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Design and Technology (D&T) and Citizenship: Changing Attitudes?

Colin Chapman, Tim Lewis and Kirsty Smart, Sheffield Hallam University, England

Abstract

By linking the Design Against Crime (DAC) Education initiative, funded by the Home Office and the Design Council, to the emerging Citizenship curriculum in schools it has been possible to provide D&T teachers with the opportunities to make their contribution to this new cross-curricular subject. The DAC education hypothesis is that understanding of, and attitudes to, crime issues can be modified if pupils are presented with a D&T project which has study of crime, and a focus on crime issues, embedded in it.

The research, conducted during 2003, was to establish the extent to which this hypothesis can be proved.

Two schools were involved in the project, one a large comprehensive school serving a mainly rural community, the second an urban comprehensive school with a varied catchment area. The research involved in excess of 100 pupils. Year 8 pupils in each school were divided into research and control groups. The initial research involved both groups in each school engaging in focus group activities to establish a bench mark about their attitudes to crime issues. The research groups did a DAC D&T project while the control groups worked through the school's usual D&T scheme of work. Further focus group activities were used to establish the effects, if any, in pupils' understanding and attitudes to crime. Teachers were also consulted about their experiences of managing DAC projects within D&T.

The paper describes focus group work with pupils which included several innovative features, for example set tasks used to promote discussion and establish decision making.

The paper concludes with a discussion about the encouraging results which demonstrate that the DAC projects did bring about a change. One aspect was a change in pupils' ability to be discriminating when making complex judgements. Additionally, the interviews revealed fascinating information about pupils' attitudes to social issues

Key words: Citizenship, Designing, Design and technology, crime, pupil attitudes, teachers perceptions, Design Against Crime, DAC.

Introduction

Design Against Crime (DAC) is a government funded initiative which seeks to reduce crime by anticipating and minimising opportunities for criminal activities as products and services are being designed by professional designers. Promoters of DAC at government level considered that Design and Technology (D&T) in schools also provide opportunities to establish DAC principles in the 11 to 18 age phase in schools. D&T teachers consulted considered the concept would be difficult for pupils in the 11 to 14 age phase (Key Stage 3) but had some potential for more mature pupils. At the time the new subject of citizenship was emerging within the curriculum and scrutiny of the citizenship National Curriculum revealed that crime was included as a topic. DAC could therefore be fitted neatly into the citizenship agenda. Pioneering work in several schools during the 1990's demonstrated that citizenship could be supported by subject teaching. Nichols (1992) reported on a successful development using material from the Technology national curriculum and Nuffield Science material. The DFES Standards Site includes schemes of work for two modules dealing with crime. Listed are a several of teaching topics such as :

'What are criminal offences? What causes people to commit crimes?' (DFES, 2003)

Issues concerning democracy, crime, justice and particularly being responsible for one's behaviour and actions all feature in these schemes of work.

With the formal introduction of citizenship into the curriculum three methods of delivery in schools emerged:

- a conferencing model with specific days for citizenship events;
- specialist teachers delivering citizenship;
- an integrated approach with several subject teachers contributing guided by a co-ordinator.

The integrated approach seemed rapidly to gain popularity in schools therefore the DAC project development team linked DAC to citizenship thus providing D&T teachers with the opportunity to make their contribution. In addition to supporting the citizenship curriculum the team considered that DAC should also support the national numeracy and

literary strategies which focus on all teachers playing their part in developing pupils' skills in these areas. *The DfEE Key Stage 3 National Strategy for Teaching English: Years 7, 8 and 9* (2001) is specific about teachers responsibilities to support literacy.

' Other subjects do more than simply police English across the curriculum, or nurse pupils with poor skills. Teachers have a genuine stake in strong language skills because language enables thought.' (DfEE, 2001:15)

Once the purpose and nature of DAC in schools had been established it was possible to develop and test curriculum materials in the form of a series of pupil project books. The key areas of D&T targeted by these projects were electronic products, graphic products, computer aided design and manufacture (CAD/CAM) and systems and control. Four project books emerged and were trialled in schools. These are:
• Alarm systems (2001),
• Posters (2002),
• Bag Tags (2002) and
• Crime Scene (2003).

