

Boys will be boys?

Raising boys motivation and achievement in Key Stage Three Design Technology

National Teacher Research Panel
engaging teacher expertise



This summary was commissioned by the National Teacher Research Panel for the Teacher Research Conference 2006, which explored and celebrated teacher engagement in and with research. All conference materials are available at www.standards.dfes.gov.uk/ntrp

Aims of the Project

- Decrease the gap between boys' and girls' achievement at Key Stage Three.
- Increase the number of level 5 and level 6 achieved by boys in DT in their Key Stage Three Standard Aptitude Tests (SATs).
- Improve the behaviour and effort of boys during DT lessons.
- Increase the number of boys opting for DT - possibly within food and textiles.

Dimensions of the study

This study involved 560 pupils in total over two years at The Castle School in Thornbury near Bristol. The Castle School is a highly successful mixed secondary school in semi rural South Gloucestershire. It has around 1900 pupils on roll from both Bristol and the surrounding area. The study involved the whole faculty as well as the local Key Stage Three Strategy Advisor.



Summary of outcomes

- A rise in KS3 Design and Technology attainment.
- A perception among pupils and teachers of an improvement in boys' behaviour.
- Improved attitudes among teachers towards teaching Year 9 groups.

Background and context

Over the last few years I have noticed a decline in the achievement of boys in DT. There seems to be a connection between their attitude to the subject and their level of effort. This seems to be most marked in food and textiles. There was also a problem of poor behaviour among boys in DT lessons – for example, mistreating equipment and resources, and calling out. I therefore decided this was an area that merited further research. Would single gender classes, different teaching styles and a variety of resources improve this behaviour? We have already had some experience of this at GCSE, when we have often ended up with single gender classes: the girls opting for textiles; and the boys for resistant materials. I wanted to see if this would positively affect attitudes to learning in a year group lower down the school.

As well as wanting to improve the behaviour of the pupils, I felt that other external issues needed to be addressed at the same time, as these could be having an impact on the pupils as well. The stigma and gendered notions attached to my subject, such as the outdated idea that DT is a male subject needed to be challenged. I also hoped that, through this investigation of alternative approaches to delivering D&T, I would become a better teacher.

Teaching processes and strategies

Structure of classes

Before deciding on implementing single gender classes with Year 9 pupils, we considered other possible class arrangements which may have had a positive affect on boys' achievement. One approach would have been pupils keeping the same teacher for the year, following the teacher to different material areas. However, this would have only been possible with a few groups due to the fact that not all staff were able to teach all areas of the curriculum, so we did not implement the idea. We also considered allocating appropriate teachers to groups of pupils, once pupils had decided which area they would be working on. However, we were keen that pupils experienced several areas of the curriculum. If we were trying to combat gender stereotypes, allowing pupils to decide which subject area they worked in would be running the risk of reinforcing them.

In the end we decided to trial single gender classes in technology with one half of Year 9. This meant seven groups in all. We considered splitting the pupils up by ability to see if this would work. If lower ability pupils were in smaller classes together this would enable us to put all the support teachers into one room. We decided to trial this with Year 8 pupils and found that it didn't affect attainment very significantly, so we didn't continue with it the following year.

As it turned out we still had a few complaints from parents that we were being sexist and it was very reassuring to be able to show them that gender had not been an issue in the allocation of material areas. The pupils have never been able to select which area they wished to specialise in until GCSE, so the pupils covered the same subjects as they would have anyway through a carousel system. We wanted to ensure all pupils still got the widest of experiences without going down the road of selecting their subjects due to gender as this would be defeating the whole purpose of the trail. This meant that every group experienced three of the following material areas, Graphics, Resistant Materials, IT, Systems and Control, Food and Textiles.

Learning strategies

I decided to look at different methods of teaching and learning styles that could be implemented to help combat the apathy and gender stereotyping within the subject. If this proved to be successful then it would continue the following year with both halves of the year group.

The pupils started to follow Key Stage Three Strategy lessons with lots of short, focused task, such as SCAMPER. In this activity pupils looked at how to develop their design ideas quickly by using different prompts such as combining two aspects of the design, modifying a part of it, or substituting one aspect for another. This was effective as it was short and snappy and kept them focused. Another approach they enjoyed was the four by four by four activities, in which pupils produced a page of different designs in a very short amount of time. The pupils then had to fold the page into four sections vertically and then four sections horizontally. This gave them a page with sixteen squares. They had to write their name on the back and then had four minutes to sketch their first design, e.g. for a hat. The paper was then pasted round the room. I gave out different instructions each time, such as, design a hat influenced by the sea or morph two designs into one.

Varying resources

I was able to write a wish list at the end of the year of things that I thought would make life easier for both my pupils and me in the classroom. When my money came in in September the first thing I did was to purchase forty new pairs of scissors, two huge boxes of colouring pencils and 100 fine liner pens! This may seem a waste of the money when items like interactive white boards could be purchased, but I feel it is the little things that have started to make the biggest difference.

At the start of each lesson the pupils can come up and collect a pencil, set square, ruler, colouring pencils and fine-liner to help them with their design work. This has stopped all of the messing about at the beginning of lessons with them having to borrow pencils from their friends. They know where the stuff is and they don't get a lecture from me about not bring their own equipment! It has made the start of lessons smoother and has definitely improved the quality and presentation of their work.

