Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Mike Thomas, Blaengwawr Comprehensive School and
Dr Howard Denton, Loughborough University, UK

Abstract
This paper describes a case study carried out to establish a group of low ability and disaffected pupils' perception of the term 'relevance' with particular reference to design and technology. Discussion of the relationship between pupils' perceived relevance of an activity and their levels of engagement has appeared on the UK educational agenda, (Ofsted 2005, 51-52, Davies et al, 2004, 147, Daniels et al 1998, 5.5, Denton, 1992), but not with the frequency which might be expected. Initial research suggested that pupils at this school had a very positive perception of the 'relevance' of design and technology. In contrast the literature reviewed suggested that pupils in their samples had a low perception of the 'relevance' of design and technology. The findings suggest a dual understanding of 'relevance': in terms of present/situational and in terms of preparation for a particular purpose. The group of pupils in this research perceived 'relevance' more in terms of present/situational, and the implications of this finding for educational practitioners and other stakeholders is discussed.

Key words
design and technology, relevance, low ability, disaffected, Special Educational Needs, engagement in learning

Introduction
This paper reports work completed as a part of a longer term action research project by one of the authors, the Head of Design and Technology in an 11 to 18 comprehensive school. Curriculum and staffing constraints conspired to create a distinctive group in design and technology for low ability and disaffected pupils: a 'sink' group. The group consisted of a maximum of 16 pupils, 70% of these being boys. Analysis of GCSE results over a three-year period identified that this group were gaining their best results in design and technology. Ipsitive analysis, comparing the same pupils' results in different subjects, showed an average of +2.0 for the period. The Head of Design and Technology sought to identify factors that contributed to this.

This research project began with an initial pilot case study that focused on the perceptions of this disaffected and low ability group in relation to design and technology, school and themselves. This appeared to show that the pupils had a positive perception of design and technology at the school. A subsequent pilot case study identified a range of factors that contributed to the development of the pupils' positive perception of the subject. Factors such as good relationships between staff and pupils, the practical nature of the subject and the use of group work emerged. Another significant factor appeared to be the issue of relevance. The pupils seemed to have a positive perception of the relevance of the subject. The next stage of the work aimed to explore this issue and is reported in this paper. The sample in this paper is 30 pupils made up from Year 10 and Year 11 groups. The paper presents a summary of the background to the work, the methodology employed is explained, results presented and then discussed. Finally conclusions are drawn relating to how this action research project will develop.

Background
The case study school has a high proportion of pupils with special needs and is located in an area of general deprivation. At Key Stage 4 design and technology staff operated a system in which particularly disaffected and low ability pupils were taught as a distinct group.

Low ability has a variety of meanings. These pupils fall within the spectrum that is covered by the term 'Special Educational Needs'. Section 312 of the Education Act, 1996, states that a child has special educational needs, (SEN) if: "he/she has a significantly greater

RESEARCH

difficulty in learning than the majority of children the same age". The term Special Educational Needs encompasses learning problems, emotional and behavioural difficulties, and physical disabilities. The group of participants in this study are all located in the bottom 20% of the year group's results, (data collected from school academic records). All the pupils in the sample had a reading age of at least two years behind their chronological age.

The term 'disaffected' is open to a range of interpretations. This case study frames the expression in terms of Hustler et al, (1998, 14 –15) who identified four strands that are indicative of the disaffected:

- pupils do not perceive school as being relevant;
- pupils develop a negative relationship with the school;
- pupils have 'something else' happening in their lives - problems with relationships;
- schooling reinforces a view of the pupils as being not worthy and dismantles their self-esteem.

The group being researched embodied many of these characteristics. The initial pilot case study sought the perceptions of this disaffected and low ability group in relation to design and technology, school and themselves. This research identified that 80% of the group had been temporarily excluded from school at some time. The pupils were in the 'bottom sets' for all subjects and had extra lessons in English and mathematics. In science, for example, they were in group 6, the 'bottom set'. They were labelled by staff as the 'bottom set' and used similar titles to locate themselves; they were clear where they stood in terms of academic pecking order. Three pupils of the sample had a statement that identifies them as having Attention Deficit and Hyperactivity Disorder (ADHD). Relationships in some lessons had broken down. Some staff refused to teach the group and would not enter them for external examinations.

In design and technology, however, they produced work as good as less problematic pupils in the year group, yet still continued to be disruptive and disaffected in other lessons, (data collected from school academic and behavioural records and external examination results). A subsequent pilot case study identified factors that engaged these pupils in learning in design and technology. The findings resonate closely with the findings of Davies et al, (2004, 147) who undertook research into approaches to teaching pupils with behavioural, emotional and social difficulties in design and technology. Both pieces of research found that approaches that promoted group work, raising self-esteem, praise and relevance were found to support engagement in learning. Many of these factors also resonate with findings in the literature, (Rogers, 1998, 196-208, Brochocka et al, 2001, 23-29, Tufnell et al, 1997, 226-227, Pollard and Triggs, 1997, 245 and Geen, 2001, 34). The identification of perceived relevance, however, appeared to conflict with research undertaken by Brochocka et al (2001, 23-29), Growney, (1996, 75-79) and Atkinson, (1993, 17:25). These researchers found that pupils in their samples did not perceive design and technology as being relevant.

