

Research for Teachers

Effective talk in the primary classroom

published: Fri Sep 01 10:39:35 GMT 2006

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There is plenty of sound evidence about the effectiveness of structured dialogue in small groups for pupil learning. But how effectively does classroom talk in whole class situations promote pupils' learning?

For this TLA research summary we feature a study in which groups of primary teachers and school leaders explored this issue with the support of a team of researchers from the University of Exeter. This study into patterns of talk during whole-class teaching episodes shows how hard the demands of classroom teaching make it for teachers to move away from dominating classroom talk and how the teachers worked to give pupils opportunities to learn through speaking.

The participating teachers believed in the importance of good questioning and of pupils participating in classroom talk. By reflecting on videos of their lessons, teachers identified several features likely to increase pupils' participation in classroom talk and developed strategies to use them more often. A second phase of the project showed positive change in some areas of practice, but also showed that teachers found it difficult to make extensive changes to their questioning strategies.

Given the sustained emphasis on whole class interactive teaching in recent years, this study offers some useful insights into strategies for improvement. It also suggests possible reasons for why even motivated teachers find changing their patterns of classroom talk difficult. In whole-class situations, it seemed that teachers were anxious to cover curriculum objectives and so they prioritised group delivery of learning objectives and curriculