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Abstract

What happens when pupils move from primary to secondary school? As every experienced teacher knows, progress and development can seem to stall here, and for some students, it marks the start of a slowdown and loss of interest in school that can last for years.

This paper considers the problems involved in transition and how to bridge the gap between Key Stages 2 and 3.

Transition is one of the key problems in education, and is currently being highlighted by the Government. Recent research on behalf of the DfEE suggests that up to 40% of pupils fail to make 'the expected progress' during the year after they move into the secondary school, children also lose concentration in their lessons: five percent fewer are 'fully engaged' in English, 12 percent in maths and 26 per cent in science, compared with their last year in primary education.

'Settling in' anxieties play a part, for example, changes to friendships, managing school meals, coping with so many new teachers! However, the research suggests there are deeper problems. In particular, it refers to:

- 'repetition of work from the previous year when pupils expect subject content and teaching and learning strategies to be 'new' and 'challenging' (and to sustain the excitement of the 'taster' sessions of the induction events)
- pupils feeling that the new work underestimates what they are capable of doing and achieving
- organisational structures that give pupils a negative sense of themselves as learners.'

Along with my colleagues, Ali Farrell and Julie Mantell, the design and technology consultants, and Julian Barnard, Deputy Head of Drayton School (secondary) in Oxfordshire, I have been interested in transition issues for a long time. Between us, we have worked in a good spectrum of primary and secondary schools, some of us in both, and have spent a lot of time considering the mutual expectations and misunderstandings that arise across the boundary. From discussions with many teachers in both sectors, we found they were most anxious about:

- some students' disappointment in secondary design and technology after very positive experiences in primary school

- having to 'start again' at the beginning of Year 7 while knowing that the pupils had more to offer
- a lack of progress through the early part of Key Stage 3, which seemed partly related to a slow start in Year 7.

These fit closely with the issues identified in the DfEE's work. Our response, *Bridging the Gap*, is a set of materials for teachers of Year 7 students. These were published last year by the Centre for Research into Primary Technology at the University of Central England in Birmingham, under the auspices of Professor Clare Benson, who, among many other things, runs CRIPT and its international conferences. Clare, too, has had a long-term interest in transition.

Transition in design and technology

Design and technology is one of the most popular subjects in the curriculum, attracting pupils up to GCSE and beyond. Yet even here there are transition problems, though they look different to different groups. Primary teachers are usually non-specialists with very limited time and resources for the subject. They fear that they may not be able to teach all the practical skills they would wish to, but often manage to achieve an open-ended and creative approach to the work with their pupils. Secondary teachers fear that their new students, from up to 30 feeder primaries, will have too great a range of experience for a coherent teaching programme to be developed. The children long to get their hands on the 'proper' equipment of the secondary school workshop, but may find themselves going over old ground (sometimes with new terminology) or 'treated like babies', 'as if we don't know anything'.

Approaches to dealing with transition

Many approaches have been tried to cope with the problems, although on the whole they do not have a lasting impact.

When the National Curriculum was introduced, it set off the development of detailed record-keeping systems in many LEAS, mostly consisting of dense pages of tickboxes intended to record individual progress in great detail. Much time was spent in completing these, especially by primary teachers. However, there is little evidence that they are useful enough to repay the work involved.

Some secondary teachers would prefer a system in which all primary schools taught exactly the same thing, so that they could be sure of their new students' prior knowledge. However, even if this were acceptable (few secondary departments would agree to this for their own teaching) it would not solve the

problem. At the end of any teaching activity, the students have spread out over a continuum of achievement. Some have mastered it, some are making good progress, and a few will claim never even to have heard of the topic.

School partnerships and groupings have tried to tackle the problem of overwhelming detail via local liaison. In one approach children put together a portfolio of work from across the subjects in their junior school which they then show to their new teachers. This can work well but requires careful planning and organisation in the junior school and a real effort in the secondary school to make use of the portfolios to avoid deep disappointment on the part of the children who have collected them.

Another approach is for children to start an assignment in junior school and continue it in their new secondary schools. Again, a major co-ordination exercise is needed if the work is to be handed over successfully. Enthusiasts' days, where selected children spend an intensive day on design and technology at a secondary school, can be very motivating, though they are counter-productive if they raise expectations that are not met by everyday teaching in the subject. Induction days, where a new cohort visits a number of departments for a shorter time, are open to the same danger of being isolated events with no real relation to what will follow in September.

While all of these work well under the right circumstances, they tend to lose impetus when key personnel move on, or school priorities change. We felt that a more straightforward, everyday approach is needed that can be used under ordinary circumstances and supplemented by more labour-intensive work when possible.

The Bridging the Gap approach

The materials consist of a range of tasks for the students, set out clearly on photocopiable sheets with detailed notes for teachers. They provide specific, focused information about the children's abilities and experiences, while motivating the children, who enjoy them and want to do more. They are also developing knowledge and skills, and give pupils a flavour of what to expect from secondary design and technology, helping them find their feet in a new environment. Teachers choose among the activities to put together a programme of class activities and homework to suit the time and resources available, and to give them the information they require. A simple recording sheet also allows a baseline assessment to be made of the children's achievement as they enter the secondary school.