Cambridge Advanced Learner's Dictionary (2003) defines 'relevant' in two ways: firstly, connected with what is happening or being discussed, secondly correct or suitable for a particular purpose. The first is connected to the present; it is situational, whilst the second connects more with preparation for a particular purpose. For example, they might perceive discussing appropriate constructional techniques for a project as relevant in a situational context but not relevant to their future aspirations. Or, they might perceive a lesson on product analysis as not relevant to their particular immediate situation but could concede that the exercise would be relevant if they were to buy a particular product in later life.

Methodology

Exploring the target group's perceptions of relevance would not be straightforward. The group's literacy skills are weak which contributes to their reluctance to engage in formal written work. In addition, as a teacher researcher, one's presence may influence pupil

responses, (Hammersley, 1993, 219). To alleviate this problem a semi-structured interview approach was adopted (Cohen et al 2000, 245). This was developed in such a way that the special needs co-ordinator (SENCO) could administer it. Woods, (1996, 90), points to the quality of the interviewer/interviewee relationship as being vital in the data collection process; a need to "develop the kind of trust and rapport that encourage people to relax". The pupils knew the SENCO, a rapport and trust existed between them and yet she would not be perceived as 'belonging' to any particular subject.

The interview schedule was required to measure pupil understanding of the term 'relevance' and to gain data on what they perceived as a relevant subject. It is acknowledged that collecting data from other subjects could be ethically contentious. However, all staff were aware that action research was ongoing based on a theme of engaging pupils in learning. Other subjects had to be included to establish a benchmark. This data needed to be in a form that would be readily analysed, (Wilson and McLean, 1994, 5). The use of a semi-structured interview addressed both of these issues.

In order to triangulate data the researcher had established a Delphi group (Toffler, 1970, 462) within the design and technology department. The Delphi technique is a tool to obtain the most reliable opinion of a group of people. Group members are invited to share their thoughts to contribute to the shared understanding of an issue. This Delphi group consisted of two teaching colleagues and a teaching assistant with experience of working with the target group. The Delphi group was utilised to explore issues emerging during the action research and to limit the danger of single observer bias. They were asked to discuss the issue of relevance with these pupils. This was carried out informally in one-to-one situations or in small groups in a range of settings: classrooms, workshops, in between lessons and lunch times.

The Delphi group met, pooled their findings and generated two broad interpretations of the term 'relevant' that resonated with the definitions above. For the first, *connected to the present, situational*, the group gave: "relevant to what was happening at the time, understanding the aims and context of the lesson; because relationships were positive; experiences in the lesson were positive/ enjoyable; it was tangible, you could see what you were achieving at that time and could, therefore, understand why you were being asked to do something". For the second interpretation; *preparation for a particular purpose*, the group gave: "relevant in terms of future employment, of use in some way in your future life".

The list of subjects was selected by timetable analysis. All the pupils studied English, mathematics, science and design and technology. To include every subject studied by all the pupils would have created a list of 16 subjects. The compromise was to include music, engineering, history and information communication technology (ICT). These were selected because a substantial percentage, over 50% of the sample, was studying the subjects in Key Stage 4. The data collected from these subjects could be of professional interest but comparisons could not be drawn between these subjects and the subjects that every pupil studied.

A battery of statements was established using simple language. Pupils were asked to assess the level of their agreement with these interpretations of the term 'relevant' using a rating scale. Rating scales offer a flexible response and the ability to offer frequencies, correlations and other forms of quantitative analysis. The scale selected was a 6-point version of the Likert (1932) rating scale ranging from 6 very strongly agree to 1 very strongly disagree. The 6-point scale was selected to avoid the neutral mid point that may have provided an easy option for pupils to select without much thought. The 6-point scale can also indicate the intensity of agreement/ disagreement. However, the assumption cannot

be made that the scale between intervals is mathematically accurate. A person who records 1 as a response does not necessarily have 3 times the intensity of disagreement than the person who scores 3, (Oppenheim, 1992, 190-5). Rating scales have other limitations. The recorded responses may not accurately reflect what the respondents' opinion might be. The flexibility of a semi-structured interview enabled the researcher to add supplementary questions to clarify issues. The pupils were encouraged to add observations they felt were appropriate but not covered by the schedule. These would be recorded as qualitative data.

