

Approaches to Teaching Pupils with Behavioural, Emotional and Social Difficulties in Design and Technology.

Louise Davies QCA and James Fox, Peter Grover and Andy Mitchell
 Sheffield Hallam University, England

Abstract

The DfES defines pupils with Behavioural, Emotional and Social Difficulties (BESDs) as people who are:

'Withdrawn or isolated, disruptive and disturbing, hyperactive and lack concentration; those with immature social skills; and those presenting challenging behaviours arising from other complex special needs.' (DfES 2001: 58).

This definition encompasses a very broad range of children with diverse needs. However, there are common approaches that can be used to meet the needs of these children in design and technology (D&T). Traditionally design and technology has been a particularly popular subject for pupils displaying BESDs. There has been little research as to why this should be. This paper explores practice in D&T by making reference to case study material collected from four schools. The case studies were commissioned by the Qualifications and Curriculum Authority (QCA) for dissemination via the NCAction website (a searchable resource for schools that illustrates how the National Curriculum works in practice). The case studies considered activity undertaken by pupils working in resistant materials, food technology and CAD/CAM. The case studies highlighted the use, by teachers of pupils with BESDs, of common approaches including group work, raising self esteem, the use of rewards and challenge, relevance and using ICT .

Key words: behavioural, emotional and social difficulties (BESDs), group work, self esteem, rewards, special schools.

Introduction

The Department for Education and Skills (DfES) defines pupils with behavioural, emotional and social difficulties (BESDs formerly referred to as EBD) as young people who are:

'Withdrawn or isolated, disruptive and disturbing, hyperactive and lack concentration; those with immature social skills; and those presenting challenging behaviours arising from other complex special needs.' (DfES 2001: 58)

This definition encompasses a broad range and therefore no single approach to working with these children can be applied. This paper seeks to exemplify practice and explore common approaches employed to meet the needs of individual pupils with BESDs in the context of design and technology. It draws on relevant academic literature and explores case studies generated for the Qualifications and Curriculum Authority (QCA) National Curriculum in Action website.

Traditionally design and technology has been seen as a popular subject for pupils with BESDs, though there has been little research as to why this should be. In fact there is little research specific to design and technology and BESDs. Wallace and Crawford (1994:94) point out that pupils with Attention Deficit and Hyperactivity Disorder (ADHD) 'favour concrete experience and active experimentation learning styles' which would seem to make the type of learning that takes place in a design and technology classroom, workshop or food technology area, suitable for this type of child. Daniels et al (1998) found that this was also the case with pupils in special schools. 'Art and Craft activities help provide alternative means for communication, distraction and relaxation from other tensions and the success that comes from overcoming frustration, in surmounting difficulties and producing a finished product' (Cooper et al 1994:39).

Research methodology

The first phase of the research project was initiated by QCA who identified a sample of four schools experienced in working with pupils with BESDs. Teachers from these schools were commissioned to compile case studies based on their own work in schools and report these to QCA and the authors. The case studies were presented by the teachers at a seminar organised and hosted by QCA and were to be written to a framework enabling publication on the National Curriculum in Action website. These were then analysed using a semi structured seminar, following the teachers' presentations. As the discussion took place, two diagrams were created on a whiteboard (Figure 1) which served to draw out commonalities in the individual teachers' approaches.



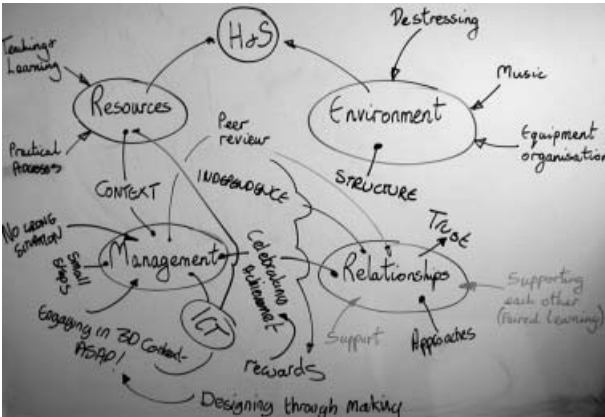


Figure 1: Example of diagram produced during semi structured seminar

A subsequent analysis of the written case study material was then completed. A number of common approaches were identified. The common approaches included: group work, raising self esteem, using rewards, providing controlled challenges, relevance and using ICT. The teachers were then asked to complete an additional proforma (Figure 2) that explored these approaches in greater depth. Each of these is examined below and examples taken from the teachers' practice.

