

IMPROVING PUPIL LEARNING BY ENHANCING PARTICIPATION

Research for Teachers anthology 3

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INTRODUCTION

Research findings consistently show that the more pupils are involved as active participants in their own learning, the better they do.

This anthology brings together the findings from a number of substantial research projects, all of which have been summarised in the GTC's *Research for Teachers* web resource. Between them, they show the myriad ways in which teachers can enhance pupil participation.

This anthology is consistent with the four dimensions of pupil participation described by Fielding and Rudduck (Fielding, M. & Rudduck, J. (2002) '*The transformative potential of pupil voice: confronting the power issues*', paper given at the BERA annual conference, University of Exeter).

- **Organisational.** Through this, young people feel more positive about school.
- **Personal.** This leads pupils to feel more positive about themselves.
- **Pedagogic.** This helps pupils better manage their own progress in learning.
- **Political.** This helps young people understand how they can make a difference to things that matter to them in school, and indeed beyond school.

With this variety of perspectives, it can be seen that 'participation' means much more than the simple provision of a school council, or other formal consultative processes, or indeed the more general interpretation of participation as simply 'taking part'.

There are three distinct sections to the anthology. Each part describes particular strategies for enhancing pupil participation and learning for which there is substantial evidence in *Research for Teachers*. These are:

- facilitating a pupil-centred approach. In this, pupils are encouraged to participate and become engaged with

learning through activities such as collaborative tasks, peer teaching and pupil consultation;

- interactive whole-class teaching. Here, pupils are engaged in higher-order thinking by means of a conversational style of discussion with their teachers; and
- promoting the engagement of specific groups of learners. This can mean pupils in low-attaining groups, pupils with dyslexia, and those with emotional and behavioural difficulties, who may suffer from low self-esteem, lack of confidence, poor levels of concentration and disaffection or lack of motivation.

You can see the sources of evidence we used in 'evidence boxes'. These list the titles of the relevant RfT summaries.

At the end of each section a topic called **Using the evidence** will help you to follow up the various topics in more detail, if you wish to do so.

And through the Research for Teachers website, you can access all the summaries and this entire anthology online for free – the best way to get more detail and share the anthology with your colleagues.

Research for Teachers

It is more important than ever to use research and evidence to inform teaching, and indeed teaching's Code of conduct and practice reflects teachers' commitment to do this.

Our Research for Teachers resource has been supporting teachers to use research since 2002. One way in which it does this is by providing teachers with free access to summaries of research about teaching and learning online. It occasionally offers printed versions of some of the Research for Teachers materials, such as this anthology. Research for Teachers summaries and anthologies are commissioned by the GTC from the Centre for the Use of Research and Evidence in Education (Curee).

The Research for Teachers website now contains over 50 research summaries and resources. They all:

- draw out the meaning of the research for teachers' practice;
- come from research sources that have been thoroughly appraised for validity and reliability; and
- are interesting, clearly written and well presented, while remaining true to their source.

Recently published Research for Teachers summaries include:

- Curriculum: Examples from an international literature review of curriculum design and implementation;
- Bilingualism: What helps learners whose first language is not English?
- Neuroscience: What do we know about how the brain develops and how does teaching and learning need to take account of this?
- Collaborative mathematics: how best to help pupils overcome difficulties with mathematics?



WWW.GTCE.ORG.UK/TEACHERS/RFT

SECTION 1

THE PUPIL-CENTRED APPROACH

Why adopt a pupil-centred approach?

A number of Research for Teachers summaries show how pupil participation varies according to whether the teaching environment is pupil- or teacher-focused.

For example, the RfT summary of a study of collaborative learning in mathematics noted that teachers who adopted more didactic, 'transmission' styles of teaching, in which knowledge was 'passed' from teacher to pupil, lowered the self-esteem of pupils who were re-sitting GCSE Mathematics. In contrast, activities designed to promote collaborative discussion were found to raise the pupils' self-esteem. The pupils also attained higher marks on an algebra test. Analysis of the number of questions answered by pupils in the before and after tests indicated that the improved marks were mainly due to the pupils making fewer errors, not simply because they felt more motivated to attempt more of the questions.

As many teachers know through their own experience, a problem with teacher-focused learning environments is that they put pupils in the role of consumers of information with the teacher as 'font of all knowledge'. At the extreme, pupils sit and listen to their teachers talking, engaging in little classroom talk themselves. They tend to work mostly individually on tasks provided by the teacher, such as worksheets and text book exercises.

In pupil-focused learning environments, pupils are producers of ideas. Pupils are encouraged to participate and become engaged with learning through collaborative learning activities, peer teaching, projects and classroom talk that require multiple levels of thinking. They create new ideas and materials through projects, usually talk aloud about the way they derived an answer and take the initiative to interact with teachers and peers.

The RfT summaries highlight how it's not simply a case of doing one or the other; rather it is about creating a classroom environment where all participants – teachers as well as pupils – are co-learners in the educational journey.

Teachers who have changed their approach to pupil-centred have found that their pupils are more motivated and engaged. They also have to spend less time than usual managing their pupils' behaviour.

Case study 1 explores how a group of teachers went about changing from their usual didactic teaching style to an enquiry-based approach.

Teachers who have changed their approach have also noticed how pupils approach them and ask them more questions, for example, about information they had found on the internet. Two examples of this can be found in the RfT summaries of Carl Rogers' work and on 'Transforming teaching and learning with ICT'. Teachers have found too that their own talk seems to move almost completely away from administrative and behavioural matters (such as instructions and reprimands) to become more focused on the curriculum topic in question.

In this first part of the anthology, we explore in some detail how to create such a classroom environment by setting up collaborative learning activities that promote the participation of all pupils.

Examples include:

- providing pupils with discussion-rich tasks;
- opportunities for planning and carrying out enquiries that enable them to learn and discover for themselves; and
- opportunities for peer teaching and assessment.

We then examine ways of enhancing pupil interaction so they get the most from working with each other.

Finally, we explore how pupils can be encouraged to make an active contribution to teaching as well as learning by consulting pupils and facilitating pupils-as-researchers projects. Both of these help create a partnership between teachers and pupils and foster pupils' sense of control over their own learning.

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Carl Rogers and classroom climate
- Consulting pupils about teaching and learning
- Jerome Bruner's constructivist model
- Learning mathematics through collaboration and discussion
- Raising achievement through group work
- Raising standards through classroom assessment
- Transforming teaching and learning with ICT.

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What kind of collaborative activities promote the active involvement of pupils?

To ensure that pupils are effectively involved in discussion when working in groups, they need to be put in a situation that requires them to interact and cooperate with each other in order to complete the task.

Here we outline three strategies described in several RfT summaries.

Discussion-rich activities

Example RfT: 'Learning mathematics through collaboration and discussion'

The study showed how the learning of algebra at GCSE level was encouraged through discussion-rich activities. A specially-designed teaching resource consisting of rich, challenging group tasks encouraged collaborative discussion. To take one example, each group was asked to make a poster by pasting down statements under the headings 'always true', 'sometimes true' or 'never true' and surrounding the statement with justifications and explanations. The study found that the teachers who encouraged their pupils to discuss and reformulate their ideas in this way were much more successful at improving their pupils' learning and maintaining their confidence and motivation than those teachers who simply conveyed facts and skills.

Case study 2 explores how a mathematics department greatly improved pupil engagement and retention rates by using collaborative activities, focused on active learning and providing more open-ended problems.

Pupils planning and carrying out learning activities for themselves

Example RfT: 'Transforming teaching and learning with ICT'

Teachers in the study planned learning events for their pupils which allowed the pupils to decide on their own learning activities and choose what resources they felt they needed to complete them. After the initial plenary sessions, the pupils organised themselves into groups so that they could work together to find things out, such as the germination and growth of plants, and create a finished product of their choice, such as a PowerPoint presentation or a poster. Often different groups took responsibility for researching a particular strand of a topic, which they reported back to the class. Video evidence revealed the pupils' increased engagement with the work.

Pupils learning through discovery and enquiry

Learning through enquiry involves the teacher posing the problem(s) and giving assistance, but making it possible for pupils to achieve discoveries collectively for themselves.

For example, in one whole-class enquiry pupils took on the role of history detectives who had to solve the mystery of a suspected murder that took place in 1822. As history detectives, the pupils were asked to formulate questions that would help them. The pupils were involved in a number of activities, including discussing their ideas with a partner before sharing their ideas with the rest of the class, carrying out a treasure hunt on the computer to find relevant information (maps, facts) and presenting reasoned arguments through a law court role-play in which the children cross-examined 'witnesses'. All the pupils were expected to ask questions, make notes and discuss the evidence the witnesses revealed.

With this approach, pupils may not learn as many facts, but they develop an appreciation of learning as a structured and cumulative search for answers, which means they can learn new facts when they need to.

Case study 3 explores how the history teacher developed this week-long project with her pupils and the impact it had on their learning.

Evidence box

See these RfT summaries

- Carl Rogers and classroom climate
- Jerome Bruner's constructivist model
- Learning mathematics through collaboration and discussion
- Raising achievement through group work
- Transforming teaching and learning with ICT.

www.gtce.org.uk/teachers/rft

How can you enhance pupils' interactions with each other during group work?

Collaborative group work is important for enhancing pupil participation. The key features of effective group work discussions include pupils:

- asking questions;
- actively and persistently seeking help from peers;
- giving help that is detailed; and
- checking that the help given is understood by the recipient.

Research consistently shows that in order to ensure the participation of all pupils during group work, teachers need to provide pupils with training and support for group discussion. Teachers should:

- model the way they want pupils to talk with each other;
- elicit ground rules for talk in the pupils' own words; and
- provide the kind of collaborative activities that promote the active involvement of pupils.

Modelling effective group work talk

Teachers can support small group discussion effectively by modelling the types of verbal exchanges that encourage pupils to express ideas, explain reasons and solicit help.

As they lead pupils through an activity, they make use of reasoning words such as 'what', 'how', 'if' and 'why.' They invite as many pupils to speak as possible, respect their contributions and finally ensure agreement is reached.

Other important skills that can be modelled and developed include listening attentively to other pupils and building on their ideas, sharing information and how to make critical arguments for and against different cases. It also helps to point out when you and they are making use of these strategies to make group work more effective.

Less effective teachers tend to miss such opportunities and simply ask questions that check their pupils' recall of factual knowledge rather than their reasons.

Case study 4 shows how a group of teachers worked together and challenged each other in order to improve the quality of their pupils' conversations.

Establishing ground rules

Eliciting ground rules for talk in pupils' own words is particularly helpful for encouraging them to draw other, perhaps quieter, pupils into the group's discussion.

During a guided discussion, the teacher draws from the class the kind of rules they think should be used in group work and displays the resulting list on the wall for pupils to refer to. Such rules can include:

- ask everyone for their opinion;
- ask for reasons why;
- respect other people's ideas – don't just use your own; and
- make sure everyone agrees after talking.

Case study 5 explores in more detail how to establish ground rules for enhancing pupils' interactions during collaborative discussion activities and the impact doing so had on inclusion.

Evidence box

See these RfT summaries

- Learning mathematics through collaboration and discussion
- Raising achievement through group work
- Transforming teaching and learning with ICT.

www.gtce.org.uk/teachers/rft

How can you best structure pupil learning through enquiry?

Strategies that teachers have successfully used to structure pupil learning include:

- building on problems perceived by the pupils as real;
- providing resources; and
- identifying objectives clearly.

Each of these strategies is discussed in more detail below.

Building on problems perceived as real

In an ideal world it would be possible to draw out from pupils problems or issues that are both real to them and relevant to the course, but it's often necessary to create or contrive problems for them.

For example, one study describes how teachers presented pupils with geography-related problems, such as why a local block of flats needed to be demolished, and helped them to consider the problem from a variety of perspectives.

Case study 6 explores ways of setting up mysteries in geography to help pupils examine problems from different perspectives and how they offer opportunities of observing pupils' thinking.

Providing resources

Providing resources that give pupils opportunities for learning from experience and in ways relevant to their needs is more helpful than planning every second of your input into lessons. It helps to make the resources clearly available by thinking through and simplifying the steps the pupil must go through to use the resources – for example by making a shelf of books available for loan, inviting people in from the community or providing feedback sheets summarising the major problems discussed/resolved in the previous session.

Example RfT: 'Transforming teaching and learning with ICT'

This summary explores in some detail how teachers planned learning events for their pupils that allowed the pupils to decide on their own learning activities. They chose resources to help them from a careful selection provided by their teachers that included books and a range of e-learning materials.

Identifying objectives

Learning objectives can emphasise pupil behaviour and performance rather than the underpinning learning process. The kind of facilitative classroom we have been describing creates the climate for learning and experiences that support pupil understanding.

To illustrate this, here are two learning objectives from the same curriculum area, but which lead to very different learning processes.

- The pupils will be able to write an organised account of the contributions of ancient Egypt to modern world societies.
- The pupils will plan for and attend a field trip visit to the ancient Egyptian collection at the museum to develop their understanding of the contribution of ancient Egypt to the modern world.

In the first statement, what the pupils are expected to do to demonstrate their competence is predetermined; in the second, the experience is prescribed and the learning process is in view, but the steps in between are not predetermined and the learning outputs and outcomes can be negotiated.

Evidence box

See these RfT summaries

- Carl Rogers and classroom climate
- Jerome Bruner's constructivist model
- Transforming teaching and learning with ICT.

www.gtce.org.uk/teachers/rft

How can peer teaching support pupil participation in learning?

Research shows that people learn best when they teach others. Teaching (or supporting others' learning) transfers responsibility for learning and contributes to pupils' personal and social skills and self-confidence. RfT summaries describe a variety of ways in which teachers have created opportunities for peer teaching. We outline three possible strategies below.

Mentoring by higher attaining peers

The first study took place in a multicultural class in which 72% of pupils spoke English as an additional language. The teacher paired more able with less able spellers to help the latter learn the spellings of sounds within words and develop strategies they could use when they were unsure of how to spell a word. Pupils worked in pairs in 15-minute sessions, three times a week for six weeks. Working together benefitted both the more able mentors and less able mentees.

Case study 7 shows how a teacher raised achievement through paired work.

In another study, a teacher was keen to use computer design software for a marketing project but who found it complicated to use. She encouraged several pupils in the class to peer-train the other pupils as well as herself when she discovered that they already knew how to use the software.

Working in groups to prepare learning activities for peers

In this study, a teacher used peer teaching as a means of encouraging pupils to engage fully with scientific concepts about the reproduction and habitats of plants. She gave groups of four pupils different elements to research, using the internet and books. They then taught the rest of the class. The groups were free to choose the teaching strategies and media they wished to use. One group, for example, used an interactive whiteboard to deliver a short PowerPoint presentation. The pupils then used a paper resource they had designed which had

detachable parts of a plant. They invited other pupils to pin the parts in the correct place on the diagram.

In another study, peer teaching had an interesting impact on the engagement of all pupils in a primary school. The teacher had found that whole-class presentations made by pupils in one class were disrupted by the inattention of their peers because they were so used to paying attention *only* to the teacher.

Learning from this experience, the teacher made the shift in the pupils' role more explicit when she tried the approach with another class. She talked to them in advance about what would happen during the presentations. She explained how she and they together would learn from the other pupils and emphasised the importance of paying attention to each other after they had worked so hard.

With this more careful preparation for the role shift, the second class paid good attention to each other's presentations. It also led to the pupils thinking more carefully about their role as teachers and the need to hold their peers' attention.

Producing films for learning

Pupils at one school worked in groups to make short educational films to explain key science topics, such as the Doppler effect, DNA and the Van de Graaf generator, on the premise that 'you can't make a film about something if you don't understand it'. The teachers then used the films in class to engage other pupils.

Case study 8 shows how pupils set about making films for learning and what they and their teachers felt they learned from the process.

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Transforming teaching and learning with ICT.

www.gtce.org.uk/teachers/rft

How can you involve pupils in assessing their own work?

Assessment of pupils' own work is a powerful form of participation in learning. Peer and self-assessment gives pupils greater autonomy in using assessment criteria to judge their own and each other's work. Asking them to come up with the criteria by which to judge what makes good work gives pupils a greater sense of ownership as well as evaluative skills.

Ways of involving pupils in assessing their own work

Several RfT summaries, including 'Assessment for learning: putting it into practice' and 'Raising standards through classroom assessment', describe the variety of strategies teachers have devised to develop their pupils' peer and self-assessment skills. Here are three examples from RfT summaries.

- Asking pupils to mark their peers' investigational work using the National Curriculum level descriptions. From this peer assessment, the pupils in the study produced their own targets which they then used to help them rewrite their investigational work.
- Asking pupils to 'traffic light' a piece of their own work, then to indicate by a show of hands whether they put green, amber or red (according to whether they think they have good, partial or little understanding). In the study, the teacher then paired up the pupils with amber and green lights to help each other improve their work, whilst the teacher worked with the remaining group of red pupils.
- Using criteria supplied by examination boards for grading their peers' or their own work.

Whilst summative tests (such as National Curriculum tests and GCSE examinations) are usually seen as being incompatible with formative practices, they can be used as a resource to give pupils the opportunity to gain helpful feedback in a number of ways, including setting practice test questions, and pupils marking test answers.

Case study 9 reports how a teacher helped her pupils improve their French writing skills by developing their self-assessment skills. The two vignettes in **case study 10** show how teachers developed peer and self-assessment.

The benefits of peer and self-assessment

The *Research for Teachers* summaries show that peer and self-assessment can be a means of helping pupils understand what their learning goals are and the approach they need to take to meet them. In particular, peer assessment is a means of helping pupils to develop the detachment they need for self-assessment.

Evidence suggests that:

- peer assessment improves the pupils' motivation to work more carefully;
- peers use the same language and can provide models of achievement;
- pupils can accept criticisms more readily from their peers than from their teachers;
- peer assessment helps improve communication between pupils and their teacher about their learning;
- peer assessment helps the pupils to identify learning goals and what had to be done to achieve them, skills they then transferred into self-assessment; and
- pupils learn by taking the roles of teachers and examiners of others.

To find out more about how AfL practices can help pupils to learn and the positive effects of peer assessment, see **case study 11**.

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Raising standards through classroom assessment.

www.gtce.org.uk/teachers/rft

How can you enable pupils to make an active contribution to teaching as well as learning?

Pupil consultation

Increasingly, schools consult pupils about their perspectives on what makes a difference to their learning and achievement, and also their views of the kind of teaching strategies they feel would make a difference – and schools are finding that pupils provide some valuable insights, although pupil consultation is not without its challenges. What do pupils say when they are consulted?

Pupils say that their engagement with learning is positively affected by the following factors:

- being involved in a variety of activities, particularly practical ones;
- having opportunities to make choices;
- graphic styles of writing such as spider diagrams and posters that help them to make connections between concepts;
- contextualised tasks that are aligned with the social worlds in which they live; and
- being trusted to learn – doing more and taking responsibility for themselves.

Many teachers have found that they have been able to incorporate their pupils' suggestions into their planning. And pupils have appreciated their teachers' efforts when they do.

Making sustained use of their ideas appears to enhance the pupils' feelings of trust in, and being trusted by, their teachers and of belonging to the school because they feel that what they say makes a difference.

Consulting with pupils is also beneficial to teachers as it can help them understand how to support pupil engagement and build more open, collaborative and communicative relationships with their pupils.

Case study 12 explores in more detail what pupils say helps them to learn, whilst **case study 13** provides helpful insights into how to go about consulting pupils yourself.

Pupils as researchers

Pupil design and leading of research is another way of involving pupils more in the school's purposes and supporting their engagement.

Such projects can enable pupils to work with teachers to bring about change. Pupils get involved in researching a wide range of issues covering teaching and learning, curriculum and policy, school organisation and environment. Projects include, for example:

- teaching and learning - what makes a good teacher and a good lesson;
- school and curriculum policy – making GCSE choices, post-16 choices, target-setting, anti-bullying policies and truanting; and
- school organisation and environment – playground layout and design.

Teachers have noticed that pupils who undertake such projects become more positive and active in their approach to teaching and learning – they attend more regularly, complete homework, help other pupils and are ready to talk to teachers about problems or their progress. The projects have also helped teachers to develop greater trust, more positive attitudes and higher expectations of what pupils can do. They come to understand how pupils learn about learning from the pupils' standpoint and become more confident about promoting collaboration among pupils.

Case study 14 shows how one teacher supported her pupils in becoming researchers through a lunchtime 'Research club'.

Evidence box

See this RfT summary

- Consulting pupils about teaching and learning

www.gtce.org.uk/teachers/rft

Using the evidence about the pupil-centred approach

Here are some questions and ideas that you could consider when thinking about how to further develop your practice in the light of this evidence.

- If you are concerned about the balance you achieve between direct teaching and pupil-led activity, you might like to invite a colleague to observe you teach. Afterwards you could discuss what you might have done differently. Could you provide more opportunities for pupil-led learning in your next lesson(s), for example through allowing pupils to choose which tasks they do and/or how they will go about them?
- Learning through enquiry involves providing pupils with opportunities for problem-solving, which require pupils to ask questions and discuss lines of enquiry. Could you provide more opportunities for pupils to work together, and with you, to solve problems? Would you find it useful to share ideas with colleagues about the kinds of problems that enthuse pupils?
- Research has shown the importance of eliciting ground rules in the pupils' own words. Would watching videos or listening to audio recordings of themselves or other pupils working together help with this? How could you develop their comments into rules for discussion for their class?
- From their discussions with pupils, researchers have identified a number of factors which positively affect pupils' engagement with learning. Have you considered using pupil consultation to find ways of improving the aspects of schooling that would make a difference to your pupils in this way?
- With a pupil-led approach, teachers concentrate on providing resources that give pupils the opportunity to learn through enquiry and discussion. Do you have colleagues who have experience in working in this way who could share their approach and/or coach others? Or would it be possible to offer teachers time to work together to plan problem-solving and/or enquiry activities and work together to explore their effects in different classrooms, phases or departments?
- Research stresses the importance of teachers modelling how they want pupils to talk together. Would your colleagues find it helpful to have the opportunity to practise and reflect on their questioning skills?
- Would professional development activities geared towards deepening and extending formative assessment practices, such as peer assessment, help your colleagues to help their pupils participate more fully in their learning?
- Teachers have commented on the insights they gain from consulting their pupils. In what ways might your colleagues find consulting pupils useful for their teaching?
- Carrying out research projects of their own enables pupils to take a more positive and active approach to teaching and learning – they attend more regularly, complete homework, help other pupils. But they need support and guidance in how to structure and carry out particular elements of research projects, for example, questionnaire design. Could you do more to support colleagues wanting to initiate such projects for the first time? Examples might include organising workshops to explore, such as data collection methods or recruiting external help from colleagues with experience of such work (from university education departments or other schools).

Here are some suggestions for school leaders for using evidence about, or encouraging colleagues to make use of, the evidence about whole class interactive teaching.

Selected further reading

We have selected a range of research and resources related to the different features described in this part of the anthology.

Related research

‘Impact of collaborative group work on pupils’ science learning’:
www.standards.dcsf.gov.uk/research/themes/speakandlisten/collabscience/

‘Improving the quality of pupils’ talk and thinking during group work’:
www.standards.dcsf.gov.uk/research/themes/English/improvingthequality/

‘What role does communication play in co-operative learning?’
www.standards.dcsf.gov.uk/research/themes/pupil_grouping/communicationplay/

‘Widening access to educational opportunities through teaching children how to reason together’:
www.standards.dcsf.gov.uk/research/themes/speakandlisten/wegerif_access/

‘Pupil mentoring project’:
www.standards.dcsf.gov.uk/research/themes/pupil_voice/mentoring/

‘Peer tutoring in writing’:
www.standards.dcsf.gov.uk/research/themes/assessment_for_learning/peer_tutoring_writing/

‘Pupils’ enjoyment of history: what lessons can teachers learn from pupils?’
www.standards.dcsf.gov.uk/research/themes/pupil_voice/history/

‘Developing pupils’ conceptions of quality in geography’:
www.standards.dcsf.gov.uk/research/themes/assessment_for_learning/qualitygeog/

‘Teachers’ and pupils’ roles in formative assessment’:
www.standards.dcsf.gov.uk/research/themes/assessment_for_learning/MonSep151522482003/

‘Pupil voice: comfortable and uncomfortable learnings for teachers’:

www.standards.dcsf.gov.uk/research/themes/pupil_voice/comfortable/

‘The Influence and Participation of Children and Young People in their Learning (IPiL) project’:
www.gtce.org.uk/133031/133036/139476/ipil_project

Resources

Learning and Teaching Scotland, participation and learning resource: www.ltscotland.org.uk/

Using a pupil-centred approach in mathematics:
www.teachers.tv/video/3347

The impact of changing to a pupil-centred approach in mathematics on pupils: www.teachers.tv/video/3346

Paired thinking, reading and writing resources:
www.dundee.ac.uk/eswce/research/projects/trwresources/menu/

Ideas for teaching materials developed for the 'Talking for success' project:
<http://talking-for-success.open.ac.uk/>

Details about developing children’s talk skills:
http://anubis.open.ac.uk/thinking/downloads/Preparing_for_group_work.pdf

Films for learning: www.filmsforlearning.org/

Thinking through geography mysteries:
www.sln.org.uk/geography/thinking_through_geography.htm

History mysteries:
<http://centres.exeter.ac.uk/historyresource/resources/ICTresources.htm>

Teaching for effective learning – assessment:
www.ltscotland.org.uk/learningaboutlearning/assessment/research/assessmenttfel.asp

SECTION 2

WHOLE-CLASS INTERACTIVE TEACHING

Encouraging pupils' active participation

In this section we draw on the evidence from a number of *Research for Teachers* summaries to illustrate what may be involved when teachers successfully engage pupils in actively participating in whole class question and answer sessions.

The use of questioning is particularly important. If we're not careful, question and answer sessions can develop into quick-fire questioning in which pupils provide only short 'right or wrong' answers and the teacher does most of the talking. Yet there are many ways to achieve a more interactive approach that prompts pupils to think deeply and to give thoughtful answers to questions.

The RfT summaries on which we have drawn for this section provide evidence of some of the ways in which teachers can achieve a more participative approach to their pupils' learning during whole class sessions. Over the following pages, we explore the kinds of questions which can be used to enhance pupil participation as well as the role which questions can play in promoting pupil engagement with learning during whole class sessions. We also introduce the evidence about the benefits of dialogic teaching for participation – when pupils and teachers engage in learning conversations – and we look at the many ways in which teachers can use questions to increase participation.

How does 'dialogic' teaching differ from the traditional approach?

Dialogic teaching

Evidence reported in RfT summaries shows that pupils benefit from participating in a reflective, conversational style of discussion that promotes and extends their responses. This kind of interaction, known as 'dialogic' teaching, encourages a fairly even distribution of dialogue between teachers and pupils and promotes higher order thinking.