The format of the semi-structured interview needed to be user friendly. The group of pupils at the centre of the research were particularly sensitive to 'wordiness' and to being patronised. The solution was to word the statements as simply and briefly as possible. The SENCO checked the statements for their readability and then developed a more detailed script. She would read through the statements with each group, and amplify each from her more detailed script. The target groups were; a group of 16 pupils in Year 11 and a group of 14 in Year 10. Cohen et al, (2000, 258) emphasises the need for clarity, for short unambiguous instructions to support each section of the semi-structured interview.

This first draft of the interview was then re-circulated to the Delphi group as a further check. The group identified the "relevant because you like the teacher/like the subject" categories as potentially contentious. A lesson could be relevant yet not liked, not enjoyable? After reflection it appears that the response to this question may depend on the pupils' dominant perception of relevance. If a pupil favours the definition preparation for a particular purpose then it is possible that that pupil could perceive relevance in a lesson that was not enjoyable. The pupil has the ability to delay gratification. However, if the pupil favours the other definition, connected to the present, situational, it would be less likely that the pupil has the ability to perceive relevance in a lesson that is not enjoyable for that pupil. The pupil has little ability to delay gratification. The context of the lesson, the quality of the teacher/pupil relationship, the pupil's perceptions of being in the lesson are all situational. It was decided to retain both the categories, and to develop questions on what subjects the pupils perceived as being relevant and what subjects' pupils enjoyed.

Below is a copy of part of the modified and augmented schedule. Ex1 and 2 are examples to show pupils how the questions work:

	Task 1	**6**	**5**	**4**	**3**	**2**	**1**
Ex1	Rap music is the best		*				
Ex2	There should be more football on the TV			*			
	A subject is relevant when						
A	The subject is useful to know about now, *at this moment, when you are doing the subject you think that it is useful as you are doing it, if you agree really strongly then tick box 6, if you agree tick box 4, if you disagree tick box 3 and really disagree tick box1.*						
B	The subject is interesting, *the subject isn't boring, you are interested in what is going on in the lesson, you are not bored by what the teacher is telling you or by the work that you are doing*						

Part of the modified and augmented schedule

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

The Head of Department carried out a pilot of the semi-structured interview with a Year 10 mixed ability group who were not involved in the research. This aimed to establish the effectiveness of the interview in terms of:

- the use of language;
- the extent to which the children understood the questions/statements;
- the quality of responses in terms of the research questions.

It became apparent that the pilot group was unhappy about doing the task. This manifested itself in several ways: some appeared puzzled by the first group of questions and could not make a response and there was some low level disruption. It was decided to stop the task after less than 10 minutes. The Head of Department was convinced that the task, as it was being administered at this stage, would not yield useful data. He drew a 6-point chart on the board and asked the class if they had understood the scoring system. They agreed unanimously that they had understood. He then asked the class for a group response to question 1A. This provoked a useful debate within the class:

"Yeah, Science - like when you work something out doing an experiment... finding out stuff on the internet... why World War One started"

The class then showed hands for the various categories.

Conducting the schedule in this way would have advantages. Useful comments would be gained in addition to quantitative data. However, the exercise would be time consuming, and the comments could influence pupils' responses. The most effective compromise appeared to be for the pupils to carry out the task in groups of two or three. A factor in the success of the pilot interview was reacting to the pupils' initial negativity towards the task. Ball, (1990, 157-171) comments that to establish a rapport with the participants is critical. Bird et al, (1996, 90), emphasises the interviewer developing skills of reflection, observation, listening and recording. The authors would add 'reacting' as another essential skill, i.e. critical awareness of what is happening and the confidence to make amendments to the original plan.

Findings

The aim of the interview was to discover:

- how pupils at this school understand the word relevant;
- which interpretation the pupils favour;
- as a result of these interpretations and understandings, what subjects do the pupils perceive as being relevant?

The data from the semi-structured interview was collated and the findings are presented in Table 1 (overleaf):

1A	The subject is useful to know about now, *at this moment, when you are doing the subject you think that it is useful as you are doing it, if you agree really strongly then tick box 6, if you agree tick box 4, if you disagree tick box 3 and really disagree tick box1.*	6 7	5 5	4 5	3 2	2 0	1 1

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Table 1: A school subject is relevant when

		6 very strongly agree ▼					1 very strongly disagree ▼
	Task 1	**6**	**5**	**4**	**3**	**2**	**1**
A	The subject is useful to know about now	2	8	9	6	3	2
B	The subject is interesting	14	6	10			
C	You can see what you are doing	3	10	8	5	4	
D	You understand what you are doing	14	9	7			
E	You like the subject	17	8	5			
F	The subject is useful to help me in a job I might get when I leave school	8	8	6	6	2	
G	The time goes quickly	12	6	8	4		
H	You learn a lot	2	8	10	5	3	2
I	You like the teacher	8	8	14			
J	The subject could be useful to me at some time in the future	10	8	4	4	3	1
K	Can any one think of any other ways a subject could be relevant?	*					

**3 made written/verbal responses: Make the subject more practical, make lesson shorter, have a better system of rewards – gift vouchers/allowed to play computer games if work is completed to a high standard.*

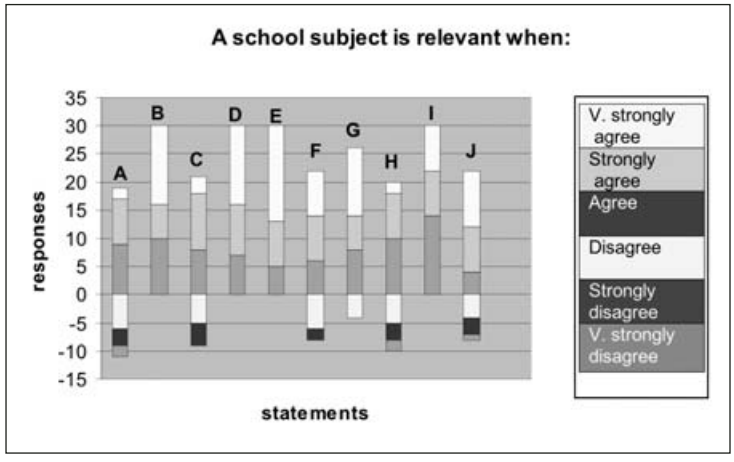

Figure 1: A school subject is relevant when

Discussion

The pupils subscribed to both understandings of the term 'relevant'. The majority of pupils recorded agreement with both definitions in all the categories.

Which interpretation do the pupils favour?

This group favoured the first definition: *'relevant' is connected to the present*; it is situational. The strongest agreement came in categories B, D, E and I. All saw a subject as relevant if it was interesting, if you could understand what you are doing, if you liked the subject and if you liked the teacher. The categories that were connected to the second definition: *preparation for a particular purpose* did not record a similar consensus. At least a quarter of the pupils disagreed with categories A, F, H and J – useful to know about now, to get a job, you learn a lot and to be of some use in the future. A sample with higher ability may favour the second definition. They might perceive relevance more in terms of preparation for a future purpose.

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Perceiving something as being relevant to a future career could be a connection that would be difficult for this group of pupils to make. Goleman, (1996, 83) suggests that pupils who succeeded at academic activities can delay gratification, and can make a connection between their present situation and future reward. This particular group were failing at academic activities. Dobbs, Dodgson and Craddock, (2004, 15) develop the theme in their research. They conclude that young people are heavily influenced by youth culture and celebrity culture with its emphasis on instant gratification. Contemporary sociological thinking also appears to support this line of reasoning. Campbell's theories of consumerism (1995) are used as the basis of a lecture on contemporary youth culture, (www.socialsciences.man.ac.uk, accessed 15/6/05). "There was a new emphasis on immediate gratification: people were keen to indulge themselves, to have fun."

The findings in this task support the claim that pupils at this school perceive design and technology as being relevant in terms of both definitions. Brochocka et al, (2001, 28) found that none of the students in their sample saw design and technology as having any relevance to their future lives as consumers. Their sample perceived design and technology as only being relevant for a specific trade career. Growney, (1996, 76) reported that parents perceived design and technology as irrelevant and this appeared to influence their children's perceptions. Few of the pupils in Growney's sample would have opted for design and technology had it not been a compulsory subject. Atkinson, (1993, 19) recorded that only 10% of her sample perceived design and technology as being of use in the future or because of its anticipated qualities. All three articles focused on relevance in terms of the second definition. They found that pupils in their samples did not perceive design and technology as being relevant. There may be other factors that contribute to the difference in response such as career aspiration and sociological composition of the samples.

Davies et al, (2004, 147) identify perceived relevance as a key factor in motivating pupils with emotional, behavioural and social difficulties to engage in learning. In "good" lessons learning was contextualised and utilised the pupils known interests. Atkinson, (1993, 19-20) found that 73% of pupils who chose design and realisation in Key Stage 4 opted for the subject because of the positive experience they had gained in Key Stage 3. The majority of these pupils mentioned that they enjoyed making things, working with tools and materials. This suggests that they found the subject relevant in terms of the first definition, as they were doing the subject, and yet not relevant for future use. Wallace and Crawford, (1994, 94) found that pupils with Attention Deficit and Hyperactivity Disorder (ADHD) favoured concrete experience and active learning. Three pupils of the sample of 30 have a statement that identifies them as having ADHD. All the pupils in the sample have a reading age of at least two years behind their chronological age

As a result of these interpretations and understandings what subjects do the pupils perceive as being relevant?

In Task 2 the pupils were asked to indicate which subjects they saw as relevant to them. The task was further clarified: which subjects do you find relevant as you do them or subjects that may be useful to you in the future? Design and technology was perceived by 29 out of 30 of this group as being relevant, very relevant or very, very relevant. Only one pupil perceived the subject as being not relevant. This can be compared with the core subjects of English, mathematics and science where 8, 9 and 6 pupils respectively did not have a positive relevant perception of these subjects. The perception of the pupils towards the relevance of RE and Welsh, both compulsory subjects, accurately reflects interview data gathered earlier. The pupils said that they did not see the relevance of these subjects and resented being made to take them. Design and technology is still a compulsory subject for most pupils in English

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Table 2: Which subjects do you think are relevant to you?

