is based upon entries in my professional diary of comments made by teachers which I interpret as having a link with teacher self confidence.

Concerns which emerged during initial discussion of issues related to cultural diversity indicated that the guidance offered in the National Curriculum Statutory Orders<sup>1</sup> was unclear and unhelpful. Teachers expressed confusion over the requirements of Attainment Target 4,<sup>1</sup> evaluating the design and technology work of others, including those from other cultures. They would have preferred explicit information in the Non Statutory Guidance,<sup>3</sup> to help them understand how to teach AT4. My co-researchers felt that their lack of confidence in teaching design technology was partly attributable to a lack of suitable resource materials. There are few commercially produced materials available for primary school children<sup>7,8,9,10</sup> which contain reference to cultural diversity in design technology. The school subscribes to the local education library service, so teachers are aware of the range of books available through subject project collections. There is also a certain irony in the fact that, as schools now have devolved budgets, they have the ability to purchase support materials, but are unable to find suitable ones. In one of the few 'professional' books for teachers which tackles the issue of cultural diversity Eggleston<sup>11</sup>

indicates the opportunities which still exist for teaching design and technology within a multiethnic society. This group of teachers were unaware of this type of support.

It would appear that gaining context specific knowledge of a culture does not always develop self confidence in teaching children issues of cultural diversity. For two teachers expectations of their competence to teach these issues appeared to wane when in fact they became more proficient. Interviews with individuals indicated that several common strands were emerging. A lack of confidence was seen as the major obstacle; knowledge based, relating to a lack of knowledge of specific cultures and specific cultural crafts. At this stage tackling issues relating to cultural diversity was seen by one teacher as an unwelcome additional task. The purpose of the requirement to raise such issues was questioned. Values judgements related to an understanding of the values of an understanding of best fit of materials The emphasis focussed on acquiring dexterity in craft skills. The time element was a priority with every teacher. Time spent on planning due to lack of subject specific knowledge was a common concern.

Responses from teachers during informal interviews at this stage were :-

- interested in the area but feels that it is of peripheral use , “English and Maths are my priority”
- interested in the area but “ there is insufficient time for all these extras”.....
- not interested in the area , “but going along with it because everyone else seems interested”
- interested and willing
- interested and keen to develop the area

What also emerged during conversation was a wide range of expertise and experience which was not seen by the teachers as having any relevance for addressing cultural diversity within design technology. Experiences included knowledge of different cultures through holidays, including a realisation that these impressions may be biased, family connections, teaching minority ethnic children, and personal interest in art, craft and

technology activities originating in, or having connections with other cultures ( patchwork, tie-dye, wok cooking). Teachers appeared to be separating life experiences from teaching design technology.

### **Professional Development**

In group discussion half way through the first term teachers emphasised the importance of suggested practical activities. Kinder, Harland and Wootten<sup>12</sup> have indicated in their research into INSET that Primary teachers often request Inset experiences that can be directly translated to the classroom. The decision by the teachers to devolve responsibility to me for providing ideas for teaching concerned me. I had hoped that planning would be developed collaboratively and that my role would not be one of ‘expert’ ; however as discussions developed it became apparent that the most useful response to lack of confidence with this group of teachers was to help them to learn through experience. In previous curriculum development work I have found that a common sense knowledge, can bring about effective change. Development of skills in professional 'common sense' knowledge may be a useful means of enabling teachers to construct a scheme of interpretation to understand events. Professional problem solving draws upon a repertoire of practical knowledge. To this end teachers were provided with a range of possible approaches in which skills might be developed. These were adapted, used and evaluated by all of the teachers.

### **Issues arising from the first phase of research**

Approaches to teaching which present cultural diversity as a superficial element of the curriculum pose problems for professional development. The second phase of the research may indicate how the teacher with less enthusiasm for a culturally diverse approach tackles issues with his/her class. It may be argued that, in a framework of cultural diversity, teaching will remain superficial until the teacher gains confidence in approaching subject matter which may be controversial.

Teaching which will lead children to question preconceptions of culture, which addresses

issues of cultural identity and challenges values requires confidence. In other INSET contexts I have found that there are several common approaches to professional development in this area. For some teachers it may be easier and less challenging to adopt an approach to the cultural context of design technology which relies upon using artefacts as a stimulus. Other teachers indicate that the possession of a broad background knowledge of the culture under study, and a consequent ability to interpret this within the learning context is essential in order to adequately explore attitudes of cultural identity.

The second phase of research will indicate if such findings are replicated in this context where teachers have been encouraged to control their own exploration of these issues. Factual detail of a culture other than one's own may be flawed and interpretation of this knowledge will be subject to value judgments on the part of both pupil and teacher. Such value judgements may reflect positive or negative bias. Misinterpretation by the pupil may also help to entrench preconceptions and prejudices.

If one concurs with the proposition that culture is an emanation of the values of a group, and is dynamic, it follows that any insight is transitory and provides only a snapshot of the reactions of individuals and groups at a particular time and place. School textbooks, for example, which illustrate celebrations may be outdated within a few years because cultural traditions change. The way in which Diwali is celebrated by Gujarati families in the same street in Leicester will differ in as many ways in which their Christian or English atheist neighbours celebrate Christmas. Generations of the same family celebrate in different ways and yet stereotypical presentation continues to be the norm. The continued use of such books may entrench stereotypical perceptions rather than performing the intended function of extending children's experiences and understanding of cultures other than their own. This may make the teaching of strategies for developing questioning skills which explore the place of values of greater importance than the acquisition of knowledge of cultural data. Addressing the issue of values within technology may be an effective approach.

Given the constraints of time for teaching National Curriculum Design Technology it may be more efficient to encourage and stimulate general understanding through cross cultural frames of reference. Conversely it may be argued that more detailed analysis of one or more cultural contexts would provide children with a greater insight and understanding.

### Proposed development

The National Curriculum has now been "slimmed down"<sup>13,14,15</sup> and issues relating to cultural diversity have been removed. At the same time there has been no similar reduction in this area within the Art curriculum, issues related to cultural diversity within art and design continue to be addressed. This has been the source of some confusion for three of the teachers as,

we are still asked to look at artists from other cultures in Art- wouldn't it be easier to do art and technology together.....

The concern of time and the problem of curriculum overload is still a priority for teachers. The need to provide a curriculum which reflects the culturally diverse nature of societies has been recognised in other national curricula. Australia<sup>16</sup> and Scotland<sup>17</sup> indicate the central issues related to cultural diversity within the teaching of design and technology. Resource materials provided within these curricula will be adapted and used within the next phase of research. Whether this resource base will sustain professional development will be monitored over the next year.

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