An example of dialogic teaching

Teacher: Can you give me a number between $2\frac{1}{3}$ and $2\frac{1}{2}$

Pupil 1: Miss, $2\frac{2}{3}$

Teacher (in non-evaluative tone): How do you know?
Can you convince me you are right?

Pupil 1 goes to the board and draws some 'fraction cakes' – circles divided roughly into halves, thirds and eighths.

Teacher (to the class): What do you think? Is he right?
Are you convinced?

(Some nods from the class).

Pupil 2: But ... the fraction parts need to be exactly the same size really ...

Teacher: Yes, they should be, shouldn't they? If you could draw them accurately then maybe that would be OK, but with rough sketches on the board, I'm not convinced ...

Can we find a more precise way to show it?

Pupil 3: Miss, we could change them to decimals ... (The pupil was invited to the board to demonstrate this and a similar interaction followed).

Case study 15 looks at effective whole class interactive teaching in more detail.

Traditional interactive teaching

The traditional pattern of whole class interactive teaching follows an I-R-F sequence, in which:

- the teacher asks a question (Initiation)

- a pupil attempts to answer (**R**esponse)
- the teacher provides some kind of (often evaluative) response (**F**ollow up).

It is characterised by quick-fire question and answers – the result of the teacher trying to include as many pupils as possible. With this pattern of exchange, teacher talk tends to dominate. One study calculated that teacher talk took up 64% of the lesson time, leaving the pupils 36% of the time between them.

Furthermore, in an effort to maintain a brisk pace, most teacher questions in this kind of exchange require brief, factual answers (just four words on average) from pupils. It is rare for teachers to extend a conversation with any individual pupil and ask relatively few questions that promote higher order thinking. In traditional interactive teaching, teachers usually praise each responding pupil and then move on to ask another question of a different pupil.

An example of traditional interactive teaching

Teacher: We are going to play ‘Describe a number’. Today’s number is 39.

Pupil 1: It is 6 squared plus 3.

Teacher: Wow, that’s brilliant. Can you come and write it? (*Pupil writes ‘6 squared + 3 = 39’*)

Does anyone know what ‘squared’ means?

Pupil 2: Times by itself.

Teacher: Good! (*Writes (6x6) + 3*). Who can describe 39 another way using the word ‘squared’?

Pupil 3: 5 squared add 14.

Teacher: Well done!

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Effective talk in the primary classroom
- Effective teachers of numeracy, and
- Interactive teaching and interactive whiteboards.

www.gtce.org.uk/teachers/rft

Why do the kinds of questions that you ask pupils matter?

Five distinct types of question are identified in two RfT summaries, ‘Effective talk in the primary classroom’ and ‘Interactive teaching and interactive whiteboards’. These five can form part of useful strategies for enhancing pupil participation (both the quantity and quality of pupil talk) and help to create the kind of learning conversations involved in dialogic teaching.

Open questions can prompt a range of possible responses from pupils which are not pre-defined. Teachers who make good use of such questions may well signal this and make it clear that the multiple answers are themselves open to discussion and negotiation.

Here is an example from the end of a literacy lesson on writing instruction.

‘OK what things are important in instructions? If we were going to write a checklist for when I do this with my class next year, what things would you say to them?’

Speculative questions are a type of open question that invite pupils to offer opinions, hypotheses, ideas and imaginings and thus can stimulate higher order thinking.

Example: “If you did X, what do you think might happen next?”

Process questions are another type of open question. They can be used to invite pupils to explain their thinking or to articulate their understanding of learning processes.

Examples: “How did you work that out?” “Can you explain why?”

Probe questions can be used to encourage an individual pupil to say more or to expand on his/her original comment.

Examples: “Can you tell me why you think that?” “Please explain how you worked that out?”

Uptake questions are useful for opening up a discussion to the wider group, using and validating what a pupil has said.

Examples: “What does anybody else think about what X has said?” “Who can explain why X is right?”

Closed questions have a single, correct answer. They are generally not seen as conducive to encouraging interaction as they usually simply test pupils’ knowledge and recall. But they can encourage interaction if the teacher opens up the answer given by a pupil to the whole class to corroborate, challenge and/or discuss, or to suggest alternatives, for example by asking “What does anyone else think?”

The types of questions teachers typically use

Example RfT: ‘Effective talk in the primary classroom’

When they analysed teacher questioning, researchers found that:

- most of the questions the teachers asked (around 64%) were closed questions;
- many (around 28%) were more open questions (speculative and process questions) that tried to prompt deeper thinking or a more extended response from pupils;
- some (around 8%) were related to the organisation or management of the lesson (for example, “Can you all see?”); and
- very few (less than 2%) were uptake or probe questions.

Teachers asked speculative questions most often in literacy lessons (four times more often than in numeracy lessons and twice as often as in other subjects). However, teachers used process questions more often in numeracy lessons than in literacy (about four times more often).

Case study 16 shows how some teachers planned probing questions specifically for their more able pupils in advance.

Evidence box

See these RfT summaries

- Effective talk in the primary classroom
- Interactive teaching and interactive whiteboards

www.gtce.org.uk/teachers/rft

The role of questions in pupils' engagement in their learning

Skilful questioning can prompt pupils to do more thinking in lessons – helping them to acquire ownership of knowledge and understanding.

In this example, the teacher co-constructed her pupils' understanding of the pattern in the five times table. She opened the sequence by asking a process question which required the pupils to reflect on their own thinking and understanding. Her follow up questions helped to create a shared knowledge of what the pupils had been working on in the classroom.

Teacher: Would anyone like to explain to me how they know their number is in the five times table?

Rosie: If it's in the five times table it means it's like the number.

Teacher: Come on Rosie, we were just doing it together just then.

Rosie: If it's in the five times table, it always has a five in it.

Teacher: Right, Rosie was almost there when she said it's always got a five at the end ... Who can add just that little bit that she needs to make it quite right?

Asking questions designed to probe pupils' existing beliefs and misconceptions are also important in keeping them actively involved, as in this example.

Teacher: You each have an isosceles triangle. What else do you notice about it? See what patterns you can make with it.

Pupil 1: (With agitation): This is not isosceles. It is scalene. *(She turned the shape in her hand, touching the sides and repeated her indignant phrase).*

Teacher: Why do you think it is scalene, not isosceles?

Pupil 1: *(Holding the shape with the long side horizontally in one hand and running fingers from either end of the base to meet higher up in the air).* Isosceles will be there.

Pupil 2: *(Running a finger over the two equal sides of the plastic triangle).* These two sides are the same.

Pupil 1: *(Suddenly changes her mind).* Ah, yes it is an isosceles.

Teacher: Can you tell me why you changed your mind? That is a useful thing to know.

Pupil 1: I have always seen isosceles with equal longer sides upwards.

Case study 17 compares the impact of two teachers' approaches to whole class interactive sessions – one teacher used a 'telling' style; the other co-constructed her pupils' understanding.

Evidence box

See these RfT summaries

- Effective talk in the primary classroom
- Effective teachers of numeracy
- Interactive teaching and interactive whiteboards

www.gtce.org.uk/teachers/rft

Is it just a matter of asking the right kind of questions?

Whether the questions teachers ask prompt a discussion and/or extended answers depends entirely on the teacher's intention when asking the questions.

For example, asking an open question whilst anticipating a specific response can actually make the question a closed one, as in this example.

Teacher: What is snow lighter than? Snow is falling through the air very lightly. What does that make you think of? *[She indicated with her hands that she meant weight].*

On the other hand, when pupils know that their teacher generally intends them to speculate, discuss and debate topics, a closed question can actually open up a conversation, as in this example.

Teacher: What colour do you get when you mix red and blue paint?

Pupil 1: Is it purple?

Pupil 2: Miss, I think you sometimes get lilac.

On the surface, this was a factual, closed question where the answer 'purple' could have been accepted by the teacher as the 'right answer'. But the second pupil's answer was equally as valid and indeed opened up the chance for the teacher to go on to discuss shades of colours with the class.

The body language the teacher displays whilst asking a question is critical. This teacher explained why:

'By accepting every oral answer with the same body language and then asking another pupil to comment on it, the programmed responses of pupils are challenged. (What is the answer? Is that right? Why is it right/wrong?).'

Creating the right ethos is important too, as this teacher explained.

'The ethos of the class has to be ... non-judgemental and all striving for understanding – and when it is, this opens up so much discussion and teases out misunderstandings.'

Teachers who prompt the most in-depth pupil talk encourage reciprocal engagement and follow up pupils' ideas. They encourage reciprocal engagement by signalling genuine interest during pupil responses, for example 'Ah, now I have to say I think that's going to appeal to people'. Showing genuine interest can also take the form of incorporating pupils' unpredicted ideas into the immediate discussion or suggesting the class follow an idea in the future.

It is also important for teachers to take advantage of opportunities that occur during whole-class interactive sessions to allow pupils to explore their emerging thinking and understanding.

For example, a teacher leading a discussion on capital punishment prior to asking the pupils to write a discursive essay noticed that the information she was giving them was provoking a strong response. So she switched from leading the discussion to giving them 'time out' in pairs to share their thoughts and responses. During this time, the pupils held animated conversations with each other. The teacher then resumed the whole class discussion.

In another 'critical moment', a teacher allowed a dialogue to develop between several pupils when a pupil's answer to a mathematical problem posed by the teacher showed a misunderstanding of how to express answers in pounds and pence.

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Effective talk in the primary classroom
- Carl Rogers and classroom climate
- Effective literacy teaching in the first years of school
- Interactive teaching and interactive whiteboards.

www.gtce.org.uk/teachers/rft

How easy is it to change your pattern of classroom talk?

Despite wanting to increase pupils' participation in whole-class interactive sessions, the demands of classroom teaching can make it hard for teachers to move away from dominating classroom talk.

Researchers have found that barriers to change include:

- difficulties in overcoming ingrained habits of unrehearsed talk;
- anxiety over covering curriculum content rather than developing individual pupil understanding; and
- finding dialogic talk too unpredictable.

This teacher, for example, explained the difficulty she had in overcoming her usual approach when trying to increase wait time:

'Increasing wait time after asking questions proved difficult to start with due to my habitual desire to 'add' something almost immediately after asking the original question. The pause after asking the question was sometimes 'painful'. It felt unnatural to have such a seemingly 'dead' period, but I persevered. Given more thinking time, pupils seemed to realise that a more thoughtful answer was required.'

Teachers have also reported their concerns that speculative and process questions give too much 'air time' to pupils. Feeling under pressure to achieve pre-specified goals, they can be reluctant about handing over control to the children for fear of covering curriculum objectives insufficiently.

The research indicates that a teacher's pattern of talk is not likely to change simply by suggesting that they increase wait time or make more use of open questions, etc. What researchers found helped was teachers watching video recordings of their lessons and reflecting on them together, and working with colleagues to develop their practice. Doing this enabled teachers to identify ways they could share more responsibility for the classroom dialogue with their pupils and break the usual teacher-pupil-teacher-pupil pattern.

For example, the teachers in one study worked on developing approaches to questioning that fostered reflection and discussion, such as:

- preparing questions designed to explore and challenge common misunderstandings and to create some conflict requiring discussion; and
- encouraging pupils to put mistakes right together, reaching answers collaboratively.

Another group of teachers worked on identifying strategies for handling a pupil response, such as:

- allowing pupils to answer one another directly;
- inviting other pupils to respond to something one of them had said; and
- encouraging one pupil to make several responses to a question.

The researchers concluded that teachers need to understand the reasons for asking different kinds of questions and offering different responses in terms of the pupil behaviour they are trying to encourage. These strategies require a conscious and determined effort by teachers to embed them into their practice, but it's worth persevering. As the teacher above explained:

'Now, after many months of changing my style of questioning, I have noticed that most pupils will give an answer (and an explanation where necessary) without additional prompting.'

Case study 18 shows how a science teacher completely changed his question and answer style. Doing so enabled him to support his pupils' learning better through allowing them to explore their ideas more.

Evidence box

See these RfT summaries

- Assessment for learning: Putting it into practice
- Effective talk in the primary classroom
- Interactive teaching and interactive whiteboards
- Raising standards through classroom assessment.

www.gtce.org.uk/teachers/rft

Other strategies to enhance pupil participation

Teachers wanting to extend participation to more children than the traditional hands-up method of responding to questions achieves have used a number of strategies, including:

- increased wait time
- a 'no hands-up' policy
- all-pupil response systems, and
- paired working.

Increased wait time

In this technique, teachers give pupils more time to think about their answers by pausing longer than usual after asking questions. Teachers using this technique found that it helped a wider range of pupils to take part and enhanced the quality of the answers they gave.

A no hands-up policy

When using a no hands-up policy, teachers choose a pupil to answer a question, but in order not to put shy pupils under too much pressure, they give pupils the right to pass. Teachers can help create an expectation that everyone will respond to a question by, for example, suggesting that pupils 'Write down two things that ...' or 'Tell the person next to you what you think about ...' after which anyone might be asked to share their response with the class. As this teacher commented: 'The class knows that they will all contribute at some point.'

All-pupil response systems

Teachers have found it helpful to use physical resources, such as individual whiteboards (which could simply be laminated paper) coloured cards for signalling agreement/disagreement, happy/sad faces or pupils putting their thumbs up/down to signal understanding or confusion.

Using these 'all pupil response' systems can help teachers gain a clearer view of the extent of pupils' understanding across

the class. Teachers do though need to be wary of pupils who find ways of hiding their lack of understanding and/or engagement with the thinking.

Case study 19 shows the danger of being misled about the level of pupils' understanding when using all pupil response systems. It shows how pupils can be participating, but not engaging with the thinking.

Paired working

Many teachers have used short bursts of paired work within whole class teaching episodes to give all pupils the chance to interact with one another and become more actively involved in classroom talk.

For example, one teacher gave her Year 1 pupils cardboard microphones as a prop whilst interviewing each other about their families in the middle of a whole class session exploring belonging and identity.

Paired work needs careful planning and preparation if it is to be successful. For example, teachers have taught pupils how to work as a pair by modelling paired discussion with another adult. The teacher then checked the pupils understood what they were supposed to be talking about and made sure everyone was quiet and listening before taking feedback.

Case study 20 examines how increasing the opportunities for paired work within whole class teaching sessions increased pupils' levels of participation and how the teacher organised paired work so that it ran smoothly.

Evidence box

See these RfT summaries

Assessment for learning: Putting it into practice

- Effective talk in the primary classroom
- Carl Rogers and classroom climate
- Interactive teaching and interactive whiteboards
- Raising standards through classroom assessment.

www.gtce.org.uk/teachers/rft

Encouraging reluctant pupils

Teachers frequently comment on how much pupils vary in their eagerness to contribute to whole class interactions, intimating that when pupils are not participating in the classroom talk, they are not participating in the thinking either. As we show later in this section, sometimes quieter pupils are thinking deeply, but are not always willing to share their thoughts with the class.

When they investigated, researchers in RfT studies about ‘Effective talk in the primary classroom’ and ‘Interactive teaching and interactive whiteboards’ found that boys and high achievers tended to dominate.

Gender differences

During whole class sessions, boys:

- made more contributions;
- called out answers more;
- asked more questions; and
- were also reprimanded more.

Further, the data showed that girls seemed more inhibited than boys when they were outnumbered in class. The participation of girls dropped much more quickly when their numbers dropped than did the participation of boys when their numbers dropped.

The researchers found that one reason for this gender difference was that teacher talk tended to be directed towards boys. Several studies found that boys were asked more questions than girls and substantially more uptake questions (designed to open up a discussion to more pupils) than girls – nearly double.

But there was no evidence of boys getting more involved than girls in interaction which simulated higher order thinking: boys were asked significantly more closed questions than girls (after taking into account the numbers of boys and girls in each class) – questions which usually just test pupils’ recall of factual knowledge and elicit brief, no more than three-to four-word, responses.

High and low achievers

When they examined how often different groups of pupils put their hands up to answer questions and joined in collective responses, researchers found that high-achieving pupils of all ages showed these behaviours more often than low-achieving pupils. The researchers presumed this level of enthusiasm and compliance may have reflected a greater confidence on the part of high achievers.

Sometimes, teachers invited specific pupils to respond to questions. Researchers noted how high-achieving Year 6 girls were more likely to be invited to answer questions whilst low-achieving Year 6 girls were the least likely to be invited to give an answer. However, boys of different achievement levels were equally likely to answer a question after being invited to do so.

Quiet, invisible pupils

Quiet, shy pupils may avoid participating in whole-class interactive sessions by making themselves invisible (by sitting in places and behaving in ways that minimise their direct contact with the teacher) or simply by refusing to participate. When invited to participate, these pupils may not acknowledge the request, remain quiet and still and avoid making eye contact with the teacher, or directly refuse to join in, sometimes offering a reason.

Teachers can be reticent about challenging quiet, shy pupils' lack of participation in the classroom dialogue. But a teacher's sensitivity to a shy pupil's obvious discomfort about answering a question can make the teacher less likely to ask the pupil to respond unless they have their hand up. This results in the pupil having fewer opportunities to practise speaking in public and so inadvertently prevents the pupil from developing greater confidence in this area.

Case study 21 explores how teachers enhanced the participation of quiet, invisible pupils by addressing their lack of confidence.

Although their verbal contributions are usually rare, teachers have found that quiet pupils can still be deeply mentally engaged in a discussion:

'Often the most quiet group members will come in with the 'killer' comment that summarises a whole discussion and shows the high level of concentration that they have maintained'.

Evidence box

See these RfT summaries

- Effective talk in the primary classroom
- Interactive teaching and interactive whiteboards.

www.gtce.org.uk/teachers/rft

The difference that teachers' relationships have with pupils makes to pupil involvement

The work of the psychologist and counsellor Carl Rogers (1902-1987), featured in one of our *Research for Teachers* summaries, revealed that teachers who have positive relationships with their pupils:

- promote more discussion with pupils;
- make more use of pupils' ideas in ongoing teaching interactions; and
- smile more with pupils.

In return, there is:

- more pupil talk;
- more asking of questions;
- more pupil problem-solving;
- higher levels of cognition;
- greater creativity; and
- more eye contact with the teacher.

Carl Rogers is widely recognised as expert in fostering positive relationships. He believed that the way to creating successful relationships (in both counselling and teaching) was through being caring and showing empathy. He said that teachers with this outlook:

- fully accept the fear and hesitation of the pupil as they approach a new problem and rejoiced in their satisfaction when they achieved;
- accept a pupil's occasional apathy as well as their efforts to achieve major goals; and
- acknowledge pupils' personal feelings that both promote and disturb learning, such as distrust or even hatred of authority, and lack of self-confidence.

In return, teachers gain their pupils' respect because they show they are able to talk to the pupils at their level. When they feel understood from their own point of view, pupils feel deeply appreciative. As Rogers said:

“If any teacher set [themselves] the task of endeavouring to make one acceptant, empathic response per day to a pupil’s demonstrated or verbalised feeling, I believe [they] would discover the potency of this kind of understanding”.

In his extensive work with pupils in distress, Rogers noticed that if he tried to understand them, and trusted them as essentially competent people, his classrooms became more exciting places of learning; it completely changed the interaction and classroom climate. Pupils started to tell him their feelings, ask questions and even challenge him at times.

Classes like these helped pupils become more interested and independent learners – they enjoyed lessons more, attended more often and learned more. At the same time, Rogers found himself able to accept a greater variety of ideas and freer to express vague ideas himself, which he then enjoyed discussing with his pupils.

Evidence box

See this RfT summary

- Carl Rogers and classroom climate

www.gtce.org.uk/teachers/rft

Using the evidence about whole-class interactive teaching

Here are some questions and ideas that you could consider when thinking about how to further develop your practice in the light of this evidence.

- If you feel you would like to extend participation in classroom talk to more children than the traditional hands-up method of responding to questions achieves, you might like to try out alternatives, such as putting children’s names into a ‘talking hat’ and choosing who is to respond by pulling out names at random. Would it help to discuss with colleagues the best ways of responding to pupils who prove consistently reluctant to join in classroom talk?
- One study calculated that teacher talk took up 64% of the lesson time, leaving the pupils 36% of the time between them. How much time do you think pupils spend talking in your classroom? You might like to see how much pupils contribute to the talk that goes on in your classroom – and which pupils do most of the talking (such as high or low achievers, boys or girls). You could make a video or audio recording of part of one of your lessons or ask a colleague to observe and note down the number of times you speak as well as the number of times your pupils speak to you and to each other. You might also note down the length of yours and your pupils’ interactions (such as number of words) to find out the proportion of time you and your pupils talk. Is the proportion fairly equal? Would you find it helpful to discuss with a colleague how you might increase the amount of talking your pupils do?
- If you are concerned that you may be doing more than your fair share of the talking during whole class interactive sessions you might like to explore the effect of making more use of strategies like ‘time out’. In this technique, you give pupils one minute to discuss in pairs what they think about a topic or giving pupils opportunities to build on their own and each other’s answers.

- If you are concerned about the lack of open questioning you make use of, would you find it helpful to frame speculative and process questions as well as curriculum objectives when planning lessons?
- With interactive whole-class teaching, the responses you give to your pupils are as important as the questions you ask. They can effectively either open the conversation further or close it, regardless of whether your initial question was an open or a closed one. Would you find it helpful to consciously think about the body language you use?
- Although you may find taking time to examine video footage of your teaching and reflecting and discussing it with colleagues uncomfortable at first, video provides teachers with credible and authentic evidence which can help you to focus on learning. Would you find such video evidence a useful form of continuing professional development?
- Teachers' anxiety to pursue lesson objectives can lead them to ignore real, in-depth learning opportunities for pupils. How can you support your colleagues to hand over control of learning to their pupils and to focus on developing their pupils' long-term understanding?
- Would your colleagues find it helpful to have the opportunity to share, with each other, ways they have successfully involved all children in whole class teaching sessions, and examples of children's extended explanations or critical moments?
- The kind of interpersonal relationship the teacher has with their pupils is key. Are you aware of differences in emotional climate between classrooms? What signs do you look for? How do such differences arise? How do you handle them? Would peer observation and/ or team teaching focusing on how teachers relate to their pupils help your colleagues develop further the emotional climate in their classrooms? Would it also help for teachers to talk about their own feelings and whether these might have an impact on the classroom environment?

Here are some suggestions for school leaders to encourage colleagues to make use of the evidence about whole class interactive teaching.

- Could you do more to help your colleagues develop their questioning skills? Would they benefit for instance from practising their questioning skills by taking part in role-plays with each other or discussing and reflecting on video recordings of classroom episodes?
- Teachers can tend to use process questions most often in mathematics lessons and speculative questions in literacy lessons. Might the teachers in your school find it helpful to discuss in a staff development session which sort of questions they use when and why in different subjects? Would there be benefits to pupils from using process questions more often in literacy, or speculative questions more often in numeracy? How can you help staff to further extend their skills of asking such higher order questions?

Further reading

We have selected some research and resources related to the different aspects of classroom talk described in this part of the anthology.

Related research

Talk Talk Talk: teaching and learning in whole class discourse
www.standards.dcsf.gov.uk/research/themes/speakandlisten/talktalk/

Effective classroom interaction: use of questions and feedback to generate discussion
www.standards.dcsf.gov.uk/research/themes/speakandlisten/interaction/

Mercer, N. (1995) *The Guided Construction of Knowledge: talk amongst teachers and learners*. Clevedon: Multilingual Matters.

Resources

Teaching for effective learning
www.ltscotland.org.uk/learningaboutlearning/assessment/research/assessmenttfel.asp

One teacher's approach to whole class interactive session which you may find useful to discuss with colleagues
www.teachers.tv/video/312

Information about supporting communication and talk in children, especially those with a communication disability
www.ican.org.uk/

Wragg, E.C. & Brown, G. (2001) *Questioning in the primary school*. London: RoutledgeFalmer

Alexander, R. (2004) *Towards dialogic teaching: Rethinking classroom talk*. Cambridge: Dialogos

SECTION 3

FOCUSING ON SPECIFIC GROUPS OF LEARNERS

Developing teaching strategies to increase participation among specific groups of pupils

A number of *Research for Teachers* summaries focus on teaching interventions linked with improved learning among pupils belonging to specific groups, namely:

- low attaining pupils;
- gifted and talented pupils who are underachieving;
- dyslexic pupils;
- pupils with emotional and behavioural difficulties (EBD); and
- bilingual pupils.

While some approaches to teaching are particularly appropriate for particular groups, the research summarised in these summaries shows that many strategies feature as effective teaching and learning strategies, regardless of pupil profile. For example, varying the curriculum so that pupils have the opportunity to learn in meaningful contexts, with plenty of hands-on activities and problem-solving, is a recurrent theme in the research.

Benefits are also associated with varying teaching approaches in lessons themselves. The focus of such variations needs to be tailored to different pupil needs. For example, in the case of dyslexic pupils, introducing tactile and multisensory methods is important, whereas a variety of speaking and listening activities are especially beneficial for bilingual pupils.

Nevertheless, there are strategies which are particularly appropriate for specific groups. For example, pupils with emotional and behavioural difficulties have been found to spend more time on task when they sat in rows. This finding contrasts with those from other studies which demonstrate the value of structured group work to enhance learning.

It is through examples like this that RfT summaries illustrate not only the range of strategies teachers can employ that have an evidence base for their effectiveness, but also the need to develop the judgement, knowledge and skills to apply them appropriately to specific contexts. Obviously, the strategies we present are not the only ones that are appropriate.

A common thread running through all of the strategies discussed in this part is the way they link to boosting self-esteem. Teaching and learning approaches which help pupils understand that ability is not fixed equip them to take the lead in their own learning.

In this section we explore what research says about effective interventions with different groups of learners, including low attaining pupils and pupils with emotional and behavioural difficulties. We describe the specific needs of each particular group, and strategies that are successful for enhancing their participation. But first we explore the role that pupils' beliefs play in holding back their learning, and strategies teachers can employ to challenge such beliefs.

How can you help raise pupils' low self-esteem?

Vulnerable pupils, such as those in lower sets, pupils with dyslexia, bilingual pupils and gifted and talented pupils, often suffer from low self-esteem and lack confidence. They can also show poorer levels of concentration and disaffection or lack motivation.

Our Research for Teachers summary about the psychologist Carol Dweck's work on pupils' persistence in the face of learning challenges explored how these factors relate to beliefs that pupils hold about themselves and themselves as learners.

Dweck noted how some pupils have a 'fixed mindset' – they believe that intelligence is innate and fixed and that it determines their performance on a task to a greater extent than effort or persistence. Such pupils quickly lose confidence, give up and blame themselves when they perform badly, regardless of any previous success. They become averse to the risk of learning and show self-defeating behaviours, such as avoiding challenge and reducing their level of effort.