The design and development of these projects is documented in Lewis et al (2003). This paper records teachers' views on the projects their usefulness being encapsulated in this teachers comment:

'Aspects I particularly liked about the workbooks were the visual materials and the tasks; I think the books are visually appealing and well laid out. The tasks on crime statistics are a useful introduction to the project.' (Lewis et al 2003:22)

A more detailed discussion is considered by Lewis(Lewis et al) and de Vries, J R and de Vries, MJ (2003) (ed.). In line with other subjects the hypothesis that attitudes can be changed through citizenship needed to be tested. Davies (et al), Hatch and Martin (2002), historians working on their subject's contribution to citizenship, called for materials being used in history's contribution to citizenship to be tested. In their paper they commented:

' Up to now (unsurprisingly as citizenship is such a new area) we have been content simply to 'feel that we have seen good work. 'Yes', we might say ' that went well as the students were fully involved', 'The activity "worked" well', 'We all felt good about it at the end of the term'. But what does it really mean to do well? Much more needs to be said and written on the basis of the work in schools with students and teachers before we are prepared to be more confident.' (Hatch and Martin, 2002:39)

In the light of this the DAC team engaged ion research to test the effectiveness of DAC teaching within the citizenship agenda. This paper reports on that research.

Aims of the research
The subjective assessment of teachers on DAC INSET courses and educationalists such as advisers is that the Design Against Crime (DAC) initiative, is that it is 'a good thing' and that 'children need to be informed, they need to learn how to be responsible citizens and take a full and active part in society'. This judgement could of course apply to all aspects of citizenship education. The question that this research is aiming to address is: can we be more objective in our assessment of the educational value of DAC, and can we with certainty say 'this DAC is good' and more importantly, 'it actually makes a difference' to pupils citizenship education?

This research has endeavoured to determine the effectiveness of the Design Against Crime initiative in bringing about identifiable behavioural and cognitive changes in children. For the purpose of the research we determined to break this down into two sequential interdependent hypotheses. We were setting out to test our judgment that pupils who had fully engaged with the Design Against Crime(DAC) activity, as we had intended, would have become more aware and informed about crime issues and would therefore behave differently as a result of their experience.

We hypothesised that:

1. Key Stage 3 pupils who have been exposed to Design Against Crime(DAC) through structured Design and Technology(D&T) activity will be:
• more aware of crime issues
• better able to empathise with victims of crime
• more able to understand the impact of potential criminal actions

Whilst acknowledging that this reflects the long term aims of the DAC education programme, it should therefore follow that:
2. As a result of this increased understanding, pupils will be:
• less inclined towards criminal activity
• more responsible for their own actions

This research and paper has as its particular focus the first of these hypotheses. We have determined that this is a necessary first step towards potentially bringing about real change. The essence of the latter hypotheses, that of modifying and bringing about change in aspects of human behaviour, could be directed towards many aspects of citizenship education; this is an essential debate.

A long term research programme following pupils through a coherent citizenship education programme to its conclusion, and then into adulthood, would be necessary to begin to evaluate the effect of this educational process, as stated within our second hypothesis, with any degree of certainty. Nevertheless, it would be imprudent to fail to take cognisance of opinion, subjective as it may be, of educational professionals and adults in general, who feel citizenship education to be of worth to young people.

Previous work
The aims of this piece of research are in the spirit of the importance of citizenship, as laid out in the National Curriculum:

'Citizenship gives pupils the knowledge, the skills and understanding to play an effective role in society at local, national and international levels. It helps them to become informed, thoughtful and responsible citizens who are aware of their duties and rights.'(DfES,2003)

While the subject of citizenship in the UK education system has received considerable attention since its introduction(reference) in recent years, research into educating young people about crime and its impact is less abundant. Garner and Sandow (1993) describe how the different philosophies of government and education have lead to different approaches to developing educational programmes on crime. The approach used in the Design Against Crime(DAC) teaching materials and in the research into its effectiveness is that which Garner and Sandow describe as 'rooting the discussion in the experience of the students' (ref.)This contrasts with the more information-giving approach adopted by many police-led schemes.

Many writers such as Nichols (1992) on the subject highlight the need to understand better our attitudes towards crime and the place of values and ethics within the curriculum. Garner and Sandow argue that the impact of education programmes is not yet proven and go on to say that:

'the reality gap which exists between cultural interpretations of what constitutes 'good' and 'evil' needs to be closed before really effective programmes can be implemented' (Nichols, 1992:29).