Case Study: Hand Held Technology Project	
Please could you fill out this table to show where you found opportunities within the scheme of work that you have described to promote:	
Group Work	Give responsibility within the group: Pupils are taught to mentor each other especially on the computer work. This gives the helper a sense of achievement and prevents the pupil who needs help from becoming disaffected. Promote discussion: The research task was used to promote discussion as a whole group. Build relationships: The success that pupils have enjoyed through this project has been invaluable for building relationships both between pupils and between pupil and teacher.
Celebrate success	Pupils work is shown at regular intervals to show the standard required but also to celebrate the success of individuals. My wall displays show off work from pupils with varying levels of ability.
Give rewards	Rewards come in the form of a lot of positive praise but also credits when they have been earned.
Use IT	IT is used throughout the project as the portfolios are electronic
Break down the overall task in to smaller objectives	Every task is taken step by step so that every pupil can achieve without feeling as though they have been singled out for special help. Detailed worksheets with more diagrams than words help to guide the pupils through the pro-desktop work. The use of a PowerPoint display to show a writing frame for the piece of work helps to focus the pupil's attention.
Keep the task relevant using examples from "the real world"	We use the internet a lot for research. The topic is also used to introduce ergonomics in a simple way We experiment with existing products and analyse how they work.
Foster independence	All of the guidance available helps the pupils to work more independently.
Raise self esteem	Success raises self esteem and every pupil is helped to succeed.
(Feel free to continue on a further sheet or expand the boxes as you wish)	

Figure 2: Proforma used to explore further common approaches

Findings and discussion

The case studies were selected to represent a range of design and technology activity in a variety of school contexts.

Teacher A, focused on a scheme of work that they had taught to secondary special school class containing pupils with BESDs. The class was asked to design and make a vegetarian airline meal.

Teacher B, teaching a child with BESDs in a mixed ability secondary school class, focused on a project to design and model a piece of hand held technology (Figure 3).



Figure 3: Page from pupil's e-portfolio

Teacher C, teaching pupils with BESDs, in a primary special school focused on a project to design and build a piece of playground equipment (Figure 4) using Quadro® (a large scale frame construction kit).



Figure 4: Developing Quadro® models of playground equipment

Teacher D, teaching a child with BESDs in a mixed ability secondary school, undertook a project to design and make a mechanical toy.

Group work

Designing and making offers opportunities for group work, and group discussion, bringing pupils together with a clear goal towards which their energies can be directed. In his study of primary school children designing together as a group, O'Connor notes that 'there is a good case for arguing that the use of the design process with groups of EBD pupils [sic] as a vehicle for extending and developing speaking and listening skills is generally worth a try' (2000:197).

Teacher A commented that she found group evaluation a particularly useful process. Pupils were taught the skills of dispassionate discussion and learnt how to offer and receive constructive criticism. She also used cooking activities and washing and cleaning as a means to bring the group together and made use of time spent doing practical work to open discussions relating to personal, health and social education and citizenship.

Teacher B used grouping as a classroom management technique, carefully selecting the groups as a means of avoiding conflict.

Teacher C found that although many children had communication difficulties, group work in design and technology was particularly successful. Children were able to communicate with each other and the adults in the room, through visual and practical means.

Teacher D gave the pupil with BESDs special responsibilities within the group as the safety checker and tool skills specialist. This served to raise self esteem. The teacher also split the class into four small groups, each with a specific colour coded area, as a classroom management technique.