Other more resilient pupils have a 'growth mindset'. They believe that ability on a task can be improved through effort and trying new approaches. They see encountering difficulties as a natural part of learning.

Dweck recommends that adults encourage a growth mindset in all learners, so that they view poor performance on a task as something that can be improved by effort and persistence, rather than as a personal, negative reflection on them.

Promoting strategies for success

The *Research for Teachers* summaries show that it is important to not only offer practical support, but also to enable pupils with low esteem to recognise their strengths and areas of competence as well as their weaknesses, for example by:

- allowing them to work in their comfort zones during the initial stages of a task so that they start successfully; and
- providing immediate feedback to acknowledge learners' success or progress.

One study found that allowing pupils to express their feelings and frustrations in a 'safe way', such as through a personal tutor scheme, was a particularly popular approach. Pupils commented:

'Being able to talk to her about it [has helped me to change]. Getting it all out of my system 'cos usually I keep it all bottled up inside and I don't say nothing'.

'I wrote up a list of things that were good about me ... it was helpful'.

Case study 22 shows how encouraging persistence and suggesting strategies for improvement helps pupils to re-engage in a task after frustrating experiences of failure.

Praise

There is a widespread belief that giving pupils copious praise boosts their self-esteem and makes them resilient in the face of setbacks. But research shows that teachers need to be careful about how and what they praise.

Praising for ability in succeeding at a task can boost performance while pupils experience success, but pupils with a belief in innate ability are unlikely to cope when things become difficult. The most helpful forms of praise are celebrations of pupils' efforts and strategies, for example:

- praising a good story by discussing how the pupil made decisions about the plot and how they came up with interesting characters; and
- praising the solution to a mathematics problem by asking what strategies the pupil used and admiring the concentration that went into the problem-solving.

Case study 23 shows the positive effects of focusing pupils on improving their levels of effort. When teachers rewarded pupils' effort and participation, it led to improved pupil attainment.

Evidence box

See these RfT summaries

- Pupils in low attaining groups
- Positive alternatives to exclusion
- Promoting pupils' persistence in the face of learning challenges
- Strategies for supporting dyslexic pupils

www.gtce.org.uk/teachers/rft

What strategies help to promote pupil participation across the board?

Beyond praise, there is a whole range of strategies teachers can employ to encourage pupils to get into the flow of learning.

Some strategies are effective generally with all groups of pupils. These include:

- having high expectations of pupil performance;
- creating (and gradually removing) good scaffolding for learning;
- varying the curriculum or approaches to teaching;
- personalising resources to the needs and interests of the pupils in front of you;
- enhancing and acting on pupil voice; and
- making links with parents and learning in the home.

High expectations

Teachers in one study gave mixed ability groups the same writing tasks, indicating they expected everyone to rise to the same level of challenge. Greater scaffolding in the form of writing frameworks meant lower attaining pupils had more support, but teachers used their judgement about when to remove the scaffolding as pupils made progress.

Good scaffolding

In one example from RfT, pupils were linked as 'talk buddies', giving them planned opportunities to talk with one another. Teachers found this strategy particularly helpful for bilingual pupils, who could then choose to talk with each other in English or in their first language.

Varying approaches to teaching

Evidence shows that teachers who identify and work with specific groups of pupils, whether low-attaining pupils or gifted and talented pupils, tend to broaden the range of learning activities. Examples include teaching mathematical concepts through drama, making greater use of practical work in science, or out of school activities such as field trips or cultural events.

Personalising resources

Allowing pupils greater access to ICT and targeting support from teaching assistants have also been part of the mix of support for targeted pupil groupings. Another approach to personalising learning is to offer pupils a range of activities at different levels of challenge for the same learning objective and giving them the choice.

Case study 24 shows how a school set about offering pupils different levels of challenge.

Enhancing and acting on pupil voice

In one study of teaching strategies for children with emotional and behavioural difficulties, giving feedback helped the pupils understand what the intervention was aiming to achieve and helped reinforce their learning. One teacher also learned from this. For example, the pupils resented random assignment to groups and became non-cooperative. The teacher regained their cooperation by changing his approach to how groups were formed.

Case study 25 explores how a group of teachers gathered the opinions of low-attaining pupils and used them, along with classroom observations, to create a more positive learning environment for all.

Home-school links

Home-school links are important for groups of pupils too. For example, teachers working with dyslexic pupils have formed a steering committee with parents to plan ways of enriching the learning environment. Schools can also invite parents in to work with pupils, for example, parents of bilingual pupils have been encouraged to come into school to read stories in their first language and English.

Evidence box

See these RfT summaries

- Effective strategies for pupils with EBD
- Grouping students and pupils
- Pupils in low-attaining groups
- Positive alternatives to exclusion
- Promoting pupils' persistence in the face of learning challenges
- Raising the achievement of bilingual learners
- Supporting gifted and talented pupils
- Strategies for supporting dyslexic pupils.

www.gtce.org.uk/teachers/rft

How can you promote pupil participation in low-attaining groups?

Low-attaining pupils typically suffer from low self-esteem, lack confidence, have less independence, poorer levels of concentration and show disaffection or lack of motivation. But low-attaining sets tend to contain fewer pupils which helps teachers to get to know their pupils better, focus teaching and learning at an appropriate level, provide greater individual and personal attention, control the class dynamics and behaviour, and develop positive relationships.

Teachers who are successful at promoting low-attaining pupils' participation often use variations of the strategies they use to boost participation generally. The following examples give a flavour.

Questioning and feedback strategies

Questioning and feedback strategies were identified as particularly important for these pupils. These included:

- following up an incorrect pupil answer with an easier question;
- leaving more thinking time for pupils;
- a higher level of praise for correct answers;
- highlighting only one area of improvement per piece of work; and
- asking more closed questions to build up learning step by step.

For more information, see section 2 on whole-class question and answer sessions.

Co-operative learning

Co-operative learning is another successful strategy for promoting participation of pupils in low attaining groups. For more information, see page 5 on co-operative learning strategies.

Good use of such learning strategies includes asking pupils to discuss topics in pairs, then in small teams before debating as a whole class. Peer marking and assessment are useful for strengthening peer relationships. Peer marking takes time to be accepted by pupils, but once it was established it was appreciated, with pupils becoming more positively critical of their own work as a result.

Other examples include encouraging older low-attaining pupils to participate in learning by buddying them with younger pupils and getting them to help them read.

The importance of peer-peer classroom support was summed up by one headteacher in these words:

'Nearly all the children said that if we don't understand something it's better for the other children to explain it to us.'

Customised curriculum materials

Teachers of lower-attaining sets often used materials focused on the same topics and assignments as those being taught in the higher sets, but they typically incorporate a range of demands to allow pupils to select the right level of challenge.

Case study 24 (highlighted earlier) shows how a school set about offering pupils different levels of challenge.

Teachers also use a wider variety of practical, creative and interactive approaches in the classroom for lower attaining pupils than in other classes. For example, mathematical concepts can be taught through drama, and greater use made of practical work in science.

Positive classroom climate

To try to directly tackle the relatively low self-esteem and poor motivation of low-attaining pupils, teachers successful at enhancing their participation strive to create a strong and positive classroom ethos. The teaching-learning process is generally more negotiated in low-attaining groups so that pupils feel more in control of the direction of teaching.

Some teachers give low-attaining pupils some additional responsibility for their learning, for example, selecting certain tasks and choosing pupils with whom they will work. This relies upon good teacher knowledge of what their pupils know and can do already and of their characters.

Teacher-pupil relationships

Teacher-pupil relationships are key to creating a positive classroom climate. Strong relationships between teachers and pupils help them to strike a balance between a more relaxed teaching environment involving humour and maintaining discipline in groups of pupils, many of whom typically have behavioural problems.

Another way of creating a positive classroom ethos is to take the views of pupils into consideration wherever possible, for example, through action research on pupil grouping and how pupils learn best.

Section one explores ways of consulting pupils in more detail. **Case study 4** (highlighted earlier) explores how a group of teachers gathered the opinions of low-attaining pupils and used them, along with classroom observations, to create a more positive learning environment in which pupils were given more responsibility for their learning.

Evidence box

See this RfT summary

- Pupils in low-attaining groups

www.gtce.org.uk/teachers/rft

How can you support the participation and learning of dyslexic pupils?

As teachers well know, people with dyslexia are more likely to struggle with recognising how to use the conventional sound structure of words, and may also take more time than others to remember how to say words. As a result, dyslexic learners are more likely than most to have trouble learning to read which can affect their confidence and self-esteem.

Case study 26 explores how dyslexia affected pupils' confidence and self-esteem, both of which affect success in learning, and revealed some strategies for covering this.

Effective schools employ a number of different strategies to help support the learning and participation of dyslexic learners. While some of these strategies are part of good teaching practice in more general terms, such as high expectations for all and careful use of praise, some are more specific to dyslexia, such as phonological strategies which take into account phonology – the sounds of letters and words. We explore some examples of such strategies below.

Phonological strategies

Phonological strategies have become prominent in helping dyslexic learners to compensate for their difficulties. One successful phonological/phonemic programme started by 'stimulating cognitive processes', that is working memory, identifying sounds and breaking words into segments. Next the programme began to get pupils to re-assemble words by their component sounds and then moved on to elements such as writing to dictation, English grammar and pronunciation and proofreading.

Multi-sensory method

Multi-sensory approaches combine auditory, visual and kinaesthetic activities to help dyslexic learners gain a greater understanding of phonological processes. In one study, specially trained teachers encouraged dyslexic learners to focus on a letter, say its name and sound, and write it in the air. The

teachers introduced the elements of the language systematically, so that learners began by writing sounds in isolation and then proceeded to blend the sounds in order to form words.

Multimedia software

There is evidence that the use of multimedia software customised for dyslexic learners can benefit them with text reading and writing. The 'SeeWord' program allows dyslexic learners to select the settings, such as screen colour they consider most appropriate for reading text.

Creating a dyslexia-friendly environment

There are several benefits to a school becoming dyslexia-friendly: pupils with dyslexia have higher confidence and attainment, pupils without dyslexia benefit from the learning culture which being dyslexia-friendly brings, and both pupils and staff demonstrate a greater awareness and understanding of dyslexia.

Researchers have identified the factors that contribute to making a school dyslexia friendly as:

- staff training in dyslexia friendly strategies;
- specialist provision, such as a dyslexia specialist with time allotted for specialist tuition of dyslexic pupils;
- a whole-school approach to special needs in general, including an awareness session for all school staff, not just teachers and school management;
- a culture of high expectation for all learners;
- rigorous monitoring and evaluation; and
- school staff and parents working in collaboration.

Case study 27 shows the key components that underpinned a school's dyslexia-friendly approach and empowered dyslexic pupils to achieve their potential.

Evidence box

See this RfT summary

- Strategies for supporting dyslexic pupils

www.gtce.org.uk/teachers/rft

How can you support the participation of underachieving gifted and talented pupils?

Identifying able underachievers

Before supporting the full participation of able but underachieving pupils, teachers need to identify who they are. RfT summaries highlight how it is not always apparent which pupils are gifted and talented, as simply focusing on positive behaviours (such as a keenness to answer questions in whole class sessions) and achievements (such as high scores on tests) may fail to reveal some gifts and talents that pupils have taken underground.

The summaries also indicate a number of behaviours that are common amongst underachieving gifted pupils, but which may be less obvious. They include:

- challenging the relevance of the topic area being studied or being critical of the teaching and learning style;
- enjoying being seen as outspoken in class discussion;
- showing a lack of effort in written work, but coming alive during classroom discussions; and
- saying they don't know the answer to questions even if they do.

For example, one underachieving gifted and talented pupil who had low levels of involvement and well-being, could speak expressively on a range of subjects, showed originality, and became unhappy if he was given insufficient time to finish an activity.

Case study 28 explores the identification of, as well as provision for, gifted and talented children.

Reasons for underachievement

RfT summaries also highlight a number of reasons for underachievement by gifted and talented pupils, including a lack of challenge in the classroom, a mismatch between teaching and learning styles, differences between teacher, parent and pupil expectations about levels of attainment, and negative peer pressure.

Case study 29 explores reasons for underachievement by gifted and talented pupils in more detail. It also shows the value of peer mentoring for boosting the participation and achievement of such pupils – a strategy explored in more detail in section 1.

Learning activities which provide little choice as to how they can be completed, offer few opportunities for gifted pupils to be original and creative in their answers. This type of situation can then cause the pupils to become disengaged or disruptive in the classroom. Able pupils also often sacrifice achievement in order to fit in socially, so it is important for teachers to not place so much importance on negative peer attitudes as being indicators of ability.

Strategies for tackling underachievement

To reach their full potential, very able pupils need appropriate learning opportunities and focused teaching that builds on what they already know, but which also presents them with new challenges.

Gifted pupils' learning can be enhanced by teachers using differentiated approaches to their learning. It is important to include these approaches within the classroom in order to avoid the risk of gifted pupils feeling excluded from their peers.

There are two different types of differentiation: enrichment and acceleration. Enrichment activities that form part of classroom learning aim to increase variety and/or pace of learning. They may include using higher order thinking skills, developing pupils' enquiry and problem-solving skills, and

encouraging pupil independence and intellectual risk taking.

Some schools provide enrichment activities outside the classroom, such as field trips, independent research projects, summer schools and artistic, creative, and cultural events.

While enrichment involves increasing the breadth and depth of specific curriculum areas and subjects that the pupil is already following as part of the normal curriculum, acceleration refers to strategies that involve structuring the learning process in ways that lead to accelerated attainment or performance for gifted and talented pupils.

Case studies 30, 31 and 32 explore enrichment and acceleration, including the benefits, in more detail.

Does grouping help?

Whilst there have been claims that grouping by ability has positive effects on the achievement of both gifted and non-gifted pupils, other evidence suggests that the main benefits lie in the enhanced pacing of lessons. RfT summaries also highlight that collaborative group working is an effective strategy for enhancing the learning of gifted pupils, but simply being mentors or tutors for the remainder of the group has a more limited impact on their own learning.

Section 1 explores on page 7 ways of effectively structuring group work to maximise the participation of all members of the group.

Evidence box

See this RfT summary

- Supporting gifted and talented pupils

www.gtce.org.uk/teachers/rft

How can you support the participation and learning of bilingual learners?

Communication difficulties, such as those experienced by pupils for whom English is an additional language (EAL), can reduce such pupils' participation in lessons, exclude them from learning activities and result in lower levels of achievement. Here we examine some of the specific strategies reported in the Research for Teachers summaries for improving EAL pupils' participation.

Activities such as the ones described below helped EAL pupils to:

- have higher expectations of themselves;
- feel more confident;
- ask more questions;
- expect to understand;
- be more prepared to use their home language in school; and
- be more 'on task' and focused.

Planned opportunities for speaking and listening

RfT summaries report on how schools that are effective at supporting the participation and learning of EAL learners make use of planned speaking and listening activities that aim to increase the amount of time they spend speaking and reduce the time spent only listening.

Dialogue can be structured in a variety of ways. For example, in one class, pupils were given a role such as chair, reporter, scribe and observer. They were asked to debate a particular issue, which helped to focus pupils' attention on their role.

'Talk buddies' is another strategy that has been used successfully. These give pupils planned opportunities to talk with one another in English or their first language. Teachers have found that the benefits of using talk partners include:

- encouraging children to talk in a more constructive way and to stay 'on task';
- eliciting more articulate responses, often from pupils who were originally reluctant to contribute; and

- enabling pupils to become more confident talking one-to-one with another child in their first language than to the whole class, and so pushing their learning further.

Encouraging EAL pupils to orally 'fill in' a speaking frame is another useful strategy highlighted by RfT summaries. Speaking frames encourage pupils to learn to listen to others, imitate, and invent and adapt language patterns.

Section 1 at page 5 explored ways of structuring group work in more detail. Case study 5 explores the impact carefully structured group work had on EAL pupils' participation in particular.

Encouraging pupils to use their first language

Many schools attempt to promote the use of pupils' first language as a tool for learning rather than limiting it to its use by adults for explanations.

Monolingual teachers find it helps when bilingual TAs are present in the classroom to give pupils support. Working with EAL learners in the classroom rather than withdrawing them makes the lesson more inclusive. Some of the specific tasks TAs can carry out include:

- speaking in first languages (guided talk), in all areas of the curriculum;
- supporting guided reading; and
- analysing the language used in National Curriculum test papers to identify areas which cause EAL learners particular difficulties.

Case study 33 shows how one school opened up learning to all pupils, including EAL pupils.

Evidence box

See this RfT summary

- Raising the achievement of bilingual learners

www.gtce.org.uk/teachers/rft

How can you promote the participation of pupils with emotional and behavioural difficulties?

Many teachers find including pupils with EBD in mainstream schools a challenge. Such pupils may be frequently off task and show disruptive and aggressive behaviour and a lack of communication and social skills. Typical behaviour includes:

- fiddling with equipment and wandering around the classroom;
- calling out in class and disturbing other pupils' work;
- arguing and name calling; and
- inappropriate attempts to engage with peers and refusal to engage with teachers.

RfT summaries highlight these three main standard strategies that are effective at keeping such pupils on task so that they participate fully in the learning activities.

- Training programmes
- Rearranging children's tables into rows
- Rewards and sanctions using token systems.

Training programmes

Training programmes that take place outside the classroom can be effective in helping children with EBD to recognise their own behaviour and improve their social skills. Showing pupils how to monitor and control their own behaviour through 'modelling, practising and cueing' is one effective way of reducing pupils' off task and disruptive behaviour.

There is more about the 'modelling, practising and cueing' approach in **case study 34**, and **case study 35** describes another programme geared towards improving EBD pupils' communication skills.

In order for such interventions to be effective, pupils with EBD need to be taught how to deal with common peer difficulties such as teasing, unwanted interference and arguments. Pupils can also benefit from learning from trained specialists how to cope with their feelings of anger and frustration.

Find out more about anger management counselling programmes in **case study 36**.

The impact of classroom layout

Arranging pupils' tables into rows can have a positive impact on the time children spend on task, which is attributed to the children being less distracted. However, this finding appears to be at odds with research cited earlier in this anthology (see page 13) that points to the value for all pupils of working in groups.

Rearranging classroom layout can produce positive results in terms of individual tasks, but it is essential that teachers also put EBD pupils in structured group situations so that they learn other valuable skills, such as co-operation and teamwork. Section 1 at page 7 explores in some detail how to structure group work.

Rewards and sanctions

Rewards and sanctions, such as ten minutes of free time for play or delaying rewards for off-task behaviour, are effective in the short term for keeping EBD pupils participating on task. Visual aids such as graphs (such as ticks on a chart) can be effectively used to show pupils how they are progressing towards an award. Making use of peer support and pressure has also been identified as being important in this type of intervention.

Although this type of strategy has been found to have an immediate positive effect on pupils' behaviour, their behaviour often reverts after the rewards are withdrawn.

Using the evidence about focusing on specific groups of learners

Here are some questions and ideas that you could consider when thinking about how to further develop your practice in the light of this evidence.

- Praise which labels pupils as ‘intelligent’ can have an unintentional and adverse effect on their intellectual growth. Could discussing the process of how they created something or reached an answer prove a helpful form of praise for your pupils?
- Some pupils tend to view the need for effort as an indicator of a lack of ability. Could giving pupils examples of people who obtained success through sustained effort begin to counteract this belief?
- *Research for Teachers* summaries have identified several areas of good practice for maintaining motivation and enhancing the participation of pupils in low attaining groups. These strategies involve varying the pace, content and delivery of lessons. In what ways could you alter the way you prepare and deliver lessons in order to better suit lower attaining pupil groups?
- Good teacher-pupil relationships are one of the critical factors in motivating and engaging low attaining pupils. How could you develop and improve your relationship with individual pupils?
- Dyslexic pupils benefit from a range of specific teaching and learning approaches, such as phonological strategies and multi-sensory learning in reading. Are you and your colleagues familiar with approaches that specifically help dyslexic learners? Are you aware of opportunities for professional development in this area? Could your school Senco or a local authority expert support your learning and practice in teaching children with learning difficulties, including dyslexia?
- Identifying gifted and talented pupils is not necessarily as straightforward as it might seem. Would it be helpful for you and your colleagues to revisit approaches you use for doing this and to try out other approaches singly or in combination? For example, rather than rely on test results, you could set up extension activities and observe how pupils tackle them. You may find it helpful to try approaches separately on the same group of pupils and then compare the results. (**Case study 30** is a useful starting point).
- There is evidence that activities such as guided reading, talk buddies and speaking frames support speaking and listening among EAL learners. Do you have any experience of these strategies? Would you find it helpful to work with – and possibly observe – your colleagues to refine your, and their, practice in these areas?
- The importance of pupils speaking in their first language is highlighted by the RfTs. Could you encourage your pupils to use their first language more often to ensure their more active participation in learning? Would you find it helpful to link up with institutions such as community centres or mosques to discuss how learning in school can be linked most effectively to first language learning?
- Training programmes designed to improve pupils’ communication skills, help them manage their feelings of anger and show them how to monitor their behaviour can be an effective way of re-engaging with pupils with emotional and behavioural difficulties. Would it help to get together with colleagues to identify the particular needs of pupils in your school and devise a training programme that targets their needs?

Here are some suggestions for school leaders to encourage colleagues to make use of the evidence about specific groups of learners.

- Would it be helpful to review policies that involve identifying particular aspects of ability, like special education needs or gifted and talented, to ensure that the positive aspects of identifying needs and talents aren't undermined by unintentional reinforcing of fixed notions about ability?
- **Case study 27** showed that schools can improve the participation and learning outcomes for all pupils including those with dyslexia by creating a dyslexia-friendly learning environment. The role of the school leader was identified as being particularly important for integrating the inputs from all members of the school community. Do you have a mechanism through which you can keep all staff informed about the policy and practice for dyslexic learners?
- **Case studies 31, 32 and 33** indicate that in-class enrichment strategies are less likely to have negative side effects, such as social isolation, than acceleration strategies might have. Would it be helpful to begin a process of staff development in enrichment strategies, perhaps asking staff who already use, for example, thinking skills approaches, to coach other members of staff?
- Research consistently highlights the importance of developing pupils' speaking and listening skills. Do you have a whole school strategy for developing your pupils' speaking and listening skills across different curriculum areas? Could the opportunities provided to the pupils at school be complemented by work with their families? Are there any existing home-school or home-community links you could build on?
- Could you do more to support colleagues trying out a different strategy for improving behaviour by, for example, organising workshops and inviting external help, such as practitioners from university education departments or other schools?

Selected further reading

We have selected a range of research and resources related to the different features described in this part of the anthology.

Related research

'Praising the person or what they do – do different types of praise have different effects on pupils' motivation':

www.standards.dcsf.gov.uk/research/themes/Motivation/praise/

'A systematic review of strategies to raise pupils' motivational effort in Key Stage 4 mathematics':

www.standards.dcsf.gov.uk/research/themes/Mathematics/Raisingmathsmotivation/

'Helping pupils classify and tackle mathematics problems':

www.standards.dcsf.gov.uk/research/themes/Mathematics/pupilsclassify/

'Do pupils with learning difficulties need teaching strategies that are different from those used with other pupils?'

www.sen.ttrb.ac.uk/ViewArticle2.aspx?Keyword=ann+lewis&SearchOption=And&SearchType=Keyword&RefineExpand=1&ContentId=13779

'British Dyslexia Association (BDA) – A variety of articles and presentations from the 5th BDA International Conference'

www.bdainternationalconference.org/2001/presentations/index_subject.htm

'What works for children with literacy difficulties?'

www.dcsf.gov.uk/rsgateway/DB/RRP/u013794/index.shtml

'What helps with pupils' difficulties in mathematics?'

www.dcsf.gov.uk/research/programmeofresearch/projectinformation.cfm?projectId=13960&keyword=&keywordlist1=Maths&keywordlist2=0&keywordlist3=0&andor=or&type=5&resultspage=11

‘Reasoning as a scientist: ways of helping children to use language to learn science’
www.standards.dcsf.gov.uk/research/themes/science/language_science/

‘Learning support assistants and effective reading interventions for 'at-risk' children’
www.standards.dcsf.gov.uk/research/themes/teaching_assistants/learningsupportreading/

‘Engaging ADHD pupils in tasks with hand gestures – a pedagogical possibility for teachers’
www.standards.dcsf.gov.uk/research/themes/inclusion/adhd/

‘Can self-management interventions influence the academic achievement of pupils with emotional and behavioural difficulties?’
www.standards.dcsf.gov.uk/research/themes/behaviour/selfmanagement/

Resources

An online article about Carol Dweck’s views on how teachers can develop their pupils’ motivation:
www.educationworld.com/a_issues/chat/chat010.shtml

Interview transcripts and video clips by Carol Dweck
www.indiana.edu/~intell/dweck.shtml

A multi sensory approach to developing communication skills
www.sen.ttrb.ac.uk/viewArticle2.aspx?contentId=13797

The Dyslexia Institute website provides information on teaching children with dyslexia and how to go about getting children assessed for dyslexia
www.dyslexia-inst.org.uk

Framework for understanding dyslexia, including case studies
<http://excellence.qia.org.uk/page.aspx?o=124856>

The Young Gifted and Talented website
<http://nationalstrategies.standards.dcsf.gov.uk/giftedandtalented>

Gifted and Talented CPD nutshells
<http://nationalstrategies.standards.dcsf.gov.uk/search/giftedandtalented/results/nav:50206>

London Gifted and Talented teacher tools
<http://teachertools.londongt.org/index.php?page=identifyingGiftedAndTalentedPupils>

Oxford Brookes University: Gifted and Talented Professional Development
www.brookes.ac.uk/schools/education/rescon/cpdgifted/cpdmatsguide.html

Behaviour for learning
www.behaviour4learning.ac.uk/

The GTC’s behaviour for learning resource
www.gtce.org.uk/networks/bfl/

CASE STUDIES FOR SECTION 1

Case study 1 Changing to an enquiry-based approach in KS3 mathematics

We chose this case study because it shows how a group of teachers moved away from their usual didactic approach towards offering pupils more collaborative work and open-ended tasks. The study took place in the mathematics department of a girls' grammar school.

The teachers were aware that the method of teaching they used was very traditional, as it was based mostly on exposition and practice. In particular, they felt that the syllabus they were following with their Year 7 classes relied too much on a textbook, that they also tended to compartmentalise mathematics and tended to miss opportunities for encouraging pupils to make connections across topics.

To begin with, the staff had mixed feelings about moving away from their usual teaching approach. Whilst there was excitement and enthusiasm for making the change, staff also felt some trepidation about working in an unfamiliar way and were concerned about how it would work. A number of factors helped them to make the transition.