Turnbull (2002) sets out the changing policies towards values in education and the challenge that faces the education system. She argues that schools must undertake significant reforms in order to embrace citizenship fully.

As discussed previously, one model for delivering citizenship (the one adopted by the team in developing Design Against Crime activities (DAC)) is through other curricular subjects. Several papers discuss how this can be achieved. Liddament (1995) discusses how the subjective nature of our relationship with and understanding of products means that design and technology can contribute to teaching values and ethics, and vice versa. He argues that techno- scientific activity is value loaded and that:

'Values are themselves intrinsically a part of technological processes.' (Liddament:1995)

This reinforces the notion that understanding crime, and the impact of crime, can provide an excellent context for design and make activities. It is this exploration of some crime issues that is the basis of our research.

Methodology
The methods used to explore our first hypothesis (KS3 pupils who have been exposed to Design Against Crime through structured D&T activity are: more aware of crime issues, better able to empathise with victims of crime, and more able to understand the impact of potential criminal actions) are drawn largely from social science and education qualitative research. The methods used fall into three categories: selecting and structuring groups of pupils on whom to base the research, obtaining background and contextual information, and setting questions and interview activities.

To explore the impact of the Design Against Crime teaching materials, the research team decided to work with groups of pupils both before they had worked on one of the projects and afterwards. Since the limitations of this research did not allow the team to gather all data on external influences on the pupils' attitudes towards and understanding of crime (e.g. PSE lessons, assemblies, national or local news stories, personal experiences), two extra groups of pupils were also chosen in order to minimize invalidity. These pupils were from the same schools and age groups and were not undertaking a Design Against Crime project.

In order to understand what exposure the test and control groups had had to citizenship and study of crime issues in the classroom, the researchers spoke to D&T staff and citizenship co-ordinators. Classroom observation by the researchers was finally ruled out on the grounds that it might distract the pupils even though ethnograpy is a recognised methodology. The D&T teachers were instead given a briefing on teaching the DAC crime projects and on the aims of the research project. The teachers took on roles as participant observers, reporting

back to the research team on their own observations of how the classes responded to the DAC projects. The pupils completed workbooks and D&T outcomes were studied at the end of the project.

For the control and test group interviews, working with small groups of pupils (maximum of eight in each group) enabled the team to explore a range of research methods including vignettes, personal constructs, questionnaires and semi-structured group interviews. The team focused on three main areas for the interviews: knowledge, understanding and opinion. A series of tasks, questions and scenarios was drawn up to be conducted in a semi-structured group interview. According to Cohen, Manion and Morrison (2000), in a semi-structured interview 'the topics and open-ended questions are written but the exact sequence and wording does not have to be followed with each respondent'. Group interviewing can enable discussions to emerge and develop and yield a wide range of responses. In particular, it can be a useful way of interviewing children, without them feeling intimidated or uncomfortable. As well as these benefits, outlined by Cohen, Manion and Morrison, the group interview was chosen as a time-effective and practical method for eliciting a larger number of children's responses on a range of topics.

Vignettes are popular in qualitative research, particularly with work involving young people and can be described as small stories to which participants can respond. These are a useful means of exploring sensitive issues in context but in a less personal way. Several scenarios, or moral dilemmas, in which the pupils might find themselves were drawn up and included in the interviews.

The research team wanted to determine how pupils rated different types of crime or misdemeanour and see how pupils came to their decisions. Reparatory grid method, based on Kelly's theory of personal constructs (Kelly: 1955), was considered as a means of tapping into individuals' constructs and value systems in relation to crime. However, it was felt, given the time scale, that a broader approach working with groups would be more appropriate in this small study. Instead, a task entitled 'Crime Cards' was developed whereby pupils were given a list of activities (ranging from the offensive or morally questionable to the unlawful) and were asked to categorise each one according to an adapted Likert scale. The scale comprised three points: 'very serious', 'quite bad' and 'a bit naughty'. A 'don't know' option was also provided. Pupils were encouraged to discuss each activity and a group consensus had to be reached on the 'seriousness' of each activity. It is our intention that the Crime

Cards as a research method in education will be the subject of future research.