Raising self esteem

The advantages of group work and discussion are manifest: 'For children with low self esteem the experience of being a valued member of the peer group is essential if they are to internalise a greater sense of self worth' (Greenhalgh 1994:89).

'Learners with EBD [sic] need above all, to experience success and gain some self-esteem' (Hawkridge, Vincent 1992:55). Design and technology teachers are well placed to help in the complex process of building a pupil's self esteem.

'To succeed this process depends upon the supportive structure of good staff pupil relationships and a secure environment, as well as provision of carefully controlled but challenging situations, in which effort and success are rewarded' (Cooper et al 1994:82).

Rewards

A designing and making task can offer a tangible reward and one that is intrinsic to the task. Pupils with BESDs have been shown to respond better to this type of reward rather than extrinsic rewards such as praise (Kohn 1993). O'Connor states that: 'The processes and results of making a useful and aesthetically pleasing object or tool often had the effect of raising the self esteem of the pupils and the concrete result seemed to mean that they could visibly demonstrate achievement and success' (2000:197). Evans, et al (2003) showed that rewards are commonly used to encourage on-task and non-disruptive behaviour. The teachers in this study offered more than the reward of a tangible end product.

Teachers A and B worked to raise self esteem by providing constant verbal praise and constructive, positive, formative feedback at each stage of the project.

Teacher A had a departmental system of bronze, silver and gold certificates in place, which would be awarded on the basis of grades given for effort and achievement at the end of each lesson. For the final lesson of the project she gave the pupils chef's clothes, and arranged for them to share the meals they had cooked with other staff, pupils, and the school chefs. This sense of ceremony served to make the pupils feel important and special. She also labelled and colour coded the food technology area in order to encourage the pupils to develop their independence as they worked.

Teacher B used computers throughout the project as a means of improving the quality of outcomes from a child who might otherwise struggle with literacy, drawing and presentation (Figure 5).

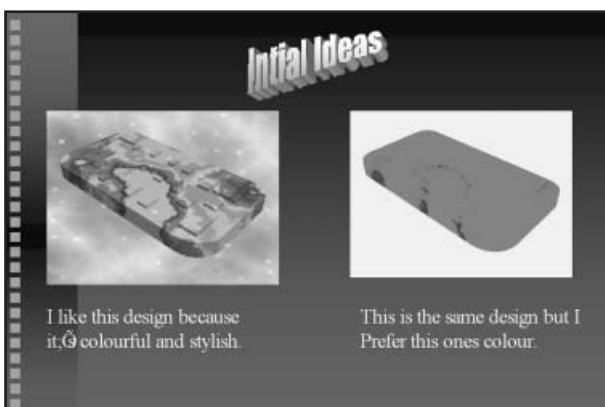


Figure 5: Example of pupil's presentation of ideas

Teacher C's project revolved around making a piece of playground equipment (Figure 6) that could be used by others. The children felt 'a huge sense of prestige and pride' as their project, was used and enjoyed in the playground by pupils at the school.



Figure 6: Completed scale and full size model playground equipment

Teacher D found that in a mechanical puppet project, in order to raise pupils' self esteem, it was necessary to guarantee a successful outcome. He achieved this by using a simple means to alleviate the usual friction problems associated with mechanical projects of this type (Figure 7). When this mechanism proved to be problematic he was then able to attach the puppet to a wooden cross (similar to a traditional string puppet), thus further guaranteeing success.



Figure 7: Pupil's mechanical puppet

Challenge

The matching of skill level to level of challenge when working with pupils with BESDs is important. The National Association of Advisors and Inspectors in Design and Technology (NAAIDT) recommends that the teacher should 'Make tasks less open-ended. Whilst perhaps limiting access to the higher levels of attainment, clear parameters and partly prescribed activities can ensure success and provide a sense of achievement' (NAAIDT 2004). This echoes the findings of Department for Education and Employment Research Report RR90 on emotional and behavioural difficulties in mainstream schools (Daniels et al 1998: 5.5). An aim may be to build success into projects, but removing the possibility of failure may also remove educational advantages. Feeling that a real challenge has been met is central to building self esteem, and real challenges mean real risks of



failure. McCormick and Davidson have explored the relationship between the desire to produce successful outcomes and designing and problem solving with respect to mainstream pupils. They argue that the pursuit of a successful end product can overshadow the need for pupils to design and problem solve within a project, concluding that 'perhaps, therefore, teachers have to allow some degree of failure to produce outcomes' (1996:47).