Working with an experienced practitioner

The department invited an external consultant to work with them. He discussed possible approaches to various topics during a number of extended departmental meetings. He also came in on several occasions to teach different classes so that staff could watch him model the new approach.

Some staff opted to team teach with him. Usually his lesson would throw up a number of lines of enquiry the teachers could pursue in subsequent lessons. For example, teachers followed up a lesson which involved trying to identify all of the possible quadrilaterals on a nine-pin geoboard with other enquiries, such as 'What if we try triangles / more or less pins?'

Trying out the new approaches themselves

Staff trialled some of the new approaches with a view to including them into a new scheme of work for their Year 7 and Year 8 classes. In some cases the activities seemed appropriate or adaptable for other year groups, so they tried them there too.

Sharing the experience

Naturally, it followed that after the teachers had observed the consultant teaching, or had tried one of his suggestions with their own classes, they were inclined to discuss and dissect the experience. The consultant also encouraged them to write accounts of the lessons that they had taught, so that the sharing happened in a more formal and inclusive way than ad hoc staffroom discussions.

Joint planning and reflection

The teachers adopted a collaborative approach to planning. Two teachers would plan a unit of work lasting several weeks. They then swapped with another pair and taught their unit. Working in this way encouraged them to sit down together at the end of a module and debate the merits of particular activities and approaches. They also met regularly with the consultant to review what they had done.

Critical incidents

The staff were aware of a number of critical incidents during their journey. Here are three examples.

‘Working with Mike [the consultant] helped us see how the new approach allowed pupils to think more freely ... and how much more enriched it was mathematically speaking. It also gave a valuable insight into how work could allow greater pupil interaction with peers and with the whole class.’

‘Finding pupils can sort out problems themselves and pose questions and raise issues.’

‘I was surprised by the insights pupils shared when asked to find their own method to solve a problem or when asked to justify a particular solution.’

What difference did the change of approach make to the pupils?

Pupils who had experienced the new curriculum were:

- more prepared to engage in open-ended tasks;
- well-practised at justifying their reasoning or approach;
- frequently challenged to use higher-order thinking skills;
- enthusiastic about mathematics;
- less likely to say ‘I can’t do mathematics’;
- more likely to pose their own mathematical questions or make conjectures based on what they had noticed; and
- more inquisitive and critical in their thinking.

Staff commented:

‘They feel that they can do mathematics as they aren’t limited by one particular method. They seem to have more fun and work enthusiastically’

‘They are able to demonstrate more reasoning and logic than in a more formal, working from a textbook situation.’

Reference

Richards, M. (2008) *Changing to an enquiry-based approach to mathematics teaching and learning at KS3*. Teacher Enquiry Bulletin, National Centre for Excellence in the Teaching of Mathematics (NCETM) www.ncetm.org.uk

Case study 2 Improving engagement and retention by moving away from the textbook

We chose this case study because it shows how one school greatly improved pupil engagement and retention rates by using collaborative activities, focusing on active learning and providing more open-ended problems.

Mathematics teachers at a specialist technology college in North Tyneside were aware that their ‘A’ level lessons were less interactive than their GCSE lessons, being more ‘lecture like’ in form. The teachers wanted to move away from this way of working and to check the validity of this view with pupils.

The project aimed to:

- find out about pupils’ experiences of ‘A’ level teaching in mathematics;
- develop new teaching resources for use with ‘A’ level classes;
- improve the experience of pupils studying ‘A’ level mathematics; and
- increase the uptake of mathematics in Year 12.

The research centred on two ‘A’ level classes of 20 pupils each. Staff developed new teaching resources for each module of the course, and tested them on both a Year 12 and 13 class.

Impact of the new resources

The main findings of the research were that:

- retention of pupils between years 12 and 13 increased – 60% completed the course in 2008 compared to 25% in 2006;
- increased demand led to a ‘further mathematics’ course being offered in years 12 and 13;
- collaboration between teachers improved;
- more pupils applied to study mathematics at university;
- pupil motivation and enjoyment increased; and
- pupil-teacher relationships became more purposeful.

How the changes were planned

An external researcher gathered the opinions of 'A' level mathematics pupils. The key finding at this stage was that pupils preferred lessons in which they worked independently or in a group on tasks which did not involve answering set questions from a text.

Staff from the mathematics department then gathered existing teaching resources and began to develop them in line with the pupil research. The lead subject professional for the local authority led an inset training day to introduce some new teaching materials, observed and fed back on some lessons, and taught some demonstration lessons which were video taped and discussed.

New resources and practices

Teaching staff developed a number of game-based resources, including pairs games and sequencing activities. The new resources were used at least once per fortnight and their effectiveness discussed in staff meetings.

An overnight 'revision retreat' was also organised for Year 12 pupils in the lead up to their second modular exam in June. Active learning through activities such as floor jigsaws and treasure hunts were used to assist the revision. During the second year, the revision retreat was extended to include more of the 'A' level course and was moved to a larger venue to cater for increased numbers.

A library of useful resources was set up within the mathematics department and the project led to improved teaching practice in Key Stages 3 and 4.

What the pupils thought

Pupil feedback confirmed that pupils were positive about working collaboratively with the new activities.

'I used to prefer working on my own but now I enjoy talking in pairs.'

'Initially it was more confident ones dominating – now there is more trust and openness and everyone takes part.'

The other key area of pupil feedback referred to improvements in relationships.

'[Teachers are] Spot on! Really helpful, especially with further maths.'

Reference

Callender, S. (2008) Raising achievement in mathematics by enhancing the learning experience. National Teacher Research Panel Conference paper. Available at www.standards.dcsf.gov.uk/ntrp/lib/pdf/sarahcallender.pdf

Case study 3

Learning to be history detectives

We chose this case study because it shows how a teacher introduced her class to the investigational approach used by academic historians – an approach that involves evaluating and interpreting fragmentary and sometimes contradictory evidence from a variety of primary sources.

The teacher developed a week-long local history project for her class of 8 and 9 year olds in which the objective was to solve the mystery of the suspected murder of Samuel Whitehouse, who died in April 1822 in Warley Woods. The project emphasised whole-class enquiry: the children were encouraged to take on the role of history detectives – to think of questions, follow a line of enquiry and make hypotheses. At the end of the project, the children wrote an account of the event and completed questionnaires about their experiences.

As history detectives, the pupils were involved in a number of activities:

- asking questions and hypothesising;
- discovering clues;
- presenting arguments and developing reasoning skills; and
- writing an account.

The ‘history mystery’ grew from:

- the discovery of a newspaper report of a trial referring to a possible murder in April 1822;
- a legend surrounding a ghost; and
- an architect’s drawings of a gothic abbey.

Asking questions and hypothesising

The teacher began the project by giving her pupils the following task:

‘Murder most foul!?! – On Wednesday April 3rd 1822 the body of Samuel Whitehouse was found here, with severe head injuries. Your task is to find out if he was murdered. Who or what could have startled his horse?’

The children were shown a horseshoe that had been found at the site.

In their role as history detectives, the children were asked to formulate questions that would help them work out what had happened to Samuel Whitehouse. The task was displayed and the children were given worksheets to record their questions on.

To begin with, the children discussed their questions with a partner, then shared their ideas with the rest of the class. All the questions were written up and discussed by the class.

Altogether, the children raised 44 different questions, for example:

- Who found him?
- Other than the horseshoe, were there any more things found lying about where the body was found?
- Why was he on a horse?
- What was he doing there?
- Which part of the wood was he found in?

Discovering clues

All the children took part in a treasure hunt on the computer in pairs or independently. The game comprised hyperlinks in MS Word to pages containing information about people, places, maps, facts and interviews related to the trial. The history mysteries game enabled the children to revisit lines of enquiry to help them to remember relevant evidence they could later include in their written accounts.

Presenting arguments and developing reasoning skills

For this activity, the classroom was rearranged to form a court of law. The children decided who could be asked to stand as witnesses (for example, the local blacksmith and publican) and chose children from the class to take on the roles. They also chose a child to be the judge.

The other children were expected to take turns in cross-questioning and interviewing the key witnesses to try to establish the truth of what happened to Sam Whitehouse. The judge's role was to maintain 'order in court' when the questions came too quickly, and the jurors or the public became too excited. All the children were expected to ask questions and make notes.

At the end of the session, the class discussed which questions caused the witnesses to reveal more evidence or detail.

Writing an account

The main writing task was an extended piece of writing in the genre of J. K. Rowling. The teacher began the session by introducing the Gothic building of the Abbey as Hogwarts' Field Centre for Magic Education, and the Grey Lady – Warley Abbey's ghost.

The children were shown a picture of Warley Abbey and asked to think of words they could use to describe it. They were given time to reflect on their ideas in their heads, write down notes and then share their ideas with the whole class. The vocabulary they produced ranged from words to describe characters, sounds, smells, magic and mystery.

What the children learnt

At the end of the project the children were able to put forward a variety of plausible reasons for the cause of Samuel Whitehouse's death, and their written accounts reflected the questioning approach they had experienced.

Sample of pupils' written work

'Grey Lady,' said Harry 'Is it true about the murder of Samuel Whitehouse?

'Yes, it is true. I saw Sam's horse riding off. And that is all I saw.'

'Thank you. I must go and see where he was found. Tomorrow we are going to find out some clues about when he died. I wonder if he was murdered. Who found him?'

'I didn't see that.'

'Was the body dead?'

'I'm not sure about that.'

'Was it the blacksmith who killed him?'

'I don't think he wouldn't do anything like that.'

The children's answers to the questionnaire revealed how their ideas about history had changed and how they were more aware of bias and different interpretations of events:

'It made me think that history is a mystery, that no-one knows what happened.'

'They [the questions] changed my ideas about history because now I know that people from the past can lie and be truthful.'

'They [the questions] changed my ideas about history because I didn't think a murder back then would still be this serious today.'

Reference

McIlroy, C. (2004) *History Mysteries: History, Literacy and ICT at Key Stages 1 and 2 Harry Potter, the Warley Woods Mystery and Literacy across the Curriculum*. National Teacher Research Panel [Online] Available at: www.standards.dcsf.gov.uk/ntrp/lib/word/McIlroy.doc

The detective enquiry can be found on www.ex.ac.uk/historyresource

Case study 4

Improving the quality of pupils' mathematical conversations

We chose this case study as it shows how a small group of teachers working together and challenging each other improved the quality of pupils' mathematical conversations.

Background

Three teachers from a secondary school near Gloucester recognised that mathematical conversations between some pairs of pupils were not as deep as they could be and were therefore not affecting attitudes and achievement as positively as they might. They therefore set out to improve the quality and depth of these conversations.

How the teachers carried out the study

The study moved through four stages. Firstly, a top set Year 11 mathematics lesson on quadratic equations was videotaped and observed; secondly, one of the teachers tried out new strategies to encourage pupils' talk in a Year 8 lesson on sequences and rules. The approach was refined and then tried out on a top set Year 8 lesson on transformations. Finally one of the teachers applied all they had learned to a bottom set Year 7 lesson on symmetry.

How the teachers tried to improve pupils' conversations

They used three main approaches. Pupils were told to:

- explain their thinking;
- convince their partner; and
- ask their partner to convince them.

The teachers modelled particular phrases to facilitate good conversations, including:

- Convince me ...
- How would you convince another pupil that ...
- Explain why you think that ...

Pupils were also required to make posters displaying their explanations and examples.

Impact

The teachers found that it was possible to help pupils improve the quality of their conversations. In the last lesson the teachers were pleased to find that many of the pupils, even the weaker ones, gave unprompted explanations to their partners and were thinking critically about what their partners said. Many pupils were observed using the language which the teachers had modelled.

Sample talk from the bottom set Year 7

'It's a right angle here' (*pointing to a corner*)

'Just count the corners' (*pupil to partner talking about symmetry*)

'Coz when you twist it, it fits two times, look' (*pupil demonstrates by turning the object*)

Many of the weaker pupils who were not able to articulate convincing arguments were observed effectively discussing using showing and pointing.

What the teachers learnt

The teachers learned that there was much they could do to facilitate deeper pupil conversations. They could:

- model good practice;
- plan both the activity and how pupils were going to talk about it;
- prepare pupils at different points in the lesson;
- make explaining a key part of the activity;
- include written explanations but provide writing frames and other creative ideas; and
- praise good conversations when they occur.

‘I think one of the main lessons we learned was that children don’t naturally know how to talk to each other. We have to tell them how to do it. Even weaker children can do it, if you show them how.’

Reference

Pinco, E. (2008) *How can we improve the quality of pupils’ mathematical conversations?* National Centre for Excellence in the Teaching of Mathematics grant report. Available at www.ncetm.org.uk/enquiry/10295

Case study 5 Inclusion through improved talking skills

We have chosen this case study because it shows how inclusion was tackled by targeting communication skills of all children. The children involved were more able to take active involvement in lessons as a result. The ‘Talking for Success’ project was designed to improve children’s access to education through teaching them how to interact and reason with each other.

The background

Poor communication skills had been identified as reducing children’s participation in lessons, excluding them from learning activities and resulting in lower levels of achievement.

Six Year 2 teachers from three schools in the south of England spent two days developing a programme of lessons designed to improve children’s spoken language and group talk skills. The schools had a high proportion of children from low-income families who had recently arrived from the Indian subcontinent and for whom English was an additional language.

How the pupils were taught to interact and reason with each other

The pupils were taught talk skills during five core ‘Thinking Together’ lessons. Early lessons looked at the importance of talk while developing skills such as listening, sharing information and cooperating. Later lessons encouraged critical argument for and against different cases.

Some of the key features of the lessons were:

- the learning objectives for group talk were made explicit in the introduction;
- groups reflected on the quality of their talk in plenary sessions;
- the class were directly taught skills such as asking questions; and
- the teacher focused the class on the quality of their talk, intervened to support groups during discussion and acted as a model when talking to the class.

The classes also created and agreed upon a set of ground rules for talk that would enable them to reach a group consensus. These included:

- everyone in the group is encouraged to speak to other group members;
- all relevant information is shared;
- contributions are considered with respect;
- challenges are accepted; and
- the group takes responsibility for decisions

The children worked in mixed ability groups of three during these lessons.

Impact of the intervention

All the teachers in the target schools felt that the programme had had a positive impact on collaboration, participation and inclusion in their classrooms.

Specifically, they reported that their quiet children became more confident and participated more in discussions. They asked more questions and gave reasons more often than the non-participating group of children. They also learned to involve each other, listen carefully to what each other said and respond constructively, even if their response was a challenge.

In addition, target group children completed more puzzles correctly on a reasoning test after the programme than before. None of these impacts were observed in children in a control group.

In terms of use of language and participation, children's use of 'because' and 'what/why' task-related questions increased over the period of the programme. This was illustrated in the following exchanges within one target group of children.

The children (Nuresha, Vijay and Kyle) worked together on a reasoning problem before the programme started and again after the programme finished. The problem involved selecting one picture of a jigsaw piece out of six possible pieces, which they thought would fit into a blank space on a geometric pattern.

Before the programme

Nuresha did not speak at all and was disengaged from the task. Shortly after starting the task, Vijay and Kyle started to disagree over the answer and who should record it, without attempting to provide reasons for their opinions or seek each other's views.

Vijay: It's this one, isn't it?

Kyle: No.

Vijay: It's this one, isn't it?

Kyle: No.

Vijay: Yes.

Kyle: No.

After the programme

The children worked on exactly the same task in the follow-up video, but in a completely different way. This time, Nuresha was more involved in the group's shared reasoning – encouraged by the other two children, who now listened to one another and considered each other's viewpoints:

Vijay: (to Nuresha) You have to say 'what do you think, Vijay or Kyle?'

Nuresha: I think that (number 2)

Kyle: I think that (number 4)

Vijay: Nuresha, look.

Nuresha: I think, that, that, that.

Kyle: No, because, look, because that goes round. It goes out. It goes out.

Vijay: Or that one.

Kyle: No, because it hasn't got squiggly lines.

Vijay: It has to be that.

The children answered two more questions correctly (out of 15) during the second test than in the first, working together more effectively as a group to solve the problems after the programme than they had before.

Reference

Wegerif, R. et al (2004) Widening access to educational opportunities through teaching children how to reason together. *Westminster Studies in Education*, 27 (2). Available at: <http://taylorandfrancis.metapress.com/link.asp?id=qv82dgfgp9c4n8ww>

Case study 6 Using geography mysteries to observe pupils' learning

We chose this case study because it shows how teachers used mysteries to diagnose their pupils' thinking and how this enabled them to provide a next step that would move their thinking forwards.

Mysteries offer the possibility of observing pupils working in ways that reveal their thinking processes. The first aim of the study was to identify differences in the ways that high and low achieving groups tackled the mysteries. It found that groups progressed through a series of observable stages of thinking. The second aim of the study was to see how teachers used their knowledge of these stages of thinking to scaffold pupil learning.

The metaphorical term 'scaffolding' is used for the instructional support, often in the form of adult-child dialogue, that is structured by the adult to maximise the child's development or growth. As the child develops increasing mastery of a given task, the adult gradually withdraws the support, until eventually the initial scaffolding is removed altogether.

To scaffold pupils effectively, the teacher needs to stay one step ahead of them, always challenging them to reach beyond their current ability level. The first application of the word 'scaffolding' to an educational context is attributed to Bruner (1978, see further reading) who observed the way parents interact with their children to help them learn.

What are mysteries?

Groups of two to four pupils are presented with 15-30 pieces of information on a topic (for example, hurricanes or earthquakes) with each piece of information provided on a separate slip of paper (the data items). The information includes trigger and background factors. The group is also given a question to answer. For example:

‘There was an elderly couple living in Kobe, Mr and Mrs Endo. One of them died in the earthquake disaster – which one and why?’

The group is encouraged to use as much of the information they have been given as possible when formulating their answer. Not all of the information given is necessarily relevant to the question.

Stages involved in tackling mysteries

Five progressive stages of thinking were identified by the study.

- **Display.** Simply spreading out the data items on the table so that they could all be seen and read easily.
- **Setting.** Organising the data items into sets with common characteristics, usually arranged as columns or blocks.
- **Sequencing and webbing.** Identifying relationships between the sets or between single items.
- **Reworking.** The establishment of new sets of relationships between the sets or between single items.
- **Abstract.** The physical manipulation of the data items ceased, but the discussion continued.

Identifying the stages of thinking

A range of data were collected during the study.

- Photographs of all the groups as they worked on a mystery on a set time interval, to provide a simple time lapse of how the pupils physically arranged the slips of paper.
- Videos of high and low achieving groups doing mysteries.
- Interviews with groups of pupils using a technique called stimulated recall, which involved showing pupils a video of their group doing a mystery and asking them to comment on what they were doing and thinking as they worked.
- Observation notes of the pupils who were photographed and videoed.

The data were then analysed on two fronts.

- The photographs were compared with the observation notes to define phases that pupils generally went through when physically arranging the data.
- The notes and transcripts from the pupil interviews were compared with the phases in data manipulation to calibrate these stages with pupils’ descriptions of their thinking.

How the teachers used the mysteries to scaffold learning

Through the mysteries, the teachers were able to observe their pupils’ thinking skills, or lack of them, whilst they tackled the mysteries. By setting the thinking strategies they observed their pupils using within the context of the progressive stages, the teachers were able to suggest a next step that would edge the pupils onto the next stage in their ability to reason and process data.

Example 1

A low-achieving group of twelve year olds were doing a mystery which concerned the disappearance of a tribe of Amazonian Indians. The slips of paper included:

- information about gold prospectors;
- water pollution;
- infectious diseases;
- hunting practices; and
- poverty among the non-Indian population.

The group of four boys were having great difficulty with the mystery. The teacher visited them and pulled out a data item about the tribe’s water supply. She then asked them to find any other data items about water and left them to work alone.

With this action, the teacher had diagnosed a weakness shared by the whole group in classifying and grouping data and demonstrated how they could undertake the next stage in working towards a solution.

When the pupils had grouped several data items about water, the teacher returned to suggest that they might form a group about diseases and health. This enabled her on a third visit to start asking them about the possible connections both within and between the two groups of data items. The pupils thus took their first steps in formulating an explanation.

Example 2

A group of 14-15 year olds of higher ability were doing a mystery that focused on who was to blame for the need to demolish a block of (public housing) flats in a British city. The data items included reference to:

- the faulty materials and technology used in the building;
- the anti-social behaviour of some of the residents;
- the destruction of the community which lived in the terraced houses that were cleared to build the high-rise blocks;
- the physical deterioration of the building; and
- the fears of residents in the flats with young children.

A group of girls had initially sorted their data into two groups: one representing reasons for the demolition and the other against. But in fact, they were not addressing the task and were classifying in an unproductive way.

When their teacher pointed this out to them, they began to re-sort the data bearing in mind the need to attribute blame or reasons. This time they formed groups related to the local council, the builders, the anti-social residents and the government.

Example 3

Another group of higher ability 14-15 year olds were about to do a mystery on hurricanes. The teacher asked the pupils how they could go about tackling the task.

They volunteered six strategies, including sorting more and less important reasons, making it into a story, working out a time sequence and sorting relevant from irrelevant information. By doing this, they revealed that not only did they have a range of strategies, they also had the beginnings of a language to talk about cognitive processes.

Reference:

Leat, D. & Nichols, A. (2000) Observing pupils' mental strategies: signposts for scaffolding. *International Research in Geographical and Environmental Education*, 9 (1), pp.19-35. [Online] Available at: www.multilingual-matters.net/irgee/009/0019/irgee0090019.pdf

Case study 7

Raising achievement through paired work

We chose this case study because it shows how a teacher, having first assessed her pupils' spelling, used the information to help her pair up more able with less able spellers. This helped her class learn the spelling of sounds within words and strategies which they could use when they were unsure of how to spell a word.

Pupils in a multicultural primary school in London (in which 72% of pupils spoke English as an additional language) worked in pairs to learn the spellings of words in 15-minute sessions, three times a week for six weeks. The project helped the pupils learn and remember a wide variety of strategies they could use when they were unsure of the spelling of a word. Working together benefited both the more able and less able spellers.

How the teacher set up the paired work

At the beginning of the study, the teacher assessed the pupils' spelling using a standardised test. She then used the results to pair the higher scoring pupils (the helpers) with the lower scoring pupils (the spellers), pairing the top-scoring helper with the top-scoring speller. For each spelling session, pupils were given two words to learn which illustrated the phonological rule of the week. She did not make the underlying rule explicit; rather she provided them with the opportunity to actively discover the rule through investigation and discussion.

When they had learned the words their teacher had given them, the spellers chose other words they felt would be useful to learn and worked on these with their helper. The helper assisted the speller in learning how to spell words, following a ten-step procedure. At the end of each session, the helper gave the speller a test to assess the short-term recall of the day's spellings. Each session lasted 15 minutes and ran three times a week for six weeks.

The ten steps were:

1. Pupils select a word to learn or are given target words
2. Pairs enter the words into their spelling diaries
3. Pairs read the word together
4. Speller and helper choose cues together
5. Pairs repeat cues aloud
6. Speller says cues while helper writes word
7. Helper says cues while speller writes word
8. Speller writes word quickly and says cues aloud
9. Speller writes word quickly
10. Speller reads word aloud.

The teacher demonstrated the ten steps to the class, following a discussion about difficulties the pupils were having with some spellings. She explained to the pupils that those who were finding spelling tricky had been paired with somebody who could help them practise and learn different spellings. She repeated the demonstration the following day and put up a poster explaining the cued spelling steps.

Whilst the pupils were working on spelling in their pairs, the teacher focused on one or two pairs of pupils, asking them about what they were doing and guiding them in making generalisations from the words they were learning to other words with similar characteristics. At the end of the session, the teacher invited the pupils to report back and demonstrate to the class some cues they had found helpful.

Effect of the paired cued spelling project on the pupils

The teacher noted a marked difference in the pupils' attitudes from her observations and interviews with the pupils, and the changes were still apparent six months later. Pupils in the paired cued spelling class were more confident, both about the spellings they knew, and about ways of finding out and learning new spellings. The pupils made greater independent use of dictionaries and relied less on one another for how to spell a word. When they did ask one another how to spell a word, the other pupil wrote the spelling down and put a circle around the 'tricky bit' to help their friend remember the spelling. Previously, the pupils would spell the word out orally, letter by letter.

The pupils in the paired cued spelling class were also able to discuss a wider range of strategies for learning and remembering spellings. For example, they said:

- I think of something else that's got that word in it
- I learn the word, say if it was similar to something, I could learn it
- I would look it up in the dictionary
- I'd use it a lot of times
- I'd put it up in a room so I could see it and remember it.

Interestingly, the *helpers'* spelling attainment continued to improve during the six months after the intervention, whereas the *spellers'* test scores remained the same as they had been at the end of the intervention period. The teacher suggested that this may have been because the helpers were more able to generalise about new approaches that they used which they could then apply independently. The helper pupils had been put in a situation where in each session they had to explain and rehearse rules for the benefit of their speller, and they were able to hang their new-found strategies onto their already well established knowledge.

Although the use of improved skills was not reflected in the spellers' test scores six months later, they were still able to articulate them during interviews and the teacher observed them using the strategies.

Reference

Sowerby, J. (1998) *Extending children's spelling strategies*.
Teacher Research Grant Summary, 2nd year 1997-98.

Case study 8

Films for learning

We chose this case study because it shows how pupils set about making films for learning and what they and their teachers felt they gained from the process.

Pupils at a specialist science college in Dorset worked in groups to make short educational films to explain key science topics, such as the Doppler effect, DNA and the Van de Graaf generator, on the premise that ‘you can’t make a film about something if you don’t understand it’.

Teachers also anticipated using the films in class to engage other pupils. They felt that it was often the case that they searched a twenty-minute video for a 30-second clip that didn’t really fit into the focus of the lesson, and that having a bank of made-to-measure clips would save time in both planning and lessons.

The project involved six teachers and six groups of pupils aged 13-18 years and took five days to complete.

What the film-making process involved

First, the pupils were introduced to the film-making concept through making a 30-second film about a school chair. Having only one hour to complete the project, with all editing being done in the camera itself, helped to focus the pupils and helped them to see the limitations of what they could do.

The pupils were then introduced to six ‘clients’ – the teachers. The clients briefed the pupil teams with their problems, along the lines of, ‘I need to teach X, but it is difficult/dangerous to demonstrate in class’. The pupils brainstormed on the subjects, researched them and interrogated their clients for more information, such as what aspect of learning needed to be indicated.

Next came storyboarding, along with shot lists. This part of the process was followed by a ten-day gap before the actual filming, to give the pupils time to arrange locations and

props. After filming, the teams edited their takes, adding music and voice-overs.