		Very, very relevant ↓					Not relevant at all ↓
	Task 2	**6**	**5**	**4**	**3**	**2**	**1**
A	English	8	9	5		-4	-4
B	Maths	13	8		-4	-4	-1
C	Science	8	9	7	-6		
D	RE			9	-7	-5	-9
E	Design and Technology	14	9	6	-1		
F	PE	8	4	6	-7	-3	-2
G	Welsh		6	5	-3	-6	-10
H	ICT	5	5	6	-12		-2
I	History			4	-7	-6	-13
J	Engineering	8	4	4	-6	-6	-2
K	Music	5	5	4	-2	-2	-12

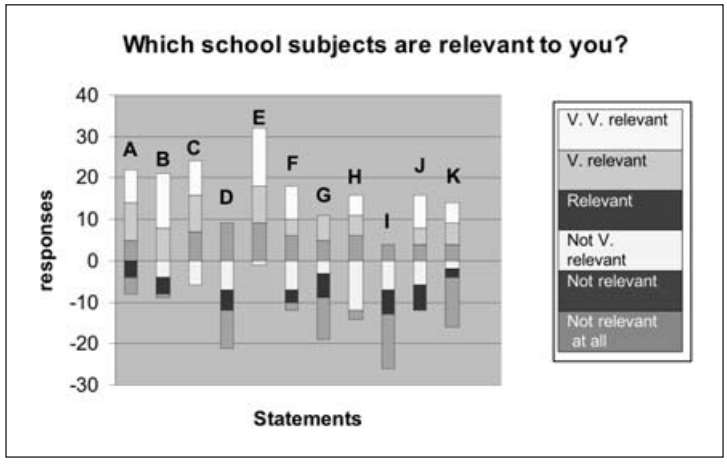

Figure 2: Which subjects do you think are relevant to you?

schools. It is possible that resentment towards 'the compulsory' nature of a subject may be a factor in the negative perception of the subject reported in the literature. The pupils in this research had all opted to take design and technology.

Research by Biddulph and Adey, (2004) appears to support the responses made regarding the lack of perceived relevance in history. They focused on Key Stage 3 and use Year 8 as their target group. Most pupils were unable to explain in what ways the subject was useful. Some dismissed the subject as "irrelevant". Many saw a relevance only in relation to possible future careers. Biddulph and Adey (ibid) found the main subject content per se does not shape pupils' attitudes to history and geography. The teaching and learning activities employed were far more influential.

The findings in this task support the claim that pupils at this school perceive design and technology as being relevant. Brochocka et al, (2001, 23-29) Growney, (1996, 75-79), and Atkinson, (1993, 17-25), all focused on relevance in terms of the second definition. They found that pupils in their samples did not perceive design and technology as being relevant. 'Relevant' in this task encompassed both definitions. The ensuing tasks sought to distinguish between the two definitions.
Task 3 asked which subjects would be of use to the pupils in the future. This explored relevance

Table 3: Which subject do you think will be of use to you in the future?

		Very, very useful 6	5	4	3	2	of no use at all 1
	Task 3						
A	English	15	7	8			
B	Maths	14	7	6	3		
C	Science	14	5	6		3	2
D	RE			5		9	16
E	Design and Technology	7	8	8	5	2	
F	PE	7	5	5	4	4	5
G	Welsh			5	9		16
H	ICT	8	6	6	6		4
I	History			5		4	21
J	Engineering	5	6	4	5	5	5
K	Music	5		2	4	5	14

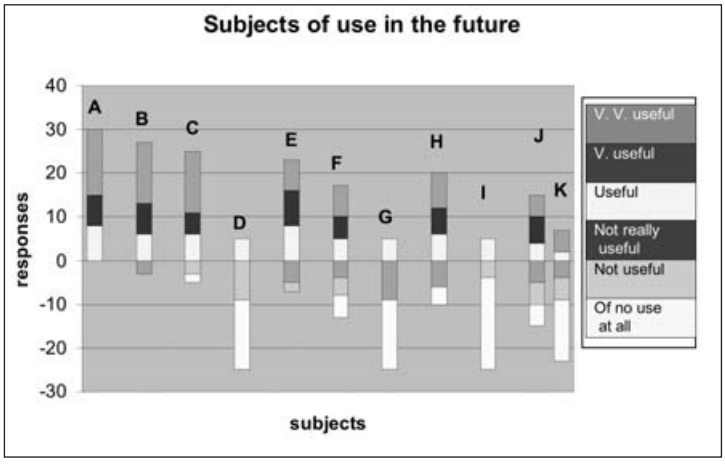

Figure 3: Which subject do you think will be of use to you in the future?

in terms of: *preparation for a particular purpose*. English, mathematics and science recorded the highest results. The fourth largest agreement, 23 pupils, perceived design and technology as being of use to them in the future. This was further clarified in a follow up informal interview. The group were asked about their career aspirations. A corresponding number of pupils indicated that they were interested in a trade-related career, (bricklayer, carpenter, plumber, roofer, agriculture, car mechanic, and some form of engineering). This raises the issue of the relationship of the subject content as laid down by the National Curriculum and examination boards and the aspects these pupils see as relevant.