Bridging the Gap starts by asking the children to identify very briefly materials and tools they have worked with in their primary school, and what they used them for. This activity allows the secondary teacher to talk to the students and get a sense of their previous experiences and attitudes to design and technology. In the second part of the exercise, the children recount their favourite designing and making project. In the trials and early use of the materials, secondary teachers were surprised to see how clearly the children remembered their work – it is clear that designing and making is a very important part of school life for many of them.

The health and safety section has also proved an eye-opener for some teachers. It asks the children to transfer their knowledge from the primary to the secondary environment, and shows that many children are over, rather than under, aware of the dangers. While formal instruction in safety with specific pieces of equipment is still required, the exercise allows students to take an active part in discussing the issues, and can be very reassuring to the teacher!

Further practical exercises explore the children's simple manual skills, ability to follow instructions, and understanding of the use of basic materials. Again, the teacher is free to get to know the class as individuals and as a group. While it is not necessary to know the details of each student's capability and experience, a general sense of the levels and range of the class as a whole is extremely valuable. Knowing, for example, that work can be revised, rather than taught from scratch, saves time. Acknowledging that some students have already used particular equipment or materials can add to children's confidence and motivation where ignoring this would decrease it, and of course, repeating a project theme that has already been explored by much of the class can be avoided altogether.

The materials allow the teacher to look at the range of designing skills in the class, including drawing skills. They cover basic electrical circuits, mechanisms, etc. and some simple values work.

Mismatches and misunderstandings

Key Stage 3 teachers hold the keys to solving the problems of transition. These are as much about differences in approach and expectation as they are about mismatches in content. Using Bridging the Gap has helped some secondary teachers understand more about the primary approach the students were used to, while raising interesting questions. For example, secondary teachers in one school

were surprised by the differences they saw between the primary and secondary approaches to design and technology through using the materials. They felt that their own hard work in coming to terms with the National Curriculum for design and technology had not been matched in the primary schools, forgetting to take into account the 11 subject curriculum most of their primary colleagues were teaching, and the national Numeracy and Literacy Schemes then being introduced.

There were also misunderstandings over terminology, approaches and equipment. For example, one school mentioned that 'few students had heard of the design loop and they could say very little about the process of developing products'. These are technical terms, not generally used in primary schools, and varying in use from one secondary school to another. Using the 'Pencil Case' exercise in Bridging the Gap helped them recognise the children's skills in developing and making something to do a particular job even though they did not use the formal language.

Another secondary school was surprised to find that the pupils had done little work with food and textiles. However, in practice, many primary teachers aim at completing a single design and technology project per term. With little or no specialist equipment and less money, most are hard pushed to develop much work with these materials, and the students may only meet them once or twice in the whole of Key Stage 2.

This school also showed the importance of assessing students' prior knowledge and skills through practical activities. When asking pupils about their experience with electrical systems, a misunderstanding over 'electrical' and 'electronic' led one class to say they had no experience at all. The Bridging the Gap results from this same group showed a solid grip on the practical use of simple circuits,

and indeed, this is a significant part of the science curriculum at Key Stage 2.

Some departments seem unaware that other secondary schools take different approaches from their own, or that departments tend to have their own particular strengths, and may have inappropriate expectations of new pupils. For example, one secondary school that spends a lot of time teaching formal drawing techniques was rather dismissive of the drawing skills of their new Year 7 students and criticised the primary schools for not teaching them 'correctly'. However, the department later agreed that they in fact preferred to teach the techniques themselves, and also realised that the students' drawings, while crude, showed a great deal of understanding of the design problems being handled, and considerable creative ability. They decided to encourage their feeder schools to continue to develop drawing for communication and thinking, and to introduce their own formal techniques more slowly in Year 7, alongside the pupils' current approaches.

The key differences between primary and secondary design and technology from the pupils' point of view seem to be in teaching styles and expectations. Bridging the Gap is designed to make the important early months of secondary school a positive experience for both students and teachers.

Further reading

The Bridging the Gap materials are available from Prof. Clare Benson, CRIPT, University of Central England at Birmingham, Westbourne Road, Edgbaston, Birmingham, B15 3TN. They cost £20, including postage. Tel: 0121 331 6100.

Galton, M., Gray, J. and Rudduck, J. Research Brief 131 – *The Impact Of School Transitions And Transfers On Pupil Progress And Attainment*, www.dfes.gov.uk/research/re_brief/RB131.doc

Key points for teachers:

- make it clear from the start that you value the children's previous work in design and technology
- talk to them about things they have designed and made
- engage them in early tasks that allow them to demonstrate their skills, knowledge and understanding
- encourage them to bring to bear everyday experience – avoid making the subject seem too mysterious
- start with a real assignment – don't 'introduce' tools and techniques until they have a real purpose
- do not go overboard with assessing every last detail of the children's capabilities.