The films were made using the cheapest available equipment, such as Microsoft Movie Maker (free with all versions of XP) or iMovie (free on Mac). Movie Maker handles smaller, lower quality files than iMovie on Mac which works with AVI files, but the quality of the smaller PC files was fine for the purpose of the films and also meant the pupils could take their work home with them more easily.

Strategies the pupils used

To explain the Doppler effect, one group made a film in which a man-sized dummy with a pink balloon for a head and a horn embedded in his back was thrown from the top of a cliff. As he fell, the sound emitted from the horn changed pitch. This physical demonstration was followed by an animation of what had just happened to explain the Doppler effect in more detail. A voice-over explained that ‘Sebastian’ was walking along a dangerous cliff but unfortunately, due to lack of eyes, he walked off the edge. The cartoon and film continued with the voice-over commenting: ‘At this point we shall model Sebastian’s screaming as sound waves emanating from a single point’.

Another group used gothic horror to explain the Van de Graaf generator (which demonstrates current). They used no words. Instead they composed and made the music for the film themselves.

A group who made a film to explain DNA called ‘23 pieces’ also made a documentary of the making of the film. It included explanations by the pupils of how the project had evolved, how they had created the special effects, the problems they had encountered and how they had learned from them, and how much they had learned about DNA from making the film.

How the pupils benefitted

The teachers observed how the pupils were in control of their learning. They had to learn the subject they were to communicate, collaborate with each other, work to a brief,

work with adults, work safely and work within time constraints. They also had to satisfy their clients.

The teachers felt that pupils of all abilities did well and noted how pupils with behavioural issues showed no such issues during the project. For example, although they had to wait for other people at times, they sat without fidgeting for ten minutes. In other circumstances they would have messed around. They learned to be part of a team.

Teacher comments

‘During the project I found with fascination that all pupils were sufficiently motivated to want to learn more about areas outside their experience. The pupil interested in music, for example, now regularly shoots and edits film as a vehicle for his composition and sequencing talents’.

‘I found myself in awe of the way that the desire to learn quickly spread to other areas. I was also impressed by the way that their motivation became the driver behind overcoming shyness and to work to a deadline, which is always an issue’.

How the teachers viewed the experience

The teachers were very positive about the film-making project – both the process and the products – as these comments show.

‘I had to place great trust in the pupils with their ideas and let things develop. It proved to be a good decision as they showed good creative flair and can often see beyond the clichéd and the monotonous’.

‘It was simple to get the pupils enthused and churning out some great ideas. However it was difficult to focus the creative minds on one idea and to get them to stick with it to the end. If I did it all again I think I would have narrowed the aim of the film to allow the pupils to concentrate on a more attainable target in the time frame allocated. The pupils were very ambitious, but perhaps needed to have this kerbed more’.

‘I enjoyed letting go and have the pupils take control of some matters. It was very refreshing to be in this position and very rewarding for both pupils and myself’.

‘In a world in which videos are commonplace in the classroom, new and exciting life is injected by involving them in the making process. It “connects” them with the material’.

Reference

‘Films for learning’, Mark Richardson, Thomas Hardy School, Dorset. Details at: www.futurelab.org.uk/projects/teachers_as_innovators/stories_of_practice/films_for_learning

The ‘Doppler for dummies’, ‘23 pieces’ and ‘Van De Graaf’ films can all be viewed at: www.filmsforlearning.org/

Case study 9

Developing self-assessment strategies in writing in KS4 French

We have chosen this case study because it is an example of how a teacher developed her Key Stage 4 pupils' self-assessment skills which helped them to improve their writing in French. The study involved four Year 10 French groups – two experimental groups (a top set and a mixed ability set) and two parallel control groups.

Over the year, the pupils in the two experimental groups were introduced to a combination of learning and checking strategies, which they practised frequently and regularly during lessons. These included:

- translating a sentence written in French back into English to see if the writing made sense and revising the sentence where appropriate;
- brainstorming before starting to write, relying on what the pupils already knew (without access to a dictionary) and using this as a plan for writing;
- checking verbs in sentences in a systematic way, using colour-coding;
- monitoring use and effectiveness of the dictionary when composing; and
- assessing their own coursework and setting own targets, based on feedback given to the whole class.

The pupils were helped to develop these strategies through:

- using A4 whiteboards for writing in pairs, practising verbs, brainstorming vocabulary on a particular theme or a group of words such as conjunctions, memory games and writing drafts;
- learning how to use verb tables and dictionaries;
- using word processing packages to redraft – particularly lengthening sentences and making sentences more interesting;
- whole class brainstorming activities in both English and French, whole class writing activities and whole class feedback; and
- planned lesson time for review and correction in response to feedback.

At the beginning and the end of Year 10, all the pupils were asked to produce a piece of writing in French, using only a dictionary for support. Their pieces of writing were analysed and compared. All the pupils completed a questionnaire asking them to reflect on the progress they had made during the year and on their performance in the end-of-year writing examination.

The pupils in all four groups made progress during the year, but those in the mixed ability experimental group displayed the greatest improvement. Their average sentence length improved by 2.5 words per sentence (from 5.3 to 7.8) and the percentage of totally accurate verbs by 11 percentage points (from 55% to 66%). The top set experimental group showed greater confidence in and enjoyment of French and were producing original, sophisticated and creative pieces of writing by the end of the year.

Some of the pupils were reluctant to adopt some of the strategies until after the summer examination, leading the teacher to conclude that it may be necessary to explain to pupils the purposes of the strategies and at what stage in their writing they would be helpful.

Reference

Belinda Bartley, Developing learning and checking strategies in writing in Key Stage 4 French.

www.standards.dcsf.gov.uk/ntrp/lib/pdf/Bartley.pdf

Case study 10

Examples of lessons using peer and self-assessment skills

We have chosen these vignettes because they illustrate some of the variety of ways peer assessment activities can be set up to help pupils learn self-assessment skills. The vignettes featured in the main study.

The lessons are examples of formative practice because they created opportunities for pupils to reveal their own understanding of the criteria for success to their peers and then to improve it. The opportunities were the result of careful planning – the tasks given to the groups had a sharp focus, with clear requirements of the pupils.

Piers

All the pupils in Piers' mixed ability Year 9 class had just completed a mock Key Stage 3 test. Piers had read through the scripts and identified several questions on which all the pupils had done badly in the reading paper. He handed the papers back unmarked and asked them to first think about, then discuss, a mark scheme for awarding levels. They agreed on the following mark scheme:

- Level 3: Good punctuation and spelling and be able to answer the required question
- Level 4: All of the above, good use of PEE (point, evidence, explanation), good length answer
- Level 5: All the above, good use of PEE, well explained answer
- Level 6: All the above, good use of language and time
- Level 7: All the above, couldn't be better

Piers then identified particular questions from the test and asked them to identify what they would need to change to go up one level. During the activity, the pupils made comments such as:

'I think in our comments we could have explained more.'

'We didn't use enough quotes; we could have had one per paragraph.'

The activity was followed by a detailed re-working of one of the questions which the pupils then re-levelled.

Mary

Mary's top set Year 11 English class were preparing for timed examination essay answers. The class spent the first half of the lesson on a timed essay on 'poetry from other cultures'. Mary collected in the essays and then redistributed the papers randomly. She asked the pupils to:

- identify the important parts of the essay, which she then set against the qualities that the examiners would be looking for (structure, language, interest, culture and use of references);
- mark in the margin of their peer's work where they felt the person showed evidence of these elements and to note anything they felt the person had missed; and
- give verbal feedback.

The pupils completed the task in almost silence, except for the odd comment, such as 'I needed to do that' or 'I haven't done that' – the peer assessment exercise had triggered reflection about the strengths and weaknesses of their own work.

Reference

Black, P., Harrison, C., Lee, C., Marshall, B., and Wiliam, D. (2003) *Assessment for Learning: putting it into practice*. Open University Press, Maidenhead.

Case study 11

Peer- and self-assessment in creative writing

We have chosen this case study because it illustrates how asking pupils to work with a partner in specific, structured, planned ways can have a positive impact on pupils' understanding, performance, motivation and self esteem.

Two Year 8 classes – an above average and a below average literacy set – took part in the study. The pupils worked on producing a short story. This was an extended project, which spanned several weeks.

The teacher developed the creative writing project in the following sequence.

- The pupils chose 'writing buddies' with whom they would work for the whole project.
- They were helped to compose assessment criteria based on the genre work done previously.
- The writing buddies were encouraged to work together on planning – explaining their ideas orally, swapping outline plans, etc before the writing process began.
- During writing, partners swapped books at frequent intervals and were encouraged to question and constructively criticise the writing using the assessment criteria as a reference.
- When the final draft was complete, each pupil produced a word-processed copy.
- The pupils were asked to write an assessment of their own and their partner's finished story, referring directly to the original agreed assessment criteria.
- The pupils assigned a national curriculum level, using a checklist to help them, having previously practised using level descriptions to make assessments of model texts.

Evaluating the impact of the project, the teacher found:

- assessments made before and after the project showed clear gains in achievement with an average gain of approximately two-thirds of a national curriculum level and similar gains being made by the most and least able pupils;
- the pupils' attitudes were very positive, with many pupils feeling that the project had increased their self-esteem as writers;
- the process of ongoing discussion about stylistic issues during the writing process led to many opportunities to teach grammar and structure within a real context, according to individual need;
- most pupils felt that they gained a much greater understanding of what constitutes 'quality' in writing and were able to apply it to their own work;
- most pupils were very accurate in the levels they assigned to their work; and
- the pupils' behaviour was exemplary, even where problems might have been expected.

Reference

Rachel Swaffield, Self-assessment in creative writing

Case study 12

Consulting pupils about what helps them to learn

We chose this case study because it shows some of the kinds of interactions that older pupils felt helped extend their capacity to learn.

When interviewed, the pupils (who were aged 12-15 years) suggested that teachers provide them with the most useful help during one-to-one or small group situations because they disclosed more of their thinking to teachers during these times. They commented that they preferred it if teacher feedback took the form of suggestions because making sense of the teachers' ideas gave them an active role. Teachers who demonstrated they valued pupil learning and showed a willingness to explain ideas over again, encouraged pupils to feel they could ask questions until they understood.

Interacting with pupils informally whilst working

Pupils felt informal, one-to-one or one-to-group interactions that took place whilst they were working were particularly useful. At these times, the pupils felt able to be explicit about what they did not understand, which gave teachers a better appreciation of their level of understanding, meaning they could target problem areas.

For example, one pupil commented how her teacher came around and looked at everyone's work and asked if they did understand and perhaps said 'Oh well, maybe if you tried it this way or that way it may work better'. The pupils were unanimous about wanting more opportunities for this kind of interaction with their teachers.

Giving feedback in the form of suggestions

Pupils who talked about and were observed having asked questions to help them understand ideas, said they preferred feedback in the form of suggestions because suggestions

supported their active engagement with ideas – both their own and those proposed by the teacher.

One pupil commented how 'suggestions are still making us think'. Another pointed out that suggestions could be 'added' into pupils' own ideas to 'give a different way' and in this way allowed pupils to 'decide for ourselves how'. The pupils felt that suggestions communicated respect for them and their ideas, something that was important to them at a time when they were working on the edges of their understanding.

Communicating to pupils that their learning is important

The pupils indicated that how teachers spent their time, and what they gave their attention to, communicated what and who was important to the teacher.

Some pupils were particularly sensitive to the focus of teacher attention. These pupils could recall if the teacher had spoken to them during a lesson and often whether s/he had interacted with others in the class.

If a teacher revisited ideas, pupils felt this showed the idea and their understanding of it were important to the teacher. The teachers' willingness to revisit ideas and explanations influenced the pupils' willingness to pursue ideas when they did not understand.

Gaining pupils' trust and respect

The pupils indicated that genuine assessment for learning was sustained by relationships of respect and trust. They appreciated teachers 'who respected the way you want to learn' and who 'let you learn yourself'. They reported that respect was a reciprocal activity – they respected teachers who respected them.

Trust was related to respect, in that it was related to pupils' experiences of their teachers' interactions as considerate and well intentioned. They needed to feel 'safe' or 'comfortable' with a teacher, to be able to trust their reaction, before they were prepared to disclose their ideas.

Reference

Cowie, B. (2005) Pupil commentary on assessment for learning. *The Curriculum Journal*, 16 (2), pp.137-151.

Case study 13 How might teachers collect their own pupil voice data?

The researchers suggested that the key challenges with pupil consultation are ensuring that all pupils feel that what they say matters and that all voices will be heard – that consultation does not privilege those pupils who are more articulate. They collected together a variety of approaches for consulting pupils' views about their learning, which teachers could adapt to suit their pupils' age and confidence in reading, writing and speaking.

Questionnaire-based approaches

Questionnaires can take a number of different forms.

- **Quick response questionnaires** are the simplest. They usually offer statements and ask pupils whether they agree or disagree – pupils record their answers by ticking boxes, underlining a word such as always/sometimes/never or circling numbers, for example.
- **Two-dimension questionnaires** gather information about two aspects of an issue and allow for comparisons to be made. For example, pupils could be asked to give a response that says what they think about 'X' and what they think other pupils think about it.
- The **double checklist** allows pupils to say, for example, how often something happens in class and whether it helps them to learn. The outcomes can be plotted on a frequency graph.
- The **spot check** gives a snapshot view at a given moment of a pupil's motivation and engagement with the lesson. For example, pupils can be asked to indicate on a three-point scale whether time is passing quickly or slowly.

Writing-based approaches

Some approaches only require minimal writing.

- **Questionnaire with some open questions.** For example, pupils first record their answer to a question by ticking one of three boxes (yes, sometimes, no) and then write a short paragraph to explain their response .
- **Sentence completion** provides pupils with a degree of focus and structure whilst encouraging pupils to offer a personal perspective. For example, ‘I wish teachers would ...’ or ‘I feel bored in lessons when ...’
- The **self-evaluation log** combines a quick self-evaluation rating scale with the opportunity for pupils to make extended comments. For example, pupils evaluating group work can be asked to rate themselves from 1 to 4 for items such as ‘I listened to other people’, then write about what they thought of the discussion and their role in it.
- The **force field.** Taken from physics, the model is one of opposing forces, pushing forwards and backwards. For example, pupils can be asked to write down three things that help and three things that hinder their learning.
- **Quick ‘postbox’ evaluation** is a quick way of gathering feedback on lessons. Pupils can be asked to write a sentence or two at the end of a lesson about what they enjoyed or what they did not understand and post their comments anonymously in a special box.

Logs involve more extended writing. For example, pupils can be asked to record particular aspects of learning for a day or a week, such as any successes they experienced in lessons or homework, when they felt they really made progress and did well.

Talk-based approaches

- **Conversations** are an informal way of tuning in to pupils’ concerns. All pupils are given the opportunity to initiate and engage in group conversations about teaching and learning with the teacher and with each other.
- **Discussions** contrast sharply with the informal nature of conversations. They tend to be more focused, involve small groups of pupils, a topic that pupils are concerned about and a chairperson or leader.
- **Interviews** are a formal way of finding out about what pupils think or feel. They can be conducted by a teacher, a researcher or a pupil. They can be tightly structured, requiring short answers to a number of pre-determined questions or designed to open up an issue and encourage longer, more reflective responses.

Image-based approaches

- **Drawings and paintings.** For example, pupils can draw or paint a picture of what they particularly like or dislike about a place such as a playground or what they are most looking forward to when they move to a new school. With this approach it is important that teachers encourage pupils to talk about their work, rather than rely on an adult interpreting what a child is trying to say through art.
- **Photographs.** For example, pupils can take photographs of the ‘good and bad things about doing schoolwork at home’.
- **Posters.** For example, pupils can display their ideas for ‘How we like learning in Geography’ on individual posters using a combination of drawings, graphs and text.

Reference

MacBeath, J. et al. (2003) *Consulting pupils: A toolkit for teachers*. Cambridge: Pearson Publishing
Sample pages are available from:
www.pearsonpublishing.co.uk/education/samples/S_498461.pdf

Case study 14

Empowering pupils as active researchers

We chose this case study because it shows how, with training and support, even quite young children are able to undertake active research.

The teacher-researcher undertook her study with seven able children (aged ten years) from a large county primary school in Oxfordshire. She set up a 'Research Club' that met every Friday at lunchtime for two terms. The children took packed lunches and worked through the first 20 minutes of the afternoon reading session. This gave the group about an hour and a quarter each week.

The researcher spent the first six weeks teaching the pupils about research design and methodology, drawing upon knowledge she had gained from completing research at postgraduate level. She covered the following topics:

- following a rigorous, valid and ethical research design;
- formulating a hypothesis;
- choosing an appropriate methodology crafted to the nature of the enquiry, that takes account of confounding variables;
- collecting data systematically to answer the hypothesis, using different strategies, such as observation and interview; and
- simple data analysis.

The teacher-researcher spent the remaining 14 weeks supporting pupils with their own research.

The pupils had a completely free choice in what they wanted to research. Of the seven children, six opted to work in pairs and this led to the undertaking of four research projects in all, two of which are summarised below. The topics the pupils chose reflected areas of their interest and concern.

'Hey I'm nine not six!' A small-scale investigation of looking younger than your age at school

Using observation and interview, the pupils investigated what life in the playground was like for two girls who looked a lot younger than their age. Their findings pointed to some common themes such as being 'babied', being treated like dolls and being bullied by younger children. They noted some strategies that the two girls developed to help get them noticed.

Gender differences in the way Year 5 pupils use computers.

The pupils designed a questionnaire using a Likert-style scale to elicit responses about how girls and boys of their age used computers. They found some clear gender differences particularly in the stronger preference of boys for playing games on computers. Girls liked doing internet searches more than boys and used computers for homework more often than boys.

Outcomes

The teacher-researcher suggested that enabling these pupils to become active researchers resulted in three main positive outcomes.

The first outcome related to the development of the pupils' learning through their engagement with the research process. Post-study interviews with the pupils revealed that they themselves thought their organisational and management skills had improved through handling and sorting large amounts of data, and their thinking skills had developed through critiquing their own and other people's work.

Secondly, the pupils argued strongly that, although not as experienced as some adults, their research uncovered data that might not have been possible for adults to obtain. They argued that being party to playground subculture and being on the same wavelength as their peers enabled them to design studies that better accessed the pupils perspective.

Thirdly, the pupils' work added to the body of knowledge about children and childhood from a genuine child perspective. The pupils wrote up their studies (two of which were published) and all seven of them presented their research at a conference at the Westminster Institute of Education.

Reference

Kellett, M. (2003) Empowering ten-year-olds as active researchers. *Paper presented at the British Educational Research Association (BERA) Annual Conference*, Heriot-Watt University, Edinburgh, September 11-13, 2003. Available at: www.leeds.ac.uk/educol/documents/00003340.doc

A free set of materials for training secondary pupils as researchers is available from the Network Project team, or you can email Julia Flutter for an electronic copy at: JAED100@cam.ac.uk

CASE STUDIES FOR SECTION 2

Case study 15 Teachers' interpretations of effective whole-class interactive teaching in secondary mathematics classrooms

This study explores teachers' uses of interactive methods in whole class teaching to encourage pupil-teacher and pupil-pupil dialogue in secondary mathematics lessons. Whilst the work was conducted in secondary classrooms, it does contain important messages for teachers of mathematics in all Key Stages.

A major element of the study was its emphasis on reflective discourse in the classroom. The teachers held meetings at which they developed, trialled and evaluated teaching strategies. They used ideas from research including the importance of articulation and scaffolding.

The researchers collected data using a number of methods including:

- lesson observations, half of which involved the use of video;
- interviews with teachers conducted before and after lesson observations;
- in-depth interviews with teachers at the end of the project; and
- pupil pre and post-tests, although these have not yet been reported.

During the five months of the project, the teachers encouraged pupils to contribute their ideas and to explain their methods to each other. The example below shows how the teacher shared criteria for evaluating methods with the pupils.

Teacher: Give me a number between 2 and one-third and 2 and a half.

Pupil: Miss, 2 and three-eighths.

Teacher (*in a non-evaluative tone*): How do you know? Can you convince me you are right?

Pupil goes to the board and draws 'fraction cakes' - circles divided roughly into halves, thirds and eighths.

Teacher (*to the class*): What do you think? Is he right? Are you convinced?

(Some nods from class)

Pupil 2: But... the fraction parts need to be exactly the same size really...

Teacher: Yes, they should be, shouldn't they. If you could draw them accurately then maybe that would be OK but with rough sketches on the board I'm not convinced ... Can we find a more precise way to show it?

Pupil 3: Miss, we could change them to decimals...

(and the pupil is invited to the board to demonstrate this and a similar evaluation follows).

Some of the teachers developed approaches that provided scaffolding and created opportunities for reflection during the lesson.

One such strategy involved a 'Start-Stop-Go' activity in which pupils were set a problem and asked to reflect on how to solve it individually. They then worked in groups to generate and evaluate strategies. A whole class discussion followed, during which the teacher focused pupils' attention on key features and the merits of particular strategies. Finally, the pupils worked in groups to solve the problem.

Another effective strategy was to ask pupils to explain in their own words the method suggested to them by another pupil, which forced them to analyse the explanation before presenting it in their own way. This exercise was carried out in a collaborative way with other pupils making contributions, and the teacher participating to help pupils to focus on key mathematical features.

Pupils were also challenged to identify and correct deliberate mistakes made by the teacher. For example:

‘You multiplied instead of squaring so you put $(-3)2 = -6$ instead of $+9$ ’

The teachers used situations like this to draw attention to common errors and taught their pupils to mark such errors with ‘hazard signs’ in the margins of their work and to try to predict, at the outset of a task, where such ‘danger points’ may occur. The teachers felt that this strategy gave pupils a greater sense of ownership and participation:

‘My aim was to avoid (pupils) simply being in on the action but to create some of the action for themselves, in order to participate.’

Reference: Jones, S. & Tanner, H. (2002) Teachers’ interpretations of effective whole-class interactive teaching in secondary mathematics classrooms. *Educational Studies*, 28 (3).

Case study 16 Fostering the more able in whole-class interactive sessions

We have chosen this case study because it shows how some teachers found that they tended to underestimate the number of more able children in a class. If they planned questions in advance which were designed to probe more able pupils’ knowledge and understanding, they were better able to ask questions differentiated by ability. Asking differentiated questions is important in both setted and mixed ability classes.

This study found that when teachers used their own judgement to identify more able pupils, they tended to overlook some of the more able pupils in their classes. They needed to plan questions in advance to ensure that they asked questions particularly appropriate to more able pupils during lessons.

The study focused on two Year 7 tutor groups in an inner-city, multicultural comprehensive school, where around 90% of the school’s intake spoke English as a second language.

Teachers who taught pupils in two Year 7 tutor groups were asked during Inset time to identify the more able pupils in their teaching groups using:

- their own judgement;
- a non-verbal reasoning test (to try to eliminate the language factor when assessing the pupils); and
- data from primary schools, such as reading ages, E2L needs analysis and Key Stage 2 test results.

In addition, the pupils were tracked for three days to observe their experiences across the whole curriculum.

When the teachers just used their own judgements, the pupils with poor literacy skills but high scores in the Key Stage 2 national curriculum tests and the non-verbal reasoning test tended not to be identified as potentially more able, except in subjects such as art, drama, music, PE and some modern languages including Punjabi and Gujarati. The poor quality of some pupils’ written work appeared to mask their ability level. Once the teachers had identified the more able pupils in their

groups using all the available data, they started to focus on how to meet their needs through the questions they asked during lessons.

Much of the teaching in the lessons was based on questioning. Many of the questions asked by the teachers involved recall and comprehension. Questions that met the needs of very able pupils were ones which demanded analysis, problem-solving, synthesis or evaluation, but teachers found these types of questions difficult to think of and ask spontaneously in the classroom.

When the teachers asked questions requiring complex thinking skills which they had planned in advance, they found:

- more pupils were involved in answering questions;
- the more able and the weaker pupils participated;
- more pupils concentrated and were involved; and
- unexpectedly, classes were able to concentrate on the questioning for up to 45 minutes.

The study suggests that a great deal of care needs to be taken when setting to make sure we have identified the pupils accurately, and that a planned use of questioning can be effective in assessing the ability of pupils.

Reference

This research project was commissioned by the Teacher Training Agency as part of the Teacher Research Grant Scheme 1996/7 and was written by Jan Richardson, Crown Hills Community College, Leicester.

Case study 17 A 'telling' style and dialogic learning compared

We have chosen this case study because it shows contrasting approaches adopted by two teachers who wanted their classes to understand the writing process. Both teachers used an extended writing process, set up the writing activity as a set task and gave frequent and precise directions.

However, whilst one teacher succeeded in producing enthusiastic writers and highly effective writing, the other produced disengaged writers who were disinterested in improving their writing. The reason why one teacher was more successful than the other lay in the teaching approaches they used.

Teacher A: Rob

Rob used a 'telling' teaching style. He began his lessons by reminding the children of what he considered the important points they should remember to guide their work, and also gave them instructions on how to carry out the task. He tended to ask closed questions to check the children's understanding, prompting them to give answers of a single word or phrase. He directed them closely, giving them set amounts of time for writing and stopping them when he wanted to move on to the next stage or to make a teaching point.

Despite Rob's careful instruction, the children's level of engagement with the activity and the quality of their writing was disappointing, as the following extract shows.

Mary, who is a Year 6 pupil, reads out a story she is writing for a five-year-old, to Lily.

Mary: On the Farm. One day, on the farm, there was a dog, a cat, a baby cat ...

Lily: a kitten.

Mary: ... a baby kitten ...

Lily: No, it's just a kitten.

Mary: ... a kitten and a pig. That day the ...

Lily: ... kitten ...

Mary: ... the kitten went for a walk on its own. Out behind a tree appeared a cow. It said, 'come with me' so the cow dragged the kitten into its cave. An hour later the cow was asleep so the baby cat escaped ...

Lily: ... the kitten ...

Mary: ... and ran back to the farm. Its mum was so pleased. The dog and the pig had a party and they lived happily ever after. The end.

Lily: That's good but at the beginning it just said 'On the farm'. You could have had a more exciting title.

Mary: All right. Now you read yours.

The researcher commented on how this extract shows how the two girls seem equally uninterested in improving the quality of Mary's story. Lily does not question the storyline: why the cow had a cave, why it captured the kitten, how it dragged the kitten, why the cow dies, and so on. Mary has omitted a good deal of the detail the reader needs in order to make sense of her intended meaning.

Teacher B: Jane

Jane used an 'interactive' teaching style. The lesson began with the children listening to a short piece of classical music. Jane asked the children to jot down any thoughts, words or images suggested by it. After the children had shared their ideas in twos and threes, she called the whole class to sit on the carpet in front of her chair so they could share their ideas.

Jane: Who'd like to read their piece out first? Lucy, what did the music suggest to you?