There is a distinct sociological contrast between the context of this research and the research carried out by Brochocka et al, (2001, 23-29) and Growney, (1996, 75-79). Their research appears to be located in a more middle class context. Brochocka et al, (2001, 26) reported that design and technology did not feature as a "most important" subject. Growney, (1996, 78) found that pupils perceived the subject as "narrowly vocational, for crafts and blue collar jobs" It would be easier for pupils with aspirations to follow a career in a trade related career to perceive design and technology as being relevant. Atkinson,

RESEARCH

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

(1993, 19-20) found that only 10% (n179) of the pupils perceived the subject (design and realisation) as being useful to them in the future.

Table 4: Which school subjects do you find useful now as you are doing them?

		Very, very useful ↓					of no use at all ↓
	Task 4	**6**	**5**	**4**	**3**	**2**	**1**
A	English	8	8	5	3	3	3
B	Maths	10	6	4	5	3	2
C	Science	8	8	6	3	1	4
D	RE			5	5	5	15
E	Design and Technology	12	5	10	2		1
F	PE	7	5		5	5	8
G	Welsh		4	6	5	5	10
H	ICT		5	10	2	3	10
I	History				6	9	15
J	Engineering	8	8	2	4	6	2
K	Music	4	6		5	3	12

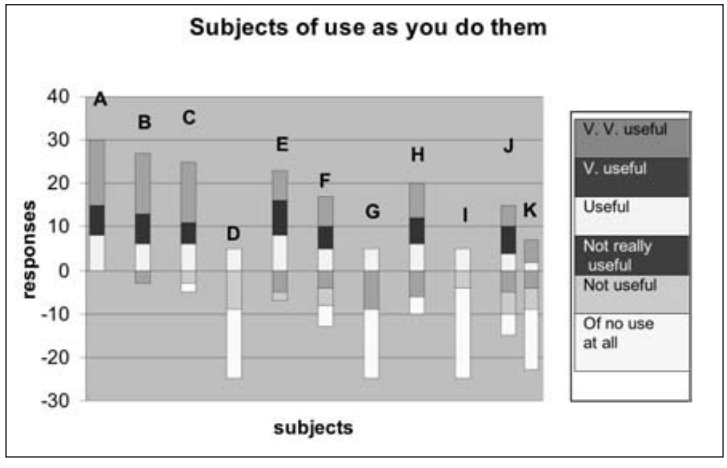

Figure 4: Which school subjects do you find useful now as you are doing them?

Task 4 focused on what subjects pupils found useful as they were doing them. The task was further explained: which subjects do you find interesting as you are doing them; the time goes quickly; you feel that you have achieved something at the end of the lesson. This group of pupils favoured the definition where *'relevant' is connected to the present*; it is situational. The responses to this task follow that inclination. 20 out of the 30 pupils found the core subjects useful to them as they were studying them in class. In design and technology the figure was the highest with 27 pupils out of the 30 pupils indicating that they found the subject useful as they

were studying it. This correlates with comments made in earlier interviews with the pupils: "it's like having a proper job – using tools and machines and stuff. In some subjects like history all you do is talk and write".

Atkinson, (1993, 19-20) found that 73% of pupils who chose design and realisation in Key Stage 4 opted for the subject because of the positive experience they had gained in Key Stage 3. The majority of these pupils mentioned that they enjoyed making things, working with tools and materials. This suggests that they found the subject relevant in terms of the first definition, as they were doing the subject.

Table 5: In which school subjects do you understand/see what you are doing?

		Understands fully ↓					does not understand at all ↓
	Task 5	**6**	**5**	**4**	**3**	**2**	**1**
A	English	3	13	4	-3	-3	-4
B	Maths	5	11	8		-2	-4
C	Science	9	10	10		-1	
D	RE		5	7	-8	-5	-5
E	Design and Technology	13	15	1		-1	
F	PE	10	5	6		-2	-7
G	Welsh		5	2	-5	-5	-13
H	ICT		9	5	-6	-3	-7
I	History			7	-5	-6	-12
J	Engineering	8	8	4	-2	-2	-6
K	Music	5		8	-4		-13