Teacher A dealt with the problem of ensuring success whilst maintaining real challenges by introducing a series of focused practical tasks before the design stage. This meant that all the pupils had practised, and were confident with the skills that they would need to design their own meal. It also provided the class with a series of small achievable steps towards a given objective.

Teacher B used a PowerPoint e-portfolio to organise a hand held technology project. Again the project was divided into clearly delineated stages or 'mini objectives' each with visual step by step guides, and an achievable outcome of value in itself.

Teacher C used a Quadro® construction kit. This maintained the challenges inherent to designing and making whilst ensuring a successful working outcome. She also used Mini Quadro® at the designing stage, as a practical design and modelling tool.

Teacher D worked on reducing the challenge of the task by cleverly simplifying the mechanical puppet mechanism and by following a prescribed approach. The teacher found that the pupil with BESDs had difficulty expressing his design ideas through sketching, however when the pupil was allowed to model using card he quickly created a successful design. All the teachers showed this sort of flexibility with respect to modelling and recording techniques (e.g. using card based models, videos, computers and digital cameras).

Relevance

Research has also shown that another key element in the motivation of pupils with BESDs is relevance. Good lessons 'where possible, utilise(d) pupils' known interests' (Daniels et al 1998:5.5). Thus wherever possible teachers should attempt to contextualise learning and engage pupils in tasks related to their existing interests and experience (Kohn 1993 and Kern et al 2001). Design and technology has an advantage in this area, offering a range of useful vocational and life skills.

Teacher A gave relevance to her vegetarian food project by basing it on the topic of airline food. The context required consideration of issues such as space and heating and provided an opportunity for

pupil discussion and reflection. The teacher also used short video clips of celebrity chefs for demonstration purposes.

Teacher B aimed to keep the project relevant by relating it to new technologies such as mobile phones, MP3 players, palmtops etc. that pupils were interested in and excited by.

Teacher C motivated the class by helping them to design and make a product that could be used in the playground by themselves and their peers.

Teacher D used the project as a framework to which the pupils could apply a theme that excited and motivated them. The child in question based his toy on Liverpool Football Club.

Using ICT

'Creativity in art and design assumes competence with drawing or painting media. Lack of such skills creates barriers to creativity, but IT can release the creative process by reducing dependence on technique [...] and computer aided design (CAD) applications support design solutions without the need for a high level of technical skill' (Holt 1998:3).

With ICT design and technology teachers have a good opportunity to engage young people with BESDs. Computers can allow those with low levels of skill to present work to a better standard, thus increasing self esteem. Research on the response of pupils to the introduction of CAD software (i.e. pro/DESKTOP) in mainstream schools has shown just this. Pupils found that it helped them to 'present my work professionally', 'visualise ideas/objects' and 'work accurately' (Kimbell, et al 2002:33).

ICT has been shown to be an effective medium for working with pupils with BESDs, where 'a student feels that he can control his learning environment and achieve success in that environment (and not be controlled by such an environment in which previous experience simply replicated failure)' (Luth 2001:257). Computers also allow a pupil to take part in an interactive learning experience without the pressure of dealing with adults or their peers.

Teacher A used ICT as an incentive and as a reward. Pupils used ICT for costing, word-processing and designing a final menu.

Teacher B used ICT as a facilitating tool to structure the whole project, in the form of an e-portfolio using a PowerPoint presentation. She also used pro/DESKTOP as a designing and presentation tool.

Teacher C used digital cameras to research existing



playground equipment. This simplified the research process for pupils and allowed the whole class to create a research collage of pictures.

In a similar way Teacher D used ICT to assemble mood boards (Figure 8) to inform the development of their puppet designs.