As for the scissors, well you would have thought the pupils had never seen a new, sharp pair of scissors before! No more moaning that they can't cut something out and no more hacking at their work!



I have also bought a digital camera and printer dock to use in my classroom. It has helped the pupil's motivation to get practical work finished. I can take the photo and they come back in the morning to collect a 'proper' photo to attach to their work.

Summary of main outcomes

In the same year as trialling single sex classes in DT, and making other changes in teaching and learning described above, we achieved our best Key Stage Three results ever. Out of 271 pupils:

- 1% dropped one level from Year 8 records;
- 30% stayed the same; and
- 68.5% raised their level (55% by one level, 13% by two levels and 0.4% by three levels).



I surveyed all of the pupils in Year 9 on their views on the experience within DT this year and have found out that:

- 90% of the boys asked have enjoyed DT this year;
- 83% of the boys preferred their single gender classes to the mixed DT classes from last year;
- 62% of boys felt that there was an improvement in behaviour; and
- 54% felt that the teacher treated them differently.

The survey of teachers at that beginning of the trial revealed that staff felt generally very demoralised during Year 9 lessons. In subsequent surveys we found a marked improvement in the way staff felt about the groups and the experience both the staff and pupils were getting in lessons. Behaviour was definitely improving as staff felt they no longer had to deal with some of the silly issues that occur between boys and girls in Year 9. Teachers felt the standard of work being produced by the boys in both food and textiles was improving greatly with projects actually being completed and in some cases to an excellent level.

Research methods

In my role as Head of Key Stage Three Design Technology I was responsible for analysing the Key Stage Three data every year and we had been splitting it by gender for a number of years. We looked at the number of pupils achieving a level five and above and had noticed a continuous rise in the achievement of the girls but nothing seemed to be happening with the boys. It was therefore important for us to analyse the same data at the end of the study to establish any change in pupil performance.



I started out by collecting a sample of the pupils' work from different groups of material areas. This allowed me to complete an audit of the pupils' work and what they were actually achieving when in different subjects. I extended this further by looking at the levels achieved by the pupils in Year 7 and 8 and where they achieved their highest level. This showed a marked difference between some of the material areas and gave us the idea of what schemes of work to change, so that we could design a curriculum that would enable all pupils to achieve the higher levels regardless of their gender and what material areas they were most confident in.

A survey was carried out with the staff to analyse their feelings about the pupils and their learning before the trial began, and then at intervals after each rotation.



This was followed up with a survey of the pupil's attitudes and opinions on their subjects. I also spoke at length to the Year 10 pupils to see what they had felt about their experience in Key Stage Three. They felt that they wanted some of the schemes of work changed and suggested things that they would like to have studied. Samples of pupils' work was collected at various intervals throughout the year and checked for consistency in both marking and experience.

Conclusions

Clearly, the changes in our approach coincided with a great improvement in achievement and behaviour. It should be pointed out that the teachers working on this project were also involved in the Key Stage Three Strategy for the year, which may also have contributed to these improvements. Consequently, we decided to continue with the pilot for another year and to extend it to both halves of the year. As an additional bonus I also had one boy opting for GCSE Textiles, something that hadn't happened for five years!

My relationship with the boys I teach is so much better now and I feel confident in my dealings with both their good and bad behaviour. I am able to respond to situations differently and feel much calmer when dealing with a possible explosive situation.

Both motivation and achievement have continued to improve and the pupils no longer even question why they are in separate classes as they just see it as the norm. It has been so successful that other faculties within the school have come to observe our lessons and are planning on trialling it with other Year 9 classes.

On a final note the pupils felt that the teachers treated them differently; they taught differently; they make more jokes and "Miss is more relaxed and less stressy!". This is excellent as it shows that the pupils are aware of how we have had to change not just the way we cover the topics but also how we teach them.

Suggestions for further reading

Bleach, K. (2000) *Raising boy's achievement in schools*. Stoke on Trent: Trentham Books.

Hart, S. et al. (2004) *Learning without Limits*. Maidenhead: Open University Press.

McKernan, J. (1991) *Curriculum Action Research: A handbook of methods and resources for the reflective practitioner* (2nd ed), London: Kogan Page Ltd.

Neal, L. (2002) *Bringing out the best in boys – Communication strategies for teachers*. Stroud: Hawthorn Press.

Noble, C. and Bradford, W. (2000) *Getting it right for boys ... And girls*, London: Routledge.

Gatsby Teacher Fellowships website contains a variety of research projects that have been carried out in maths, science and technology by teachers across the country. Available at <http://gtf.org.uk/>

The Technology Enhancement Programme website provides lots of help and resources for technology teachers. I got my ideas for technology clubs from the project books they produce. Available at <http://tep.org.uk/>

DATA – This is the Design and Technology Association and provides lots of training and resources to help with technology teaching in all material areas. Available at: <http://web.data.org.uk/data/index.php>

The Key Stage Three Strategy Folders and publications – these are invaluable and can be accessed either on line or through your local advisor. Available at: <http://www.standards.dfes.gov.uk/keystage3/>

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