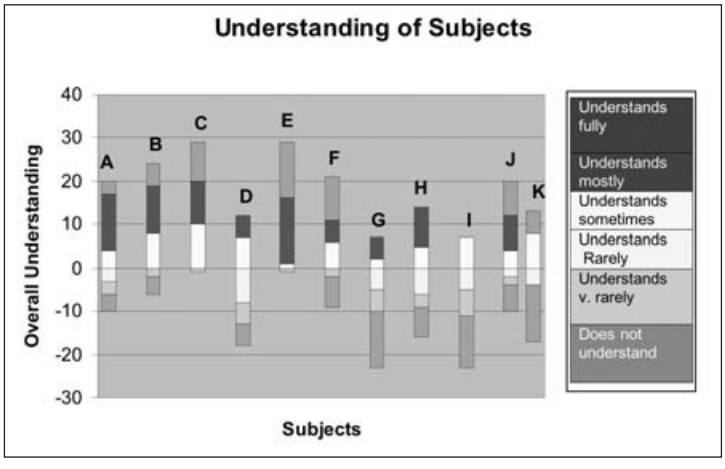

Figure 5: In which school subjects do you understand/see what you are doing?

Task 5 explored pupils' perception of subjects where they understood or could see what they were doing. The task was presented to them as: "which subjects do you understand what you are doing in – if a teacher says you need to do this you understand why, or, if a teacher says you need to do this you can see why it needs to be done?" Design and technology recorded the most positive response with 29 pupils out of 30 indicating that they could understand or see what they were doing. Science scored a similar response but the intensity of the design and technology response was greater: 28, as opposed to 19 recording category 6 or 5 responses. This response correlates with comments made in earlier interviews: "you can see what you are doing". The tangible nature of the subject appears to be a key factor.

RESEARCH

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Table 6: Which school subjects do you enjoy?

		Enjoy very, very much ↓					do not enjoy at all ↓
	Task 6	**6**	**5**	**4**	**3**	**2**	**1**
A	English	4	8	4	4	7	3
B	Maths	4	4	5	4	4	9
C	Science	6	5	8	3	2	6
D	RE		5	4	5	6	10
E	Design and Technology	19	6	3	1		1
F	PE	19			2		9
G	Welsh			5		5	20
H	ICT		6	9		4	11
I	History		1		5		24
J	Engineering	14		4		4	8
K	Music	6		2	5	6	11

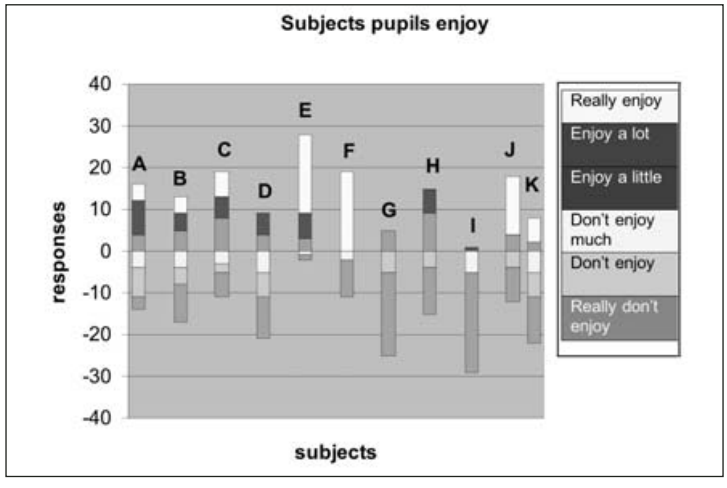

Figure 6: Which school subjects do you enjoy?

Task 6 asked: "Which school subjects do you enjoy?" Design and technology scored the highest: 28 pupils out of 30 recording a positive result. This can be compared to the core subjects. These scored positive results as follows: English, 16; mathematics, 13; science, 19. Physical education recorded 19 positive responses in the highest category but had 11 negative responses. The strength of positive response may be related to both subjects being practical in nature. Atkinson, (1993, 19-20) found that pupils specifically mentioned that they enjoyed working with their hands. Brochocka et al, (2001, 26) reported that design and technology was enjoyed by more pupils than any other subject. This result echoes some of the sentiments expressed in earlier interviews: "In D&T the teachers are interested in us and talk to us about things outside school; you get treated like an adult."

Conclusions

Pupils' understanding of the term relevant/ relevance has been explored. The pupils subscribe to both definitions: *'relevant' connected to the present, situational*; *'relevant' preparation for a particular purpose*. These

pupils favoured the first definition but most agreed with both definitions. The fact that there was greater agreement with the situational definition is significant. It should be acknowledged that pupils could perceive the term 'relevance' in different ways. How do Ofsted and other educational commentators use the term? Pupils in the case study school have a positive perception of the relevance of design and technology, irrespective of definition. This research provides data that reflects a positive perception of the subject's relevance and indicates the intensity of feeling.