Lucy: Waves curl their foamy tops

Showing sailors where to go;

Dolphins dazzle in the air,

Sunlight sparkles in the snow.

Jane: What did the rest of you like about that?

Several children suggest phrases they like in Lucy's piece.

Jane: Anything you want to ask?

Sam: I don't see how the dolphins dazzle in the air.

Ann: I do. The dolphin is wet and it sparkles in the sun.

Jo: I saw it leaping out of the water.

Jane: Oh I see, so the water on its skin catches the sunlight as it leaps.

Lucy: That's what I meant.

Here Jane emphasised the visual aspect of composition through illustration and allusion, whereas Rob might have given a lengthy explanation.

Jane: All right, but I'm not sure about your line on the snow. I love it, but I'm not sure it fits.

Lucy: Yes, it doesn't fit, but it just rhymes.

Jane: It's hard taking out a line when you've thought of it.

Sam: Specially in a poem, cos you have to really think about each one.

Jo: Each word, you mean.

Lucy: But it's got a rhythm

Jane: Yes, it's got a good rhythm, but you could just change some of it. Think of the picture you're trying to describe before you start worrying about rhyme.

Sam: I find that rhyming makes you choose the wrong word sometimes.

Jane: That's an interesting thought Sam. Can you tell us more?

Sam: Well, like Lucy said, a word or a whole line just pops into your head sometimes because it rhymes, but it doesn't always make sense in your poem. And you've just got to get rid of it.

Jane: You have, haven't you, but that's hard sometimes.

This extract illustrated aspects of the culture in Jane's classroom. She set an open task, then gave sensitive, flexible support to children working at it, without fully controlling what they did, thus initiating a chain of thinking, from which the writing itself would be generated.

Also notable in this episode was the quickly changing relationship between teacher and pupils. Jane sometimes directed, but she was willing also to adopt the role of learner ('that's an interesting thought Sam. Can you tell us more?') or of fellow writer ('It's hard taking out a line when you've thought of it'). Pupils switched easily into a teaching role, as Sam did. They demonstrated a degree of engagement with the craft of writing that was never observed in Rob's classroom.

The critical factors which produced enthusiastic writers and highly effective texts were frequent sharing sessions in which: pupils read out their work in progress for others to comment on;

- the teacher regularly showed a willingness to share the responsibility for teaching with the children;
- the teacher modelled the kinds of responses to be made by the class to pupils' work; and
- pupils received immediate feedback (praise and criticism) on their work from a real audience.

Reference

White, C. (2000) Strategies are not enough. The importance of classroom culture in the teaching of writing. *Education*, 28 (1), pp. 3-13

Case study 18 Improving question and answer sessions

We chose this case study because it shows the change in a science teacher's use of questioning, which correspondingly changed the pupils' learning experience.

This example featured in the main study. The authors of the main study commented on transcripts of the start of two Year 7 science lessons where a question and answer session was followed by a practical activity. In the first lesson, the teacher asked individual pupils closed questions, requiring brief factual answers. In the second lesson, pupils were involved in a discussion – the teacher encouraged the pupils to comment on each other's answers, giving them the opportunity to consolidate or modify their answer.

This first transcript was from the start of a lesson about electricity, which took place near the beginning of the project. The pupils had been studying electric circuits for two weeks before this lesson and were familiar with the setting up of series and parallel circuits, but the teacher did not try to elicit their understanding in this extract. Instead, he engaged in conversation with a few children to see if they could guess the facts which he had in his head and which he wanted them to grasp before they began their experiment.

Teacher: Anyone know what we call these and where you might find one? *Starts to walk round and show groups the ammeter. Two hands go up in the class.*

Teacher: Look carefully. Where have you seen something like this? You might have seen something like it before. What is it involved with? It's got a special name ... *Three more hands go up. The teacher selects one of these pupils.*

Teacher: Yes ... Jay?

Jay: In electricity, sir.

Teacher: That's right. You can use these in electric circuits. Anyone know what it is called? This word here helps. Can you read what it says? Carolyn?

Carolyn: Amps.

Teacher: And what is this instrument called that

measures in amps? *Pause of 2 seconds. No hands go up.*

Teacher: No? No-one? Well, it's an ammeter because it measures in amps.

The teacher played a fast-paced question and answer game, in which some pupils scored points because they guessed what the teacher wanted them to say, while others were highlighted for not paying attention.

Teacher: ... And where do we find these ammeters? Monica? *Monica shrugs her shoulders. Six children have their hands raised.*

Teacher: No idea. Tell her Rebecca.

Rebecca: In electric circuits.

Teacher: Good. I am starting to spot which of you are sleeping today. Are we with it now Monica? *Monica nods.*

Teacher: Right. Now we are going to use these ammeters in our practical today and so gather round and I will show you how it works. Quietly please.

Over the next few months, this teacher worked on:

- extending wait time;
- involving a larger number of pupils in whole-class question and answer sessions; and
- dealing with incorrect answers rather than ignoring them.

The second transcript is taken from a lesson about photosynthesis seven months later and shows a change in the same teacher's use of questioning.

The teacher began by showing the class two geranium plants – one which was healthy and large, the other quite spindly. First he asked the pupils to discuss in pairs why the plants had grown differently; then he asked the pairs to share their ideas with the others in a whole-class discussion.

Teacher: Okay. Ideas? *About half the class put up their hands. Teacher waits for three seconds. A few more hands go up.*

Teacher: Monica – your group? Pair?

Monica: That one's grown bigger because it was on the window. *[Pointing]*

Teacher: On the window? Mmm. What do you think Jamie?

Jamie: We thought that ...

Teacher: You thought ... ?

Jamie: That the big 'un had eaten up more light.

Teacher: I think I know what Monica and Jamie are getting at, but can anyone put the ideas together?

Window – Light – Plants? *Again about half the class put up their hands. The teacher chooses a child who has not put up his hand.*

Teacher: Richard.

Richard: Err yes. We thought, me and Dean, that it had grown bigger because it was getting more food. *Some pupils stretch their hand up higher. The teacher points to Susan and nods.*

Susan: No it grows where there's a lot of light and that's near the window.

Teacher: Mmmm. Richard and Dean think the plant's getting more food. Susan ... and Stacey as well? Yes. Susan thinks it's because this plant is getting more light. What do others think? Tariq.

Tariq: It's the light cos its photosynthesis. Plants feed by photosynthesis. *The teacher writes photosynthesis on the board.*

Teacher: Who else has heard this word before? *The teacher points to the board. Almost all hands go up.*

Teacher: Okay. Well can anyone put plant, light, window and photosynthesis together and tell me why these two plants have grown differently? *The teacher waits 12 seconds. Ten hands went up immediately after he stopped speaking. Five more go up in the pause.*

Teacher: Okay. Carolyn?

Carolyn: The plant ... The big plant has been getting more light by the window and cos plants make their own food by photosynthesis, it's ...

Jamie: Bigger.

This transcript showed a marked change in the way that the teacher approached questioning. For example the teacher:

- no longer used questioning to seek terms and descriptions or to support classroom management through revealing those pupils who failed to listen or refrained from taking part as he had in the lesson about electricity. Rather, he tried to explore pupils' understanding;
- created opportunities for the pupils to exchange ideas, articulate their thoughts and to modify answers in a supportive environment;
- extended 'wait time' which encouraged more pupils to participate and give longer answers containing indications of their conceptual understanding, rather than of their knowledge of names and terms; and
- changed the way the pupils participated in the classroom dialogue – the aim was not for discrete right answers to be celebrated, but for a discussion of the ideas to be explored.

Case study 19

One pupil's participation in numeracy lessons: performing but not learning?

We have chosen this case study because it offers a cautionary tale about the ways in which some pupils appear to participate during sessions involving all pupil response systems. The study, which came from the Leverhulme Numeracy Research Programme, found from extensive observations that, although some children seemed to participate in whole class interactive teaching in mathematics, they were not necessarily thinking about the mathematics. Instead, they were putting on a performance.

The researchers observed many lessons in a variety of primary schools and were particularly interested in finding out:

- how pupils presented themselves during whole class sessions;
- what motivated pupils to take part; and
- if pupils' participation was fruitful in terms of mathematical learning.

A classroom example of how one child performed, rather than thought, during whole class sessions

The teacher in the study followed the usual NNS lesson structure. She used questioning as a major teaching tactic and tried to inject 'pace' into the lessons. All pupils were expected to take an active part in the questions and answers: they showed their answers to oral questions on individual white boards or by choosing digits from a set of cards or a number fan. The teacher often asked individual pupils to explain how they reached their answer. Meg, aged seven, responded to these demands by putting on an act.

Episode 1

As part of a whole-class session, the teacher was working on halving numbers. Each child had an individual white board and marker pen with which to display answers.

Teacher: Half of 36?

Meg started to lift her board up to show the teacher. She had written '15', but before she showed it, she noticed that others around her had '18'. She quickly changed it.

Teacher: (not noticing the change) Well done, Meg. (moving on) Half of 72?

Meg took the top off her pen, pushed it back again and looked puzzled. She appeared to be counting – her lips were moving, but it was not clear what she was saying. She turned round and saw what George had written, then turned back again and wrinkled her face (as if to say, 'I'm concentrating hard'). She looked around at several boards and saw what answers others had got. She closed her eyes and screwed up her face. After a time, her face lit up as if she had just made a big discovery and she wrote down '36'.

Episode 2

The teacher was using a counting stick (a metre length rod, with ten divisions, but no numbers marked) to count on from zero in 10s, 5s, 2s going up to 100, 50 or 20 respectively. The children each had a number fan to show their answers.

Meg seemed to rely a lot on counting from zero, which slowed her down. She looked at the rod and nodded her head as she worked her way to an answer and was often still searching for the two digits on her fan with which to show her answer when the teacher had moved on to the next question. After two counting on in 10s questions (where Meg was not quick enough to show her answer) the teacher changed to counting in 2s.

The teacher pointed to the ninth division. Meg counted from zero, nodding as she looked at each division on the rod, then put 18 on her fan. The teacher asked her how she got the answer.

Meg: You count in ones to nine and then go backwards and then it's like double again.

Teacher: Meg is using what we did last week, like doubling and halving.

The researchers argued that it was unlikely that Meg was using

a doubling strategy: her actions and explanation suggested otherwise. They stated that during the four years that they had been observing Meg, they frequently heard her offer explanations with great conviction which did not match what she did and were sometimes mathematically incorrect. They suggested that Meg was not trying to explain her method, but only taking part in the 'game' of providing an explanation.

How might teachers help such pupils?

Meg's teacher set up activities to involve everyone and monitor participation, yet Meg still managed to put on a show without actually thinking through the mathematical tasks set. She was motivated less by an interest in the mathematics content than by a wish to maintain a perception that she could do the work and thus her status within the class. Her teachers described Meg as able, hardworking and reliable. Meg wanted to continue to appear like this to her teacher. She resisted admitting that she needed help.

The researchers cited another study which found that children were mainly concerned to do what was necessary to avoid being embarrassed or told off or having to do the work again. Young children may often be motivated by a need for approval from the teacher or acceptance from their peers. The researchers suggested that what they called 'performative' behaviour was more likely to occur in situations where:

- pupils were expected to offer public answers to closed questions; and
- the lesson placed a strong emphasis on speed as well as correctness.

They noted that this was the case in many lessons they observed, and argued that some pupils' needs to perform satisfactorily in such a context were likely to prompt them to adopt classroom behaviours that prevented them from learning.

The researchers proposed that such pupils need encouragement to slow down and think about their work. When Meg was encouraged to take more time to think about her mathematics she reached a correct response, and showed great delight at doing so.

Reference

Denvir, H. & Askew, M. (2001) Pupils' participation in the classroom examined in relation to interactive whole class teaching, In Rowland, T. (Ed.) *Proceedings of the British Society for Research into Learning Mathematics*, 21(1).

Available online at:

www.bsrlm.org.uk/IPs/ip21-1/index.html

Case study 20 Effective paired work

We chose this study because it investigated whether increasing the opportunities for paired work within whole-class teaching sessions increased pupils' levels of participation.

The teachers undertaking the study knew that young children often wanted to talk to their teacher, but that this was not always possible or practical in a class of 30 children. Carefully planned paired work gave each child a chance to talk to an audience and to express their viewpoint.

The investigation took place with a Year 1 class and involved six classroom observations of whole class teaching over a period of time. During each of the six sessions, the teacher included an opportunity for pupils to discuss in pairs.

The focus in each session varied. They included:

interviewing – asking each other questions about their family;

- discussing elements on the front cover of a book;
- describing a personal experience, which led on to drama;
- explaining why they chose this particular toy to bring into school;
- recapping their visit to a museum and listing three things they liked; and
- discussing leisure activities in the local area.

The teacher researcher videoed a whole-class teaching session to establish the initial levels of participation across the class. She identified four children as reluctant participants and recorded their participation levels in future sessions. She analysed pupils' patterns of engagement during the six sessions and concluded that increasing the opportunities for paired work did increase pupils' level of interest and participation in the sessions.

The teacher found that paired work did not just happen, but needed careful planning. The teacher identified several practical issues that needed to be considered for successful paired work with young pupils.

Clarifying the content and ground rules

The teacher:

- taught the pupils how to work as a pair by modelling paired discussion with another adult;
- ensured that each session had a definite focus that was clearly explained;
- checked that the children understood what they were supposed to be talking about;
- found it helpful to limit information gathering to one aspect at first, increasing this only when the children were used to paired work; and
- made sure everyone was quiet and listening before taking feedback.

Timing

The teacher:

- agreed with the pupils beforehand how much time they had to talk in pairs;
- used an egg timer to show how time was going;
- used a warning signal before the end, so children knew they had to finish talking; and
- used another agreed signal to stop.

Grouping

The teacher sometimes used different types of pairings for the pupils, such as same gender, mixed gender, similar or mixed ability, teacher allocation of pairs and pupil free choice. When deciding upon pairings, she considered:

- how many children might have to move to find an appropriate partner and whether there was room for them to do so; and
- whether she could avoid children feeling left out by including a group of three or involving a teaching assistant.

Resources

The teacher used dummy microphones in the first session. This worked well for the paired interviews but proved a distraction during feedback. She found that the use of small whiteboards and pens for recording hindered talk in the paired work and discouraged collaborative recording. The paired work could be successful when no special resources were used.

Reference

Penelope Robinson, Hawthorns First School, BPRS Ref. No. S623 *Does increasing the opportunities for pair work increase the levels of participation of Year 1 children in whole class teaching?*

Case study 21

Pupils who do not participate

Many teachers are concerned about boosting the engagement levels of all pupils, including quiet pupils who rarely participate in classroom discussion. We have chosen this case study because it explored just this issue.

This study followed the progress of ten Year 6 pupils over a period of three years as they transferred from one primary school to seven secondary schools. The pupils were all chosen because they were particularly quiet in class and tended not to participate in lessons. Ten of the twelve were girls. All but one had excellent records of school attendance and they represented a range of ethnic groups.

The study used classroom observations and interviews with pupils and their parents to find out possible reasons for lack of engagement and to suggest strategies for improving this.

How did pupils avoid getting involved in the lessons?

The study identified four ways in which pupils ‘truanted in the mind’. These were:

- being invisible – the pupils sat in places and behaved in ways that minimised their direct contact with the teacher;
- refusing to participate – pupils invited to participate by the teacher would not acknowledge the request but remained quiet and still and avoided making eye-contact with the teacher, or they directly refused to join in, sometimes offering a reason;
- remaining on the periphery of an activity – the pupils did very little during a group practical activity and allowed their peers to do all the work; and
- doing something else – pupils did something that had little or no bearing on the learning task presented.

The pupils did not cause discipline problems by being noisy, or preventing others from getting on with the work. They merely took a back seat.

For example, in a craft lesson, Justina spent far more time watching her partners working than working herself. In a practical science lesson, Justina wandered round the laboratory, touching some of the equipment with the tips of her fingers, but not carrying out the intended experiment.

Parental and pupil beliefs

Interviews with the parents showed that they believed it was important for their children to attend school regularly and to get a good education. They were not worried that their children did not respond actively to the lessons and were unusually quiet in class. Some thought it was a harmless phase and that the children would grow out of it. Several parents mentioned that they had been quiet pupils themselves.

The researcher interviewed quiet pupils about their reluctance to engage with lessons. Few thought that the reason for their lack of engagement was connected in any way to the curriculum studied. Instead, pupils highlighted the importance of their relationships with teachers. They were clear that they liked lessons taught by teachers who seemed to respect them as individuals and who were willing to provide support and help when it was needed.

One pupil expressed his views.

‘Sometimes, if you needed help, my maths teacher would come straight to you. Good teachers come and help you all the time and they treat you like somebody who knows something. They treat you more like a friend than a pupil.’

He disliked teachers who: ‘... just shout at you for no reason and get angry and start having go at you. They put you in detention for nothing.’

It appeared that quiet pupils (and their parents) thought it was perfectly acceptable to avoid getting actively involved in classroom discussions or practical activities and that all they needed to do was to attend school regularly and be quiet and well behaved.

What can be done?

This case study found that it was rare for teachers to challenge these pupils' lack of active participation. Quiet, shy pupils sometimes looked so uncomfortable when asked a question that teachers tended to avoid putting them on the spot by asking them.

One pupil, Mandy, was very anxious when chosen to speak in front of the class. Over time, her teacher became less likely to ask her to respond, unless she had her hand up. The teacher's sensitivity to Mandy's discomfort resulted in Mandy having fewer opportunities to practise speaking in public and so inadvertently prevented her from developing greater confidence in this area.

The teacher-researcher believed that it was necessary to address quiet pupils' lack of social skills and difficulties in forming and sustaining relationships with their peers. She did so by withdrawing the pupils for a twelve-week programme in which they took part in collaborative group work. She aimed to improve pupils' social skills and confidence during this time and to help them take a more active role in working with their peers. The pupils did seem to gain confidence from this and showed greater participation in subsequent whole-class discussions.

The researcher called for:

- more direct support for the emotional and behavioural needs of quiet pupils;
- time to listen to pupils and to develop improved relationships with them;
- careful observations to monitor when pupils were 'playing truant in the mind' and a more active response to such occasions; and
- the importance of active participation in lessons to be made explicit to all.

Reference

Collins, J. (1998) *Playing Truant in Mind: the social exclusion of quiet pupils. Paper presented at the British Educational*

Research Association Annual Conference. The Queen's University of Belfast, August 27th - 30th 1998. Available online at:

www.leeds.ac.uk/educol/documents/000000779.doc

CASE STUDIES FOR PART 3

Case study 22 Enhancing pupil engagement

We chose this study because it illustrates a variety of pupil responses to a new challenge, including the frustrated and persistent responses that Dweck found so often in her research. It also shows how encouraging persistence and suggesting strategies for improvement helps vulnerable pupils to re-engage in a task after frustrating experiences of failure.

The study took place with a group of 40 Year 8 pupils from a large, urban comprehensive school. The chosen pupils had difficulties solving non-verbal reasoning tasks and many of them disengaged from learning during normal lessons.

The aim of the study was to explore ways in which pupils managed, or were affected by, frustration during a learning task. Two groups of 20 pupils had five 90-minute lessons in circus skills. They all had to learn tight-rope walking and juggling with three balls. Once these skills were mastered, they could try out one other skill, such as spinning plates, diabolo (keeping the diabolo moving along a string or in the air), rolla-bolla (balancing on a small platform with a ball underneath) and flower stick (keeping a small stick spinning in the air by hitting it with another stick).

The pupils found the skills hard to learn. Improvement was slow and pupils failed frequently. When they did so, many became frustrated.

Pupils showed three different responses.

- About 40 per cent disengaged aggressively, becoming agitated, swearing or behaving defiantly – ‘When are we going to do something different? This is boring. I never wanted to do it anyway.’
- About 40 per cent gave up and withdrew passively, and
- About 20 per cent kept trying.

The pupils who disengaged aggressively unsurprisingly drew a huge amount of attention from adults. Discussions with the pupils showed that these responses mirrored behaviour in the classroom.

The pupils who became passive described how they would avoid confrontation with staff. These pupils were often quiet and undemanding. They did not disrupt others’ learning because they did not want to draw attention to the fact that they themselves were not engaging. To re-engage with the activities, these pupils needed support from peers or adults. The pupils who disengaged passively were easier to notice in this context of practising a physical skill, as their lack of engagement could be seen. They would have been harder to spot in the classroom.

The teachers helped the pupils to develop strategies to become more successful. They asked pupils to think about why they had not succeeded and what they needed to do in order to succeed. The types of strategies the pupils developed ranged from the general – concentrate more, practise more and focus – to the specific – walk more slowly on the tightrope, move more smoothly and improve balance. The construction of these personalised, achievable targets helped to promote eventual success.

When they achieved success, the pupils who had initially persisted or passively withdrawn tended to celebrate in a low-key way, with smiles, or a comment in their diaries. Some of the initially more aggressive pupils were more flamboyant:

‘Take a picture of me! Look, look, I can do it now. Watch me, I’ve got it sussed!’

During the project, pupils completed a structured reflective diary and this helped the teachers to collect evidence about what was happening and to highlight any patterns that emerged. The teachers interrupted unhelpful avoidance strategies, whether these were clearly obvious (aggressive frustration) or more subtle (passive withdrawal). They supported the pupils to persist in the face of a challenge by helping them to identify useful strategies for improvement. The teachers aimed to remove the threat of failure to pupils and to help them redefine success as a willingness to take risks and engage in activities.

Reference

Farquhar, K., Sawyer, M., Cook, C., & Smith, P., (2006)
Enhancing pupil engagement. *National Teacher Research
Panel summary*. Available at:
www.standards.dcsf.gov.uk/ntrp/publications/

Case study 23 Improving science achievement by raising self-esteem

We chose this study because it showed the positive effects of focusing pupils on improving their levels of effort. When teachers rewarded pupils' effort and participation, this led to improvement in the pupils' attainment.

The study took place in an urban secondary school in a deprived area. Nearly 80% of pupils had reading scores at least two years below their chronological age on entry to the school.

The study focused on groups of bottom set science pupils as they moved from Year 8 through Year 9. It aimed to boost self-esteem, oral contributions during lessons and overall attainment in science by using a reward system. The teacher used a wide range of additional strategies for improving pupil participation in the lessons.

The teacher aimed to consistently reward attempts to answer questions in science lessons by awarding a sticker. The collection of twenty stickers by any pupil led to a merit award; forty led to a certificate and a letter home and sixty stickers won the pupil a prize – a special certificate and a letter home.

The teacher used the stickers frequently, especially for pupils who were initially reluctant to answer, and he gave double rewards for scientific answers. He aimed to encourage all pupils to participate and to think and attached no blame to 'wrong' answers. He accepted all contributions, no matter how 'correct' they were. If pupils did not understand, he took responsibility for this, saying, 'I haven't explained that very well', rather than, 'You weren't listening'.

The teacher encouraged the pupils to talk to one another by setting oral and explanation tasks in every lesson. He encouraged work in pairs and groups. Every lesson had a short period of paired work in it. He demonstrated good listening skills in order to teach pupils how to work well in

pairs. He encouraged pupils to give positive feedback to one another. He taught them to ask for and to offer help to one another.

He varied the pace and tasks in lessons and set clear learning objectives. These were expressed by using phrases such as: 'By the end of the lesson, you should be able to know/ understand ...' He also encouraged pupils to identify their own and others' strengths and to set themselves personal targets for improvement.

The pupils involved in the project greatly increased their involvement in question and answer sessions. They remembered the key scientific facts they had studied and their scores on module tests improved. Although the pupils' scores on a test of general self-esteem did not show a significant improvement, they made many positive comments about their progress and ability in science as the study progressed. For example, pupils made comments such as:

'Science is my best subject.'
'She's a super scientist like me now, sir.'

Pupils were able to remember the learning strategies outlined to them during the project. They also showed an improved attitude to science and there was a great reduction in disruptive behaviour during the course of the project.

Reference

Dunsmore, A. (1997) *Improving science achievement by raising self-esteem*. Published by the Teacher Training Agency as part of the Teacher Research Grant Scheme 1996/97.

Case study 24 A four-tiered curriculum in every subject

We have chosen to present this case study because it is an example of how a secondary school (a city technology college) set about offering pupils different levels of challenge. Many pupils at the school came from disadvantaged homes.

The school used both mixed ability and setting approaches to grouping, but all classes used a 'four-tiered curriculum' created by the staff.

In Years 7 and 8, pupils were taught in mixed ability tutor groups for all subjects. In Years 9, 10 and 11, the pupils were split up into sets for mathematics, science, English, French, history, geography and technology, but the pupils remained in mixed ability groups for art, music, drama, PE and RE.

The four-tiered system was applied at all times and in all subjects throughout the school. In each subject, pupils chose to work at one of the following levels.

- **Basic:** the minimum acceptable for a pupil of a particular age.
- **Standard:** the average performance expected for a pupil of a particular age.
- **Extended:** above average performance for a pupil of a particular age.
- **Advanced:** at least one year in advance of an average pupil of a particular age.

There was a Fast Track early entry to GCSE for those pupils consistently working at extended and advanced levels.

All departments used the differentiated structure, but planned for the four tiers in their own ways. At the beginning of each week, teachers described the different tasks for the different tiers. All pupils learned the same skill – the difference came in the level of difficulty to which the skill was taken. Pupils decided for themselves which level they would attempt and negotiated the levels of work they wanted to attempt with their teachers. Pupils could change level (up or

down) if they wanted to work harder or if they found the work too hard.

Irrespective of whether a department chose mixed ability grouping or setting, they all used a four-tier system to group pupils in their classes. Hence different classes contained different proportions of pupils at the four levels described. In no case was there a completely 'basic' group.

Sometimes, teachers imparted knowledge; at other times teachers acted as a resource and guide. All the teachers monitored the pupils' progress carefully and thoroughly, checking the levels they were working at and giving very specific feedback on how individual pupils' work could be improved.

The school reported the programme had a strong impact on:

- pupil motivation – the teachers believed that being able to choose their own level empowered pupils whilst the pupils were enthusiastic about being able to move up a level;
- pupils' understanding of their own capabilities – many Year 11 pupils accurately predicted their GCSE results;
- pupils' self-esteem – as achievable targets were set for everyone, all pupils felt they were achieving, and pupils who had been identified as SEN at their primary schools did not feel labelled as SEN because they followed the same system as everyone else; and
- pupil achievement – the percentage of pupils achieving Level 5 or above in the Key Stage 3 tests was higher than the national average and few pupils gained grades F, G or U at GCSE level.

However, the staff also reported two main drawbacks to the four-tiered system. These were:

- preparing work at four levels was hard work. There were not always commercially produced resources available, so teachers had to be innovative and creative; and
- some teachers could find it difficult adjusting to the structure, pace and expectations if they were not used to adopting the role of facilitator and assistor, or planning lessons at more than one level.