The methods used provided the team with a range of carefully designed tasks and questions which were aimed at probing the pupils' knowledge of crime issues, how well these issues were understood, and their own opinions on them, including impact on themselves and other people.

Outcomes
It has been difficult to take a truly objective stance upon the outcomes of this research initiative. It was clear that influences on these young people, such as television and teenage culture, as well as their own development, had an impact on the attitudes and opinions of the pupils involved. However, these influences affected both control and test groups equally. The interviews showed that pupils to a large extent based their opinions on their own experiences, or the experiences of those around them.

An interesting aspect to arise from the research was that the research process adopted became itself a teaching and learning experience with consequence upon the research outcomes. The process of leading pupils through structured discussion both before and after the DAC activity was an opportunity for engagement and learning that had an effect upon the attitudes of the pupils as they explored and responded to the issues put before them. It is less easy to determine whether this was equal to, or even greater than, that of the DAC experience. Thus it becomes even more difficult to be objective when considering what has been learned through the DAC activity that is distinct from what has been learned as a result of the researchers' intervention.

A further consideration must be taken in mind. By the second interviews, the pupils were familiar both with the researchers and the format of the interview and therefore found the situation more relaxed and less intimidating. We can assume that pupils were more likely to feel able to contribute to the discussions if they had something they wished to contribute.

With the above commentary in mind, it is nevertheless apparent, through study of the interview transcripts, that two behavioural aspects did emerge within the second interview sessions with the test groups of pupils, both of which were reinforced by the comments volunteered by the teachers during their debriefing sessions.

Outcome 1: the pupils were more able and more willing to articulate their views.

Group A's first interview demonstrates how the pupils initially tended to take a consensus view on issues. If one person changed their mind, or raised issues, the others followed. The following extracts are both taken from the Crime Cards activities.

Interviewer:	"Copying CDs. Say if you were copying CDs or DVDs for yourself, which pile do you think you'd put that one in?
Pupil 1:	That would be good and good isn't even on there.
Pupil 2:	Yes!
Pupil 3:	If it's for your own personal use and you're just lending it to friends….
Pupil 1:	Yes, that's fine
Pupil 3:	But if you do sell it and stuff it could get quite serious...
Pupil 2:	Very serious

By contrast, the same group in the second interview readily raised opinions that differed from each other. They were able to put forward their arguments to each other as well as to the interviewers and to stick to their own positions. The following extract is five minutes into the interview, during which time Pupil 4 had not contributed anything.

Interviewer:	Receiving stolen goods
Pupil 1:	Very bad.
Pupil 2:	Very serious.
Interviewer:	Very serious?
Pupil 2:	Yeah.
Pupil 3:	I don't think so, because you don't know if you're receiving stolen goods. You might just think you're getting something.
Pupil 2:	It is still a bit serious though because if you buy them, then you're purchasing something that's been already taken and you could be seen as breaking the law as well.
Pupil 3:	Yeah, but you don't know.
Pupil 1:	But you can't do anything about it!
Pupil 4:	But if you don't know that something's been sent to you then you can't do anything about it so it's not your fault.

In the second interviews with the control groups, pupils were happier to put forward their views and required little prompting from the researchers. Discussions were frequently so animated that pupils had to be reminded to speak one at a time. In both test and control groups, the discussions ran on so that time ran out before all the questions and tasks

had been completed. In one of the control groups, Group E, the discussions went off topic at which point, the researchers had to intervene.

Outcome 2: the pupils were less secure in their opinions and more comfortable with the acceptance that 'grey areas' exist when considering moral positions.

In the second interviews, pupils began to question the categories in the Crime Cards exercises. They felt that it was not always straightforward to describe an activity as 'Very serious', 'Quite bad' or 'A little bit naughty'. In Group C, pupils felt that receiving stolen goods fell into all three categories. Group A felt that underage purchase of cigarettes was somewhere in between quite bad and very serious. They also felt that dumping rubbish and taking money out of a parent's purse were both somewhere between a bit naughty and quite bad.

These two palpable outcomes support the first hypothesis of the research.