Relevance must be interpreted using both meanings: *preparation for a particular purpose*, and, *connected to the present, situational*. The next phase of the research must now focus on how a positive perception of relevance in design and technology is promoted at this school. This will be achieved through a series of case studies. The case studies will set out to address the following questions:

- How is relevance promoted in design and technology documentation at this school?
- How is relevance promoted in classroom practice?
- What aspects of teaching and learning in design and technology do the pupils perceive as promoting relevance?
- What aspects of teaching and learning in design and technology do the pupils perceive as eroding relevance?
- What is the relationship of the subject content as laid down by the National Curriculum and examination boards and the aspects these pupils see as relevant?

The case studies will provide a list of positive and negative factors. These can then be manipulated (an action research phase) to improve practice at this school and could be tested in an alternative setting.

H.G.Denton@lboro.ac.uk

mikethomas377@hotmail.com

References

Cambridge Advanced Learner's Dictionary (2003), Cambridge University Press http://dictionary.cambridge.org/cald

Atkinson, S (1993) 'Identification of some causes of demotivation amongst KS 4 pupils in studying technology with special reference to design and technology', In J S Smith (ed) *IDATER 93*, Department of Design and Technology, Loughborough University, 17-26

Ball, S J (1990) 'Self-doubt and soft data: social and technical trajectories in ethnographic field work', *International Journal of Qualitative a Research*, 3,(2), 157-171

Bird, M, Hammersley, M, Gomm, R. and Woods, P. (1996), *Educational Research in Action*, Open University Press, Milton Keynes

Brochocka, K.Y, Baynes, K, and Smith, J S (2001) 'Pupils' views of school and popular culture, their opinions of design and technology at KS3 and their perception of its relevance for their futures', In, Norman, E.W.L. and Roberts, P.H. (eds.) *IDATER, 2001*, Department of Design and Technology, Loughborough, 23-29

Campbell, C. (1995) *Theories of consumerism*, www.socialsciences.man.ac.uk/sociology/course_materials/sy1402/BSCLecture7 handout.doc (15 June 2005)

Cohen, L., Manion, L and Morrison, K, (2000), *Research Methods in Education*, Routledge Falmer, London

Daniels, H., Visser, J., Cole, T., and de Reybekill, N. (1998), *Emotional and Behavioural Difficulties in Mainstream Schools*, Department for Education and Employment, Research Report, RR90in

Davies, L., Fox, J., Grover, and Mitchell, A. (2004) 'Approaches to teaching pupils with Behavioural, Emotional and Social Difficulties in Design and Technology', *DATA International Research Conference*

Exploring Low Ability and Disaffected Pupils' Perceptions of the Relevance of Design and Technology: a case study with a group of pupils aged between 14 and 16, Key Stage 4

Denton, H, (1992), *Towards maximising pupil endeavour: An enquiry into a learning approach centred on teamwork and simulation in the context of Technology education*. Unpublished PhD thesis, Loughborough

Dobbs,L, Dodgson, R and Craddock,C, (2004), *What Teachers Think: The role of teachers in shaping young peoples attitudes to education in North East England*, Northumbria University

Geen, A. (2001), *Effective teaching for the 21st century* UWIC Press, Cardiff

Growney, C. (1996) 'Gender inequality in design and technology;...the pupils' perspective', J S Smith (ed) - *IDATER 96*, Department of Design and Technology, Loughborough University, 75-79

Hustler, D., Callaghan, J., Cockett, M, & McNeil, J. (1998), *Choices for life: An evaluation of Rathbone C.I.'s work with disaffected and excluded school pupils*, Manchester Metropolitan University, Manchester

Likert, R (1932) *A technique for the measurement of attitudes*, Columbia Press, New York

Mischel, W., Yuichi S, and Monica L. R. (1989) 'Delay of Gratification in Children'. Chapter 6 of *Choice Over Time*, George Loewenstein and Jon Elster, (eds) New York: Russell Sage Foundation.

Ofsted, (2005) *A study of children and young people who present challenging behaviour*, (Nov. 2003), Ofsted, London

Oppenheim, A.N. (1992) *Questionnaire design, interviewing and attitude measurement*, Pinter Publishers, London

Pollard, A. and Triggs, P. (1997) *Reflective teaching in secondary education,* Cassell, London

Rogers, C, (1998) 'The interpersonal relationship in the facilitation of learning', Crawford, M., Edwards, R, and Kydd, L., (eds.), *Taking Issue*, Routledge, London

Toffler, A. (1970), *Future Shock*, Bodley Head, London

Tufnell, R. Cave, J. and Neale, J. (1997) 'Teachers' beliefs about the value of making', J S Smith (ed) *IDATER 97*, Department of Design and Technology, Loughborough University, 223-229

Wallace, B. and Crawford, S (1994) 'Instructional paradigms and the ADHD child', Weaver, C. Ed. *Success at last: helping students with ADHD achieve their potential*, Heinemann, Portsmouth

Wilson, N. and McLean, S. (1994) *Questionnaire design: a practical introduction*, University of Ulster Press, Co. Antrim