The pupils' enthusiasm for the four-tiered system was demonstrated during interviews. The following comments were typical.

'In most subjects we get lots of useful comments on our work'.

'Teachers keep checking that you are not always doing the easier level'.

'If you keep getting good marks in your standard work and you are always doing standard work ... the teacher would probably suggest that you start doing extended level work ... that happened to me in RE'.

'If you attempt a better level than you are at ... you're likely to guess at all your answers and come out with a lower level. So it feels good to aim at the right level and get good results'.

'You keep working at your hardest so you can move up a level in everything'.

Reference

This case study was featured in the DfEE (now DCSF) report, 'Innovative grouping practices in secondary schools,' by Judith Ireson (1999).

Case study 25

Using low attaining pupils' opinions to improve their learning experience

We have chosen this case study because it shows how opinions of low-attaining pupils were gathered and used, along with classroom observations, to create a more positive learning environment for all and to enhance the school ethos.

The primary school involved decided to evaluate existing strategies for inclusion, aiming to:

- discover more about pupils' perceptions of their own learning;
- find out pupils' attitudes towards the classroom learning environment; and
- identify features of current practice that supported the effective inclusion of pupils with special educational needs.

Where, when and how

This study took place in a primary school of 300 children in a deprived catchment area of the East Midlands. The school included a Moderate Learning Difficulties (MLD) unit serving 38 children. The study focused on 12 low-attaining children with special educational needs, some from mainstream classes, and others from classes in the unit. The study was conducted over a half-term during English and mathematics lessons.

Pupil interviews asked:

- What helps you learn in English?
- What helps you learn in maths?
- What makes it difficult for you to learn?
- What do you like to hear from staff?
- How does that help you?
- Is there anything the staff or children can do to make it easier for you to learn?

Teachers delivered their lessons as normal and were observed by colleagues under the following categories:

- the working situation of the pupils;
- teachers' use of praise;

- pupils' responsibility for their own learning; and
- what happened when pupils had to tackle problems.

Key findings

The three most significant findings of the study were:

- there was a perception among most of the pupils that they could only work with the support of adults, especially in English;
- more thought needed to be given to feedback and praising of pupils; and
- the school was giving only limited opportunities for independent work.

A lot of the children identified the noise level as making it difficult for them to learn. Other pupil comments included feeling that they did not get enough help and wanting something explained again. Pupils also requested resources such as counters, and others asked to be able to do things in little steps.

All the children liked receiving praise for effort and being rewarded for working well.

One said:

'I like to hear because you are doing so well you can have a free choice.'

Receiving praise made them feel happy. Others referred to being motivated by the praise, for example:

'[praise] makes me happy, helps me go on better sometimes.'

From the classroom observations it was apparent that pupils with special needs had limited opportunities for individual work. They were mainly working in a small group of pupils, supported by an adult. Very little pupil independence was given in terms of tackling tasks. Pupils were also found to rely heavily on staff for help with solving problems.

What changed as a result of the research

Analysis of the research led the school to decide that:

- special needs and low-attaining children needed to be provided with more opportunities for independent work (that is, without direct staff support); and
- pupils should continue to be praised for their effort, but should also be given feedback concerning what they had done well' and given more suggestions for a next step to encourage further independent learning.

Consequently, the teachers set about building in opportunities for greater independence into lesson planning – such as taking the register or putting out equipment. More activities were also designed to show that pupils could succeed as independent learners. For example in maths, the teachers designed simpler individual exercises and pairs of pupils were sent to do an activity together without help from an adult.

Teachers also began to focus on constructive feedback as well as straightforward praise. For example: 'That's great, you've got the first sound of every word right'. The researchers also talked with support staff about the importance of both making positive comments to the children and prompting the children without giving them answers to further encourage independent learning.

Conclusion

The research, with its emphasis on pupil voice and teacher peer observation, helped the school to see how classrooms could be made more inclusive for special needs and low attaining pupils. As a result pupils saw their comments being acted upon and were given more opportunities to have a go at independent learning.

Reference

Walters, E., McParland, J., & Lichfield, G (2008) How inclusive are our classrooms? National Teacher Research Panel conference paper. Available at: www.standards.dcsf.gov.uk/ntrp/conference/summaries2008/

Case study 26 Dyslexia and self-esteem

We chose this case study because it explored how being dyslexic affected pupils' confidence and self-esteem, both of which affect success in learning, and because it revealed some strategies for covering this.

The researchers gathered the perspectives of 22 dyslexic pupils (20 boys and two girls), aged between 14 and 15 years. They explored the pupils' self-concept (view of themselves as a learner) using a standard tool comprising eighty brief sentences, presented as statements about the way some pupils felt about themselves. The pupils were invited to indicate whether or not each statement applied to them.

Scores were clustered so that they showed different facets of self-concept, such as 'behaviour', 'intellectual and social status', 'physical appearance', 'anxiety', 'popularity' and 'happiness and satisfaction'.

The researchers also carried out semi-structured interviews focusing on areas such as, 'insights into dyslexia', 'strategies employed', 'subject choices', and 'peer perceptions'.

Pupil confidence

Overall, the questionnaire revealed the pupils were self-confident, but the high scores may also have reflected a need to appear supremely self-confident. Almost all pupils emerged with the dimension 'intellectual and social status' as the lowest or second lowest possible self-concept score, but only a few fell into the category regarded as a serious indicator of low self-concept.

The questionnaire also revealed that a high percentage of pupils regarded themselves as important members of their family, yet few regarded themselves as an important member of the class. Almost all pupils thought that they had good ideas, claimed their friends thought they had good ideas and stated they could give a good report in front of the class, but three-quarters indicated that they did not often volunteer in

school. Half indicated that they were slow in finishing their work, and half admitted they were nervous when the teacher called on them. The researchers felt that such figures could suggest that some pupils had developed coping strategies in class which involved not allowing themselves to be put in a situation where they might appear to fail.

Most of the pupils did not know which of their peer group experienced similar problems and few knew of any celebrities who were dyslexic. When, at the end of the interview, pupils were made familiar with the names of some famous dyslexics, all displayed surprise and stated that knowing about them made them feel more confident.

Pupil popularity

More than half of the pupils emerged with 'popularity' as their highest or second highest score on the questionnaire. Some individual scores were particularly high, suggesting responses in this area may have been exaggerated. Some pupils had high scores in the 'anxiety' cluster. Scores for 'behaviour', 'happiness and satisfaction' and 'physical appearance and attributes' were more evenly distributed.

However, interview questions on how they felt they were perceived by their classmates revealed areas of tension. Only a few pupils believed that their difficulties were appreciated and understood by classmates. One pupil said that his class did not say anything, but that he felt they did not think he was as good as everyone else. Another said his class thought he was 'someone stupid', and another said some of his class made a fool of him.

Pupils' understanding of dyslexia

It appeared that whilst some pupils had a good appreciation of dyslexia and some of the main difficulties associated with dyslexia, many pupils were confused.

One pupil assumed that the difficulty applied to all subjects, whilst another considered the implications to be an inability to do things for himself. Of the pupils who mentioned that

dyslexia was connected to the brain, two thought that there was something 'wrong' with the brain.

Most pupils considered that being dyslexic implied difficulties in areas traditionally associated with dyslexia, those of reading, writing and spelling. No mention was made of other aspects associated with dyslexia such as poor concept of time, organisational difficulties and sequencing problems.

Many of the pupils clearly did not understand why they were dyslexic, as these comments show.

'It's because I didn't really pay attention in primary school.'

'I know why I got it – because my Mum and Dad kept breaking up and I kept moving high schools.'

Effect on curriculum areas

When questioned about areas of the curriculum where they experienced most success, more than half said that they performed in sports or PE activities better than or as well as their friends. One-third mentioned an aptitude for imaginative writing, practical subjects and art. Other pupils mentioned such areas as giving a talk, answering questions, playing an instrument, drama, doing investigations, electronics, graphics and 'fixing things' as areas where they felt they performed well.

When questioned about their subject choices, one quarter answered that they had not avoided any subjects when making their choices. Reasons for not selecting certain subjects included the fact that too much writing was involved (PE and home economics), the subjects were in the same column of choices, or all the places had been taken.

'I didn't take any social subjects because I thought there might be too much writing in them.'

'I'd like to have taken a language if there hadn't been so much writing involved.'

'I avoided PE. I would have liked to do that because I'm quite good at sports but there's writing involved.'

'Home economics. They say I had to write a big essay.'

'I'd like to have done biology but it's all tests.'

'I wanted drama, but all the places were filled. I fancied acting but didn't get a chance to prove myself.'

Whilst avoiding subjects with a high written requirement seemed to demonstrate good tactics, the researchers found it interesting that some of the subjects avoided were the very subjects in which the pupils felt they could perform well. Few pupils it seemed had worked out any strategies for learning. No pupils mentioned the use of study skills or the awareness of their learning styles or metacognitive factors.

Implications of the study

The researchers concluded that their study's findings revealed a number of implications for the full inclusion of dyslexic pupils. The main implication was that pupils would benefit from being 'counselled' following confirmation of dyslexia. Informal counselling or 'demystifying' would offer each pupil an explanation for the difficulties experienced and assure the pupil that the school appreciated these difficulties and will make efforts to facilitate access to the curriculum. Each pupil's particular pattern of difficulties could be stated but, more importantly, the particular pattern of strengths and abilities could be highlighted.

The researchers also felt that dyslexic pupils' self-concept and, subsequently, success in learning could be enhanced through:

- facilitating good study skills;
- opportunities to find out about famous and otherwise successful dyslexics; and
- emphasising the positive aspects of being dyslexic.

At the same time, they felt the use of peer support groups could offer a positive avenue for support as well as the opportunity to meet together to discuss strategies and study

skills. Finally, at times of subject choices schools could help to facilitate the selection of subjects where the pupils display areas of strength.

Reference

Deponio, P. (2001) Dyslexia and self-awareness: Issues for secondary schools. *British Dyslexia Association*. Available at: www.bdainternationalconference.org/2001/presentations/fri_s3_b_3.htm

Case study 27 Achieving a dyslexia-friendly school

We chose this case study because it shows the key components that underpinned a school's dyslexia-friendly approach and empowered dyslexic pupils to achieve their potential. The study took place in a mixed 11-18 comprehensive in North Wales.

For the previous nine years the school had hosted an LA-funded dyslexia resource centre, a project that provided support for severely dyslexic pupils who were placed in the school through their statements of special educational needs. The resource also helped the many dyslexic pupils in the mainstream part of the school who benefited from the dyslexia-friendly culture that was developed over the years.

But the resource wasn't the only element involved. The school identified four areas that were key to creating a dyslexia-friendly learning environment:

- leadership;
- whole-school approaches;
- monitoring and evaluation; and
- high expectations.

The school believed that without:

- strong leadership;
 - whole-school approaches to special needs in general;
 - a culture of high expectation for all; and
 - rigorous monitoring and evaluation
- that no amount of extra resources would meet the needs of dyslexic pupils.

The key seemed to lie in school effectiveness, because being an effective school and becoming dyslexia-friendly seemed to be two sides of the same coin – that it was impossible to be one without the other. The school was proud that its dyslexic pupils left with 5+ passes at GCSE, including higher grade passes.

The 'dyslexia resource'

The specialist provision was called a 'resource' rather than 'centre' in order to acknowledge that, for the majority of their timetable, dyslexic pupils were taught within the mainstream of the school, accessing whatever special needs support was available to all. The pupils received five hours per week of specialist input provided by the specialists in the resource. At the same time all contact staff were aware of the needs of dyslexic pupils in general and those supported by the resource in particular. Staff were trained in dyslexia-friendly strategies and were supported in their efforts to meet the needs of dyslexic pupils.

Extra time for specialist tuition was created through reducing the number of subjects in the curriculum for these pupils. This was done by disapplying the pupils from French and Welsh. This disapplication (which was easy to achieve given the support of the LA and the governing body), enabled pupils to access the resource for five hours each week, where they are taught in groups of three by a very experienced and highly qualified dyslexia specialist.

How strong leadership helped

The school leadership established:

- a target of 100% exam entry in all GCSE subjects for all pupils;
- heads of faculty or department to be responsible for securing progress across the ability range and expected to take their share of SEN groups;
- 'special needs' groups to receive positive discrimination in terms of specialist rooms and experienced teachers;
- all staff responsible for basic literacy and numeracy skills
- 'pupils with SEN' to be an agenda item at every faculty and department meeting; and
- a 'Faculty Senco' in each area.

Creating the role of Faculty Senco was a major element in implementing whole-school policy on behalf of pupils with learning difficulties. Although an unpaid role, Faculty Sencos accepted the post in the knowledge that it offered

considerable management experience and opportunities to develop and grow. The role included:

- liaising with colleagues regarding pupils with SEN;
- reporting to the faculty at meetings;
- coordinating provision for SEN pupils;
- liaising with the school Senco – providing two-way communication;
- attending a half termly coordinating meeting of all Faculty Sencos.

Issues of pupils who were causing concern were brought to a half-termly coordinating meeting and shared with all Faculty Sencos so that action to support a failing pupil could be taken. This meeting proved to be very popular. This was assumed to be because all the issues raised related directly to the needs of the pupils and swift and concrete action always resulted.

Establishing the principle of collective responsibility for progress of all pupils was made possible through the school development plan. The school felt it important that its Senco was a member of the senior management team.

How whole-school approaches were achieved

All teachers were responsible for basic skills and all teachers accepted this responsibility. To help staff fulfil their role, the school provided an ongoing programme of training for all staff which focused on awareness and cross-curricular teaching strategies.

Through a rolling Inset programme, much of which was delivered in-house during whole school training days, all staff received training in the following areas:

- dyslexia awareness;
- mind mapping;
- essay planning strategies and the use of frameworks;
- handwriting;
- study reading strategies;
- how to support spelling – with particular reference to ‘jargon words’;
- numeracy; and
- oracy.

These areas were also re-visited periodically.

The school's commitment to ‘dyslexia-friendly’ Inset enabled the gradual development of common approaches to common problems. As a result, all teachers were able to help many pupils without always having to give individual help. Dyslexic learners in particular were supported to minimise their weaknesses and capitalise on their strengths. The strategies were applied to all pupils with consequent benefits in terms of whole school teaching and learning opportunities.

The Senco circulated ‘pen portraits’ of all pupils with special needs, making it clear, for example, which pupils were not to be asked to read out loud and which pupils should not be expected to copy from the board. While the school Senco collated and circulated the register and pen pictures, faculty heads were responsible for ensuring that the information was read and used to inform and direct teaching. This was another important aspect of corporate responsibility for pupils with special educational needs.

The investment of time in study skills seemed to help teachers work through the syllabus more effectively and, as the pupils became familiar with the strategies, they worked faster, for longer and at higher levels of cognition. In other words, the approach supported all pupils, especially dyslexic pupils, to work more effectively.

Monitoring and evaluation and pupil progress

The school developed a whole-school monitoring and reporting system over an extended period of consultation and working parties. It was based on National Curriculum descriptors and delivered through IT and the school intranet system.

The model used was one developed for the creation of individual educational plans (IEPs) for dyslexic pupils; targets were set using National Curriculum descriptors and a process of monitoring ensured that intervention took place when needs were not being met.

The appropriateness of this model for all pupils was soon recognised and so it was extended to all pupils. This meant that dyslexic pupils were included in the normal, everyday process of monitoring and evaluation, and were subject to the same high expectation. Target setting by subject teachers was key to the effective monitoring of progress, with the progress of dyslexic pupils coming under particular scrutiny.

The process worked as follows.

- Targets were set, based on National Curriculum descriptors.
- Monitoring was undertaken through normal, subject-based recording procedures.
- Materials and approaches were modified as necessary in response to evaluation of progress.
- Targets were reviewed and modified if and as appropriate.
- Further review.
- Advice was sought from Senco if or as necessary.

This process emphasised the responsibility of each subject teacher to secure ability appropriate progress through the use of strategies and methodology established via Inset. When the problem was viewed as more than a subject teacher could be expected to deal with whilst still meeting the needs of the rest of the class, the Senco became involved and created a support package.

Achieving high expectations for all

The setting, monitoring and evaluation of targets implied a determination on the part of the school and teachers that all pupils were expected to succeed and that positive action would follow if they did not. This was exemplified by the expectation, on the part of the head teacher, that all pupils would be entered for a majority of national examinations.

This expectation put a particular pressure on subject teachers to ensure that all pupils completed coursework requirements in order to be eligible for the exams. One of the consequences of this was that most dyslexic pupils were encouraged and supported to complete course work during lesson time, a move which contributed to a marked

improvement in the quality of work and the meeting of coursework deadlines.

The importance of starting from where the child is

All teachers were encouraged to look ‘through’ spelling and organisational errors in order to assess the underlying quality of the work. Consequently, it was not unusual for a dyslexic pupil with weak basic skills to be operating in a high set or group for certain subjects. Various support systems were in use, including buddy and peer tutoring and Sixth Form support, to enable dyslexic pupils who had the intellectual ability to ‘think’ at high level within a subject to operate at this ability-appropriate level.

Reference

McKay, N. (2001) *Achieving the Dyslexia Friendly School – The Hawarden Approach*. British Dyslexia Association.

Available at:

www.bdainternationalconference.org/2001/presentations/wed_s3_c_2.htm

Case study 28

Identifying gifted and talented pupils

We have chosen to present two vignettes of three research projects carried out by teachers that explored the identification of, as well as provision for, gifted and talented children. Both projects involved Key Stage 1 children.

In general, the working definition for these projects was that gifted and talented children were children who showed significantly advanced abilities and skills in any domain. As the children involved were young, the teachers often looked for evidence of the *promise* of developing abilities.

One of the projects set out to identify the gifted and talented pupils through making enriched provision in the classroom and by offering cognitively challenging activities in order to make their gifts and talents come to light. The other considered the attributes of gifted and talented learners more generally, and screened their classes for ‘intriguing’ children and possible underachieving gifted and talented learners using a published test that assessed the pupils’ well-being.

The projects’ identification processes fell into three broad categories:

- classroom observations;
- notes from children’s conversations or conversations with children; and
- questionnaires for and interviews with parents.

Identifying gifted and talented EAL and hearing-impaired pupils

Teachers in Hounslow designed mini enrichment projects to help them identify gifted and talented children who were also hearing impaired and/or spoke little English. The activities were devised in such a way that the requirement for spoken language was kept to a minimum and the children were allowed to work for as long as they needed over more than one session in the outdoor area.

Sample activities

- **The water challenge.** Children were challenged to move water from one tray to another using gesture and simple verbal instructions. They were provided with a variety of containers, tubes and pipes;
- **The shelter challenge.** Children were challenged through pictorial instruction to make a shelter for a bear that was big enough for the bear and themselves to fit into. They were provided with a range of structures (crates, boxes, tyres and fabrics) and joining equipment (pegs, tape, string, rope); and
- **The creative experience.** To identify musical and creative talent, children listened to two contrasting pieces of music that were specially chosen for their strong rhythm, repetitive melody and low frequencies to make them more accessible to EAL and hearing-impaired children. The children were provided with a range of media including decorators’ and classroom paintbrushes, felt tips, chalk, charcoal and crayons and lining paper to allow for freedom of creativity and working in groups.

The project team found that the specially designed activities helped them to identify gifted and talented children who were unable to speak fluently. The team noticed how the children showed enhanced confidence, a higher level of concentration and the ability to sustain interest in activities for longer periods.

Identifying ‘intriguing’ children

Teachers at a school in Kent used a standard assessment tool to assess the children’s well-being and involvement. Data from one underachieving gifted and talented child for example, revealed that he:

- had low levels of well-being;
- showed low levels of involvement, although this varied across activities as he could concentrate for long periods on activities he liked, such as listening to stories;
- exhibited challenging behaviour;
- could speak expressively on a range of subjects;

- was inquisitive – especially about insects – and was quick to notice changes to his environment;
- blocked out his paintings although his drawings were detailed;
- showed originality when making models; and
- became unhappy if he was given insufficient time to finish an activity.

His teacher used the data to bring about changes in the classroom. For example, the classroom environment was enriched to provide interest tables and interactive displays. The child was supported to express his emotions and talk about his feelings. He was allowed time to engage in the activities he was interested in and to speak to an audience about them. His teacher scribed his stories for him so that he could concentrate on the compositional aspect of story telling, which was his strength.

The changes to the learning environment had a positive effect.

- His levels of involvement increased and he became more curious about his environment.
- His sense of well-being grew – he enjoyed the success he achieved in speaking to an audience.
- His ability to compose stories exceeded that of his peers.
- He set himself challenges and followed up ideas from teacher-directed work during child-initiated sessions.
- His behaviour improved and he began to make friends.

Reference

These teacher-led projects were all reported in: Koshy, V., Mitchell, C., & Williams, M. (2006) Nurturing gifted and talented children at Key Stage 1. A report of 14 action research projects. DfES Research Report 741: www.dcsf.gov.uk/research/programmeofresearch/projectinformation.cfm?projectid=14903&resultspage=1

Case study 29 Peer coaching between gifted pupils to raise achievement

We chose this case study because it is an example of how coaching between pupils can be an effective strategy for raising achievement and it illustrates the types of negative pupil behaviours teachers took into account when identifying potentially able pupils.

Gifted and talented pupils from Year 10 worked with 15 underachieving gifted and talented pupils from Year 8 to explore the reasons for their underachievement and support them in overcoming them.

Peer coaching and its contrast with mentoring

Mentoring normally takes the form of a listening ear, where pupils are encouraged to talk about the obstacles to their learning, such as social pressures or social problems. It often involves discussion about the areas where the pupil is doing well and the areas where they are not doing well, and this can lead to targets being set in order for the pupil to improve these weaker areas.

Many schools have also introduced academic tutoring as part of their assessment processes whereby pupils meet with their tutor to review their attainment and effort across their subjects and set targets for improvement. The role of the peer coach is to identify learning needs and discuss possible learning strategies to meet these needs.

Identifying able underachievers

Lists used by schools often consist of purely positive characteristics of gifted and talented pupils, but some able pupils behave in a negative, apathetic or disruptive way. All staff were given training on the often negative behaviours associated with underachieving, such as:

- sparring with or arguing with the teacher;
- asking an excessive number of questions and/or posing deliberately awkward questions to the teacher;

- saying brilliant things in oral discussions, but producing written work that shows lack of effort, care and pride;
- being dependent on constant reassurance and encouragement; and
- choosing not to get involved in any activity during lessons.

How the peer coaches investigated the causes of the younger pupils' underachievement

Each of the younger gifted and talented pupils was paired with an older gifted and talented pupil who had very good inter-personal skills. They met each other for 20 minutes per week throughout three terms to reflect on their learning needs and strategies. The coaches received training in how to listen and empower rather than to question, judge and fix.

After one term of meetings where the Year 8 pupils had set the agenda and decided the issues, the team of coaches drew up a learning questionnaire based on the information the Year 8 pupils had already given in discussion. Questions included, for example, 'What are your three most and least favourite types of work or activity in class?' The coaches also logged the key points of discussion in their meetings on mentor cards.

Reasons for underachievement found by the peer coaches

The reasons for underachieving given by the pupils included:

- lack of challenge in the classroom (commented on by 12 pupils);
- lack of study skills (ten pupils);
- a mismatch between teaching and learning styles (eight pupils);
- differences between teacher, parent and pupil expectations about levels of attainment (eight pupils);
- friendship issues (seven pupils); and
- negative peer pressure (four pupils).

The findings suggested that some researchers and teachers overemphasise the importance of negative peer attitudes to high ability – believing that able pupils sacrifice achievement in order to fit in socially. The most common complaint from

the pupils was that learning activities in the classroom provided them with little choice about how to complete them – they were given few opportunities to be original, creative or develop their own ideas.

For example, one pupil underachieved in English and humanities more than in other subjects because she disliked having to complete lots of short, structured answers. She preferred to write longer pieces that explored open-ended questions. Another pupil saw little point in making notes about the information that he had heard his teacher explain at the start of the lesson because he could remember it without writing it down. He felt he would gain more from discussing the topic in greater depth and complexity.

Situations such as these caused gifted pupils to disengage from learning or disrupt the learning of others in the class. Yet, more than half the pupils who were critical of the learning style they were expected to use at school admitted to spending at least one hour a week working at home on their own projects, which related in some way to a subject at school, but which they had generated themselves and would never share with their teacher. This included a boy who had learnt to speak Elvish, a fantasy language based entirely on an alien alphabet, syntax and structure, yet who was placed in set 3 for French. This highlights the need to be careful about identifying able underachievers according to the amount of work that gets produced in class and by the way it has been presented.

Peer coaching as a method for tackling underachievement

The peer coaches were effective at raising the younger pupils' effort and attainment in the minority of cases where the pupil's underachievement was due to friendship issues, wanting to fit in better socially, low self-esteem or fear of failure. But it was less effective where underachievement was due to lack of study skills and lack of challenge in the classroom.

One reason why peer coaching was effective at overcoming friendship problems and negative peer pressure was that the coaches were chosen because they were both gifted and popular with their own peer group. Being connected with the

'in' set and the 'cool' people in school helped the younger pupils to gain status in the eyes of their own peer group. The coaches also helped the underachieving pupils gain a sense of perspective about the relationship problems that overshadowed their learning and introduced them to more mature ways of dealing with the teasing, labelling, jealousy and back-biting they sometimes faced.

Although the coaches passed on study skills and learning strategies to the Year 8 pupils, there was little improvement in their attainment because their teachers did not reinforce the skills and strategies during lessons. Similarly, the extent to which lessons challenged gifted pupils was beyond the control of the coaches.

Reference

Rule, B. (2006) Using peer coaches to explain and tackle the underachievement of gifted pupils. The National Academy for Gifted and talented Youth.

Case study 30 Improving gifted boys' writing through enrichment

We chose this case study because it shows how teachers at one school set about providing an enrichment experience, and how it helped to enhance the performance of a group of gifted boys.

Teachers at a boys' grammar school had noticed a disparity between gifted boys' ability in maths and science subjects when compared with their ability in writing. They set out to investigate reasons for this gap as well as teaching and learning strategies that might help to bridge the gap.

The teachers selected 16 pupils (eight from Year 8 and eight from Year 10) who showed exceptional performance in maths or science, but much poorer performance in English (for example, predicted to achieve Level 8 in maths, but Level 6 in English). They interviewed the pupils to find out their attitudes to maths, science and English and found that the pupils particularly enjoyed the practical methods of teaching used by their science teachers. They arranged for a professional writer to help the pupils see writing as a practical and mathematical activity, during a week-long residential trip to France.