Discussion

This research aimed to explore pupils' knowledge, understanding and opinions of various crime and other issues. The interviews demonstrated a rich variety in their opinions, and showed that their understanding of issues was closely linked to their experience of them. Here, differences between the two schools were more noticeable. One school was situated on the edge of a large urban housing estate, and the pupils demonstrated an awareness of the social problems in their areas, and an understanding and acceptance of them. The pupils discussed at length issues of vandalism in their communities and were aware that ultimately, they were paying for the consequences of these problems through taxations. In School D, however, there was still ambivalence towards this:

Pupil 1:	You know when you get the needles, if you find needles around the place and that, and somebody has to come and clear them away and they take them away and burn them, don't they? The council do that.
Interviewer:	Who do you think pays for that, who do you think pays for that clearing up?
Pupil 2:	Us, really. You know like, when they pay taxes, the government get people to do it and they clear it away but we're are paying for stuff that the drug takers are injecting themselves.
Interviewer:	How do you feel about that?
Pupil 2:	Well, it's nothing for us, so....but I ... I don't really feel that strongly about it, because I don't pay taxes.

The other school was in a rural area with an intake of pupils from a range of isolated rural and small town locations. Group B – a control group from the latter school – were quickly resorted to stereotypes when describing a situation with which they were perhaps unfamiliar:

Interviewer: How do you think you might know if it was stolen goods you were buying?
Pupil 1: A shady guy in a dark alley
Pupil 2: It'd be somebody in the pub or something

Similarly, pupils' knowledge of the legality of actions was often based upon hearsay, folklore and misinformation. This was particularly in evidence in relation to age limits. The minimum age for purchasing cigarettes or alcohol, or voting was hotly debated by pupils in all groups. In one school it was clear that pupils may have been drawing on their parents' views of criminality rather than formulating their own.

Pupils in all groups raised some extremely interesting issues as a result of the questions put to them. In discussing why people stole bikes, pupils in Group D considered that jealousy and envy might be a motive. They also considered that peer pressure might be important and that young people might steal things in order to fit in with their friends.

In terms of the methods used for gathering data, the Crime Cards activity was the most popular with the pupils and was the best vehicle for drawing out discussion on a range of topics. While the quieter pupils needed some encouragement to get started, the majority of pupils quickly engaged with the task.

Conclusions
There are two main conclusions that the researchers have drawn; one relating to the research methods and process and one in relation to the first hypothesis.

In relation to the research process the research team found that whilst we felt instinctively that this experience was an enhancement to the educational process of the pupils, we were unable to prove it conclusively. Some conclusions in relation to the success of the research process were apparent.

The discussions with the pupils enabled them to volunteer far more information than was sought, and, whilst it was considered educationally valid, this led to the data gathered being difficult to analyse objectively.

The process of structuring discussion using the 'Crime Cards' provided the pupils with a most effective vehicle for discussion that was beyond our anticipation. We can conclude that the cards provide a useful structure for gathering data from discussion but that the format could be refined to make it less problematic to analyse.

With reference to our initial hypothesis on the effectiveness of the DAC teaching materials, some things became clear.

The initial notion of integrating DAC within a subject such as design and technology was a sound decision. The nature of discussion necessary is well suited to a subject area that has inherent flexibility, practice in pupil centred activity, and is not reliant upon didactic teaching. There is a potential for enhancing the DAC agenda through building the kinds of discussions that formed the basis of this research into the D&T classroom. As they stand, the DAC workbooks set out some topics for discussion, but there is scope for providing further teacher support to facilitate this.

The process of citizenship education is, to some extent, reliant upon pupils' reflection upon experiential learning outside of the classroom. This means that it is difficult to predict and plan in terms of learning objectives for lessons. The free flowing and wide ranging nature of discussion underpins the need for flexible, open-minded, unbiased and confident deliverers.

Pupils who had been exposed to DAC are likely to be more aware and are more able to tune in to discussion and volunteer more open perspectives upon issues. Thus it could be claimed that they are beginning to develop the potential to think and exercise choice. If this then becomes inherent within their adolescent development then the effect is positive and worthwhile.

It has not proved possible through this research to determine that future behaviour of the pupils will be modified as a result of the DAC experience, particularly hypothesis two. The conclusion of the researchers is that hypothesis two requires a long term study using large samples and sophisticated data collection procedures..

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