Figure 8: Pupil's 'mood board' and design ideas sketches for the mechanical puppet

Conclusions

It would appear that in some respects good teaching of pupils with BESDs is similar to good teaching of mainstream pupils. Daniels et al found that 'All children, including those with EBD [sic], were thought to respond to the orderly, controlled yet relaxed atmosphere which usually accompanied good teaching' (1998: 4.2).

The case studies illustrate the considerable opportunities available in design and technology to meet the needs of pupils with BESDs. The teachers in the case studies used a number of common approaches in their teaching of pupils with BESDs to enhance levels of achievement and raise self esteem. It could be that a model of good practice can be devised incorporating these approaches following further research. The design and technology activities described in the case studies, offered intrinsically rewarded learning that could be made relevant to pupils' lives. The activities provided opportunities for group work and the use of ICT. The tasks presented to the pupils provided real, yet achievable challenges.

The case studies initiated by QCA, aim to highlight design and technology's particular contribution to meeting the needs of children with BESDs. The National Curriculum in Action website provides a vehicle for sharing good practice and the case studies provide support and inspiration for teachers developing their practice.

References:

- Cooper, P., Smith, C. and Upton, G. (1994), *Emotional and Behavioural Difficulties: Theory to Practice*, Routledge, 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 RR90. Visited: January 2004. URL: <http://www.education.bham.ac.uk/research/sat/research/recent/ebdprov.htm>
- DfES (2001), *The Special Educational Needs Code of Practice*, HMSO, London.
- Evans, J., Harden, A., Thomas, J. and Benefield, P. (2003), Support for pupils with emotional and behavioural difficulties (EBD) in mainstream primary school classrooms: a systematic review of the effectiveness of interventions. Visited: January 2004. URL: http://eppi.ioe.ac.uk/EPPIWeb/home.aspx?page=/reel/review_groups/EPPI/EBD/EBD_intro.htm
- Greenhalgh, P. (1994), *Emotional Growth and Learning*, Routledge, London.
- Hawkridge, D. and Vincent, T. (1992), *Learning Difficulties and Computers*, Jessica Kingsley Publishers, London.
- Holt, G. (1998), *Using IT to Support Learners with Emotional and Behavioural Difficulties*, National Council for Educational Technology, Coventry.
- Kern, L., Delaney, B., Clarke, S., Dunlap, G. and Childs, K. (2001), 'Improving the classroom behaviour of students with emotional and behavioural disorders using individualised curricular modifications' in *Emotional and Behavioural Disorders*, Winter
- Kimbell, R., Lawler, T., Stables, K. and Balchin, T. (2002), 'Pro/DESKTOP in Schools: A pilot research study' in *The Journal of Design and Technology Education*, 7,1.
- Kohn, A. (1993), *Punished by Rewards; the Trouble with Gold Stars, Incentive Plans, As, Praise and Other Bribes*, Houghton Mifflin, Boston.
- Luth, R (2001), 'The Electronic Mirror and Emotional Growth' in *Journal of Emotional and Behavioural Difficulties*, 6, 4.
- McCormick, R. and Davidson, M. (1996), 'Problem Solving and the Tyranny of Product Outcomes' in *The Journal of Design and Technology Education*,1,3.



NAAIDT (2004), Design and Technology and Pupils with Special Educational Needs in Ordinary Schools. Visited: January 2004.
URL:<http://www.naaidt.org.uk/about/guidelines/sen.html>

O'Connor, B. (2000), 'Using the Design Process to Enable Primary Aged Children with Severe Emotional and Behavioural Difficulties (EBD) to Communicate More Effectively' in *The Journal of Design and Technology Education*, 5, 3.

QCA National Curriculum in Action Visited: January 2004. URL: <http://www.ncaction.org.uk/index.htm>

Wallace, B. and Crawford, S. (1994), 'Instructional Paradigms and the ADHD Child' in Weaver, C. (ed), *Success at Last: Helping Students with ADHD Achieve Their Potential*, Heinemann, Portsmouth.