Difference in attitudes towards maths, science and English

It was clear from the interviews that the pupils had a more positive outlook about science and maths than English. The teachers found that the pupils liked science because they enjoyed the practical and physical side of the subject. They also valued the subjects because they saw them as relevant to the world around them. Several of them viewed their studies in terms of how relevant they would be to their careers. One expressed the view that physics would be far more relevant to his future career because he wanted to be a chemical engineer; another pupil questioned the worth of English as a career option.

When asked about their feelings towards English, and writing in particular, some of the pupils expressed a problem with using their feelings within their work. They preferred the objective, detached side of science – being able to look at the surrounding world, rather than the personal, intimate side of English, which focuses on the individual. All the pupils showed a dislike of essay, discursive or lengthy pieces, although many talked about how often they wrote long pieces to ensure that they had covered all the correct points, thus also revealing a concern they had with achieving and succeeding.

How the professional writer structured the pupils' writing tasks

The teachers discussed with the professional writer the strategies they wanted him to use with the pupils. These included structuring writing and making it seem as mathematical as possible. The writer explained writing in terms of 'Here are some things to experiment with ... later you could use this as a formula for your writing'. He also talked of 'breaking down a task, like the way you would write up an experiment in physics' and referred to writing as a 'process'.

The writer started the 'experiment' on the coach journey to France. He set the pupils the task of listening out for, and writing down, interesting snatches of conversation which they overheard. He also asked them to make a list of interesting names they came across, and to observe and make notes about three interesting characters they encountered. Finally, he asked them to record three memorable views from the coach window. Later on, the pupils were expected to make use of their recorded snippets when writing a TV drama.

Another day, the pupils spent a morning at a cheese factory. The writer set up the writing task in advance, by instructing them to use their senses and record any interesting sights, smells, taste and sounds. After the visit he asked the pupils to write a list of 20 interesting words to describe their experience. He encouraged them to share the words with the rest of the group. He said that the pupils could 'steal' any

effective words. He also encouraged them to write the words in alphabetical order, producing an alliterative effect. He explained how during the war, French women offered cheese to English soldiers as a token of their love.

Effect of the writer's approach on the pupils

The TV drama-writing task seemed to help the pupils to relax because they had already done much of the work – they already had character names, interesting character details and a setting they could use. The task demonstrated to the pupils a new method of how to approach the writing task and helped them to see it as tightly structured, instead of open-ended. It also enabled them to incorporate the world around them. The pupils were enthusiastic about the task because it felt relevant to them.

The strategy of teaching poetry, combining a scientific process with a romantic story was effective at getting the boys to use their emotions. All of them seemed to manage this effortlessly, and some exceptionally.

For example:

'In the caves they hid, waiting for the mademoiselles to come bearing gifts ... A soft heart of hay and hard work are the ingredients for well matured love.'

The teachers concluded that it was the pupils' mindset, rather than lack of ability, that had hindered their performance previously. The enrichment activities helped to change their attitudes and improve their performance.

Reference

Darley, H. & McGoldrick, A. (2006) Bridging the gap: Bigging up boys' writing. The National Academy for Gifted and talented Youth.

Case study 31

Enriching pupils' learning – what gifted and talented pupils gain

We chose this case study because it shows how pupils were motivated by the learning opportunities created through enrichment activities.

The teacher-researcher set out to find out what pupils in her 11-18 high school gained from attending the extra curricular science activities. The enrichment activities included:

- visits to local universities for lectures, demonstrations and activities;
- visits to local science centres to work alongside local industry;
- residential courses held at universities nationally;
- entry into national science competitions;
- a chemistry club; and
- a science lecture held at the school.

Altogether, 430 pupils from Year 7 to Year 12 were involved in science enhancement events. Feedback gained through questionnaires completed by 230 pupils and interviews with 18 gifted pupils revealed that the pupils benefited from the activities in terms of:

- increased challenge;
- increased opportunities for active learning;
- opportunities for meeting good role models;
- seeing the real life relevance of science; and
- raised awareness of career options.

Increased challenge

The gifted and talented pupils contrasted the kind of practical work they experienced at school with the practical work they experienced out of school. They complained that school experiments were often uninteresting because they were too predictable.

For example, a group of Year 10 gifted and talented pupils highlighted how they had done the same thermal insulating investigation, for which they needed to find the insulator that

would keep water hot for the longest, for three consecutive years, so they already knew exactly which the best type of insulator was.

By contrast, some Year 8 gifted and talented pupils commented on how much they had enjoyed a science enrichment event at a local university where they had been given a mystery to solve that involved using chromatography and chemical tests to identify salts that had been found in a footprint. One boy stated how he had particularly enjoyed the activity because they had worked on the problem with no guidance at all from the teacher. Instead, they had followed instructions from a booklet. He said how he disliked practical science lessons where they were shown what to do by the teacher first because he knew what would happen before he started.

Increased opportunities for active learning

A common thread running through many of the gifted and talented pupils' responses was that the extra-curricular activities allowed more 'hands on' practical experience than much classroom science and this had helped to create more positive attitudes towards the subject.

For example, one event organised for Year 10 gifted pupils was a visit to an interactive physics workshop held at a local university during science week. At the session, pupils designed insulators for high voltage electrical circuits and saw demonstrations involving high voltages and sparks. The pupils made clear their enjoyment of these kinds of activities.

'I enjoyed making something we had personally designed [insulators] and then testing them to see if they worked and how much voltage they could withstand.'

Role models

Attending conferences, such as the 'Express Yourself Conferences', in which pupils presented findings of their own research at regional and national venues, gave them the opportunity to meet and work with science researchers who were carrying out PhD studies in many specialist areas of

science. Their positive influence on the pupils was due to the fact the pupils viewed them as young, trendy role models who had credibility – ‘real’ scientists carrying out important work in the areas of medicine, sport science and cosmology etc. After attending such conferences, gifted and talented pupils could better identify how the science they were studying in school could be developed further and studied at a much higher level.

Seeing the real-life relevance of science

Some university events helped the gifted and talented pupils see the relevance of science to their everyday lives and how what they learned could have practical applications. For example, at one event, the gifted and talented pupils were given the opportunity to design and test their own insulators. They compared this experience with a maths trip they had also been on in which they designed, built and tested a tent and its ability to keep you dry. They suggested that the relevance added extra interest in the problem and increased their desire to solve it.

Raised awareness of careers

Some of the Year 10 gifted and talented girls discussed a trip to a local university event they had been taken on whilst in Year 9. The aim of this event had been to encourage girls into science, technology and engineering careers – occupations traditionally dominated by men.

They described with enthusiasm a real problem they had been asked to solve relating to a terrorist attack on a local shopping centre. They described the event as ‘really funny’ and ‘enjoyable’ although one pupil stated that perhaps pupils should have been asked before the event whether they were interested in engineering, because she wasn’t. Whilst she had enjoyed the day, it had not encouraged her to enter the world of engineering. However, her friend pointed out that if only the people interested in engineering were sent on the trip, there would be no point to it, as no new interest would be generated.

Another gifted and talented girl stated that both that trip and the physics trip had increased her interest in studying either engineering or physics at university.

Reference

Heaton, A. (2006) ‘Making science sexy’: raising the profile of science for gifted and talented pupils. The National Academy for Gifted and talented Youth.

Case study 32

Accelerating the curriculum for gifted and talented pupils at KS3

We chose this case study because it explores some of the pros and cons of accelerating the curriculum for gifted and talented pupils, as seen by the pupils themselves as well as their teachers.

Interviews with gifted and talented pupils at Key Stage 3 revealed they shared the same feelings of boredom and repetitiveness that are often reported in the research literature. The pupils were fast-tracked at Key Stage 3 – taking their standard assessment tests (SATs) in Year 8 (rather than Year 9) and then continuing to GCSE courses a year early. The teacher-researcher then explored the views of staff and gifted and talented pupils about the effects of accelerating the curriculum at her boys' grammar school.

The study found that accelerating the curriculum was an effective way of motivating and extending the gifted and talented pupils within the school, although some pupils appeared to lack the maturity to deal with some of the intricacies of the GCSE specifications.

Pupil views of acceleration

All the pupils were positive about the accelerated curriculum. They viewed it as a challenge, but thought they could cope, and felt motivated by it. They commented for example:

'It has been hard work – it is quicker and harder and it has been interesting to see how some of us are struggling by doing it earlier than normal.'

'There is a bit of pressure this year – but not an immense amount.'

'It has been more interesting because it has been taught over a shorter period.'

'I have always been told that Year 8 was ...just a waste of time ... it is quite nice to have the work speeded up.'

'Because I knew I had to do everything much quicker, I felt I had to work hard.'

However, some of the pupils pointed out that they could find ways of making work that was presented at a slower pace interesting:

'It doesn't matter if the work is easy – I just find that sometimes if it is too easy, I can add to this and I can do something that they aren't expecting. So for example, in music, if I find the piece is easy I will think how I could add to it or how I could improve it.'

Teacher views of acceleration

Teachers were generally positive about their experiences of acceleration, although English teachers expressed some concerns. Mathematics staff felt that it enabled the pupils to make the transition between GCSE and A level more successfully. After the pupils completed GCSE maths in Year 10, they continued with the subject in year 11 and took a free standing mathematics qualification worth 60 UCAS points which provided them with a taste of A level mathematics.

An English teacher felt that some of the boys would have benefited from the extra year's maturity to develop some subtlety in their interpretations, especially with complex concepts such as Lady Macbeth's character development.

'They got the basics well but without sophistication in most cases.'

Another English teacher made a similar comment.

'The Year 8 pupils struggled longer to get their heads round the Shakespeare play. I spent a lot of time explaining the plot, more than with Year 9, so there was not as much time available for analysis of the play.'

A further teacher commented:

‘Now I am teaching a top set Year 9 for GCSE English, it is easy for me to think that yes, they can cope. I do have a high number of able boys in this group. But I also have a number who feel a bit out of their depth.’

Although the pupils were motivated by their experience of an accelerated curriculum, staff noted how it also created a potential problem for them. As the Year 7 and 8 work was much easier, the pupils found it much easier to pick up if they had missed a lesson, whereas with the GCSE courses, they couldn't rely on their own knowledge and intelligence and they often needed the help and support of staff – something they had not had to deal with before.

Reference

Brooks, A. (2006) The impact of an accelerated curriculum on gifted and talented pupils at KS3. The National Academy for Gifted and talented Youth.

Case study 33

Opening up learning to all pupils

This case study shows how a junior school developed policy and practice to ensure equality of access to the curriculum for all pupils, including those for whom English is an additional language.

The school adopted a whole-school approach that included direct language support from a specialist teacher. The whole-school approach was based on creating a learning environment that encompasses a varied range of teaching and learning strategies, multicultural and multilingual resources and displays, and whole school celebrations that embraced a wide range of world cultural events.

Aim

Specifically the school aimed to provide effective learning opportunities for all pupils, by: setting suitable learning challenges, responding to diverse learning needs, and overcoming potential barriers to learning.

Factors underpinning work with bilingual and multilingual pupils

The school recognised a number of background factors as being key to progress for EAL pupils, including:

- recognition of the importance of home language;
- treating racism and bullying seriously;
- strong home/school and wider community links;
- learning environment that is sympathetic to a variety of cultures;
- resources which include bilingual materials; and
- a curriculum which portrays positive images and role models.

The role of the EAL specialist teacher

The school received language support (currently 0.5) from an EAL teacher from the ethnic minorities achievement service (EMAS). The EAL teacher liaised with the school multicultural education co-ordinator. The involvement of the

EMAS teacher in school planning occurred at all levels, as appropriate to meet the needs of EAL pupils.

The role of the EAL specialist teacher included:

- initial assessment of language stage of EAL pupils;
- monitoring of EAL pupils' progress;
- in consultation with class teachers, collaborative planning and target setting for EAL pupils including both curriculum and EAL specific objectives; and
- direct support of pupils' language development both in class and withdrawal (1:1 or small group) as appropriate, for language development and enrichment.

A key role of the EAL specialist teacher was to provide class teachers with advice in a number of areas including:

- differentiation of work for EAL pupils;
- curriculum materials;
- classroom strategies to support EAL learners in the classroom; and
- implementing inclusion statements for EAL pupils, refugee and asylum seeker pupils, ethnic minority pupils and EAL pupils with SEN.

Curriculum planning

The school recognised that the needs of EAL pupils in accessing the curriculum had to be carefully planned.

Specifically teachers aimed to ensure that:

- the language and learning needs of pupils were clearly identified and provided for ;
- the language and learning demands of the curriculum were analysed and appropriate support provided;
- visual support was provided for key concepts;
- planning included opportunities for first language activities in the classroom; and
- the support requirements of pupils were identified.

Classroom practice

This was based on a number of elements, including:

- teachers having high expectations of all pupils regardless of ethnicity, gender, or social background

- activities being matched to pupils' needs and abilities with a clear sense of progression.
- developing oracy and literacy through:
 - awareness and utilisation of the children's first language expertise;
 - provision of scaffolding/writing frames; and
 - using story props.

Developing pupils' language skills

The school planned to raise pupils' language skills through a number of activities including:

- collaborative activities that involve talk;
- opportunities for giving feedback to others; and
- opportunities for structured group work that encourages participation, and models the skills pupils need to develop.

Creating a learning environment

Teachers planned to use displays in the classroom and around the school to reflect linguistic and cultural diversity. Dual language textbooks would be available and in use where appropriate. To help pupils access their learning teachers used a number of visual approaches based on:

- videos;
- maps;
- posters;
- pictures;
- objects; and
- ICT.

EAL pupils and special educational needs

The school was keen to ensure that pupils whose first language was not English were not automatically understood to have special educational needs, whilst accepting that EAL pupils could have SEN. The school recognised both the importance of, and the difficulties involved in, the early recognition of SEN in EAL pupils. Assessment of SEN in EAL pupils involved the EAL specialist teacher as well as the special educational needs co-ordinator. The EAL specialist teacher was responsible for ensuring that home language did

not prevent the parents /guardians either from accessing information on their child's special educational needs, or from putting forward their point of view.

Liaison with parents

For parents of EAL learners this was taken into consideration by:

- providing a welcoming environment, actively seeking to put parents at their ease in what may be an unfamiliar setting;
- monitoring letters, newsletters, sent home to check that language used is clear and straightforward;
- reading through letters (where appropriate) with children before they are taken home;
- provision of translations of school documents in community languages, where appropriate;
- encouraging parental attendance at parents evenings and participation in other school functions, such as school assemblies, PTA activities, fêtes, sports days;
- informal contact with parents in school playground to reinforce communication;
- inviting parents into school to help with class activities such as reading, cooking, class outings;
- encouraging parental involvement with shared reading scheme and homework, which may be specifically language based; and
- encouraging parental involvement on governing body.

Assessment and target setting

Monitoring EAL learners' progress and development was shared between mainstream teachers and the EAL teacher. Individual pupil profiles were kept updated with relevant information and regular assessment tasks to monitor children's progress. This assessment also informed curriculum planning. Pupils were encouraged to take responsibility for their own learning by setting their own targets for achievement or assessing their own progress.

The school also carried out a structured programme of ethnic monitoring to observe the performance of different groups in relation to academic achievement and uses the

results to assess whether its provision is ensuring equal educational achievement by all groups.

Impact of the strategy

Data published by the DCSF showed steadily improving aggregate scores for English, mathematics and science. Ofsted particularly singled out reading levels, science achievement and family learning as worthy of mention.

Reference

Gloucestershire County Council: Tredworth junior school
www.gloucestershire.gov.uk/schoolsnet/index.cfm?articleid=21101

Case study 34 **How children were taught to monitor their own behaviour**

We have chosen this study because it explains in detail the content of an effective training programme in which children were taught how to adopt target behaviours, such as raising a hand to answer a question without calling out.

The children were trained in self-instruction by a researcher, in an empty classroom. The children displayed less disruptive behaviour when they returned to the mainstream classroom and the effects of the programme lasted several months.

The researcher taught children aged seven to nine in a large primary school in the US, self-instructional strategies for monitoring and reducing off-task and other inappropriate classroom behaviour. A target group of 55 children, identified by the teacher as exhibiting off-task behaviour, were randomly put into either the group that did not receive the programme (the control group) or into the group that received eight one-hour lessons spread over eight days (the intervention group).

The programme had three parts:

- modelling;
- practising; and
- cueing.

Modelling

The children watched adults, and pupils who were the same age as themselves, using self-instructional strategies for improving particular behaviours.

When watching the adults, the children followed a five-step process:

- the researcher sat at a table in front of the children. The researcher described typical classroom scenarios involving different target behaviours (such as raising a hand to speak);
- the children watched the researcher performing a target

behaviour as she talked out loud about the behaviour –for example, ‘If I scream out the answer, others will be disturbed. I will raise my hand and wait my turn. Good for me – see, I can wait!’;

- the children performed the same task whilst the adult model gave verbal instructions;
- then the children performed the task whilst instructing themselves as they went through the task; and
- finally, the children guided themselves in performing the target behaviour using their own inner speech.

The children also watched other children who were the same age on videotape to see how the self-instruction strategy aided pupils’ performance in a typical classroom scenario. The researcher added a commentary to the video using the following categories of self-instruction.

- Problem definition – for example, ‘What is it that I have to do?’
- Focusing attention – for example, ‘Now, look at this.’
- Self-guiding – for example, ‘Carefully cut along this line.’
- Self-reinforcement – for example, ‘Good, I’m doing fine.’
- Self-coping – for example, ‘That’s all right; even if I can’t finish, I can try.’

Practising

The children practiced self-instruction through:

- role-play (such as classroom scenes to practise self-instruction to guide behaviour);
- pencil and paper tasks (such as writing examples of self-instruction); and
- art activities (such as drawing themselves engaged in self-instruction with their thoughts written in speech bubbles).

Cueing

Cue cards were introduced as prompts to remind the pupils of the self-instruction they had been taught. The cards reminded the children to:

- inhibit poor behaviour – for example, ‘Stop me shouting out’;

- initiate target behaviour – for example, ‘I need to listen’; and
- reinforce target behaviour – for example, ‘Good for me, I concentrated’.

The control group did similar activities, but these did not involve self-instruction. For example, they saw good behaviour being modelled, practised good behaviour and had cue cards, but were not taught self-instruction to help them perform the target behaviours. The target behaviours were presented as ‘external directives’ or ‘classroom rules’ that they must follow.

Compared to the children in the control group, the children in the intervention group showed significant improvements in classroom behaviour (as rated by both teachers and independent observers who were unaware of the group allocation) and became more internal in their ‘locus-of-control’ beliefs. On average, effect sizes ranged from moderate (around 0.5) to substantial (around 0.8). Effects were also sustained at a three-month follow up.

Reference

Manning, B.H. (1988) Application of cognitive behaviour modification: first and third graders’ self-management of classroom behaviours. *American Educational Research Journal* 25, 193-212

Case study 35

Training pupils in communication skills

We chose this case study because it describes a training programme designed to help pupils, including pupils who were disruptive and who also had poor communication skills.

Twenty-four pupils from a primary and a secondary school in Leicester took part in a ten-hour teaching programme called the 'Communication Opportunity Group Scheme' (Cogs). The programme aimed to improve the pupils' ability to express their thoughts and feelings, to help improve their confidence and behaviour.

The researcher's rationale for the Cogs teaching scheme was that talking is central to learning – that thinking aloud helps people to clarify their thinking, grasp ideas and remember them. She argued that it is often the teacher who does most of the talking in classrooms. She also quoted previous research that showed how many children lack language skills and are emotionally immature when they start school, yet school success depends on the ability to use language and to behave appropriately. Some children respond to classroom requirements to listen quietly and do what they are told. Others – the 'difficult ones' – do not.

The Cogs teaching scheme helped the pupils understand and practise using narrative structure, such as giving directions, explanations, accounts and reports. It identified four areas of communication:

- clarity – how to give clear messages and make ideas interesting;
- content – giving relevant information;
- convention – looking at how to present ideas and the rules that govern this; and
- conduct – how to respond appropriately so as to improve the impression your ideas make on other people.

The pupils were given a range of structured tasks and they were assessed in one writing and four speaking tasks. For example, at the first level the tasks included:

- performing a short poem to examine aspects of clarity;

- talking on something that interested them to consider issues of content;
- formulating a question to someone to look at aspects of convention;
- answering questions from the audience to understand the role of conduct; and
- producing a personal profile as an example of creative writing.

The teaching activities allowed for some pupil choice. Pupils looked first at objects and their relationships to one another and then they discussed their feelings and emotions. The programme used a 'tell, show, do and coach' approach, starting with review, demonstration and guided practice and followed by corrective and supportive feedback. The pupils were encouraged to take control of their own learning through coaching each other in groups and working independently.

Twelve of the pupils received one hour of teaching a week for ten weeks, and 12 received two hours of teaching a day for one week. A control group of 12 pupils, who were also disruptive and had poor communication skills, continued to receive their usual learning support. The three groups were tested in communication skills before and after the teaching scheme.

The results indicated a significant and positive difference between those pupils receiving weekly or intensive training compared with the controls. Whilst the scores of the pupils in the control group deteriorated in the communication and reading tests (which the researcher suggested was due to end of term exhaustion), the scores of the pupils who took part in the weekly and the intensive programme improved by a similar amount. The pupils who took part in both programmes also demonstrated improved behaviour.

Comments made by the pupils indicated that their attitude towards and their understanding of work improved, and that their confidence had increased.

‘Talking helps me do more work on my own.’
‘Talking makes it easier to get help.’
‘Talking makes you behave better at school.’

Their teachers made similar comments.

‘Works extremely hard and has improved greatly in confidence and behaviour.’
‘Now volunteers answers and has a good understanding of the work.’

A parent also commented on the positive effect she felt the programme had had on her daughter.

‘It pushed her forward and gave her a new outlook. She loved it – it was different from normal lessons. I cannot believe the difference in her. She focuses more and is not frightened of doing new things.’

Reference

Sage, R. (2002) ‘Start talking and stop misbehaving: teaching pupils to communicate, think and act appropriately’

Case study 36 A group counselling programme for reducing aggression

We have chosen this study because it explains in detail the content of an effective training programme designed to help children cope with their feelings of anger and frustration.

Twenty-four boys and girls aged nine to twelve in the US, who had been selected randomly from a pool of 47 children nominated by their teachers as behaving in an aggressive and hostile manner, took part in the study. Half the children were randomly allocated to receive the intervention; the other half was assigned to a control group.

The researchers argued that disruptive behaviours, caused by children feeling angry or frustrated, are best tackled by addressing the root cause of the problem – the angry feelings – rather than by tackling the disruptive behaviour directly by punishment. They suggested that punishing a child who throws things for example, while feeling angry, does not allow the anger to disappear, it just results in stopping an angry child throwing things. The aim of their programme was to teach children how to handle their angry feelings, in order to prevent disruptive behaviour from occurring.

The intervention had three phases and was delivered by a trained counsellor over ten sessions.

- **Phase 1** was to help the children develop an understanding of anger and to differentiate its positive and negative aspects.
- **Phase 2** focused on incidents that had precipitated angry feelings in the children in the past and had them discuss their reactions to them.
- **Phase 3** provided opportunities for the children to practise appropriate behaviours when they felt angry. This was accomplished by modelling, role-playing and giving feedback.

The children took part in the following sequence of activities.

Name tag game

The children were given 'name tag' cards on which they wrote:

- their names;
- four positive adjectives they believed described themselves;
- their favourite television programme;
- something they did which they were proud of;
- someone they admired; and
- a school subject they enjoyed.

The children discussed their name tags with a partner and then introduced each other to the rest of the group. The counsellor presented the rules of the group (for example, one person talking at a time, confidentiality, passing if the child had nothing to say).

Awareness of feelings

The children drew pictures of various feelings that they had experienced. When discussing these drawings, the counsellor discussed the positive and negative aspects of the various feelings with an emphasis on the children's responses to angry feelings.

Specific incidences of feelings

The counsellor showed the children a Ferris wheel with seats of different colours representing different feelings (gold = happy, pink = okay, red = angry, blue = sad, white = so-so).

The counsellor asked each child to:

- suggest specific situations which made them feel happy, okay, angry, sad, so-so (one for each colour on the wheel);
- choose the coloured seat that best represented how they would feel in different situations suggested by the counsellor (such as getting full marks on a test, being punched and falling over); and
- choose the coloured seat that best represented how they would feel in situations that would cause angry feelings (such as a friend stealing something and blaming you, a teacher accusing you of cheating when you were not and someone breaking a promise to you).

Finally, the pupils discussed their reactions and behaviours resulting from their angry feelings in terms of positive and negative consequences.

Reactions to anger

The counsellor presented the children with more situations that would typically result in angry feelings. The children discussed how they would react and looked at their responses in terms of the seat colours on the Ferris wheel (for example, remaining angry and being alone = blue, talking it over, walking away = pink, giving it time to work out = white, hitting and screaming = red).

Then the children discussed alternative reactions that would result in feeling happy (gold) or so-so (white) and whether or not their individual responses were constructive or destructive.

Making choices

The counsellor suggested scenarios whereby the children would practise decision-making skills. Emphasis was placed on weighing the pros and cons of each situation in terms of the consequences.

Alternative reactions to anger

The counsellor presented the children with situations that they would normally feel angry about. Referring back to the Ferris wheel, each child was asked to think of a different response for each of the colours and a reason for choosing those alternatives. Then the children were asked to give real life situations that made them feel angry, identify their usual response, and, finally, decide on a different, more appropriate response.

Modelling behaviours

The children suggested incidences that made them angry. The counsellor role-played appropriate, constructive outcomes with positive results.

Role-playing

The children were divided into groups of two or three. The counsellor gave each of the groups a situation, such as your parents promised that you could see a movie this Saturday.

At the last minute they changed their minds and said that you had to babysit your younger brother. The groups role-played their reactions and the whole group discussed each of the presentations. In the subsequent session, the groups were all given the same anger-provoking situation. Each group role-played their reactions. The whole group discussed the different presentations.

Summary and wrap-up

The children summarised their experiences during the previous ten weeks. The counsellor answered their questions and the children shared their reactions.

The researchers found a significant decline in teachers' ratings of aggression and hostile isolation in the children who had been assigned to the experimental group, compared with the control group. However, the children displayed aggressive behaviour again, very soon after the sessions finished, suggesting that the programme may need to be ongoing to maintain the effect. Another explanation for the short-term effect could be that the programme did not allow the children to gain control over their learning or to internalise the learning, as it did in the previous case study.

The extent of the impact of the programme may also have been reduced because the class teacher had revised his or her expectations of the children's behaviour, in view of the training they had been given.

Reference

Omizo M.M., Herschberger, J.M., and Omizo S.A. (1988) Teaching children to cope with anger. *Elementary School Guidance and Counselling* 22, 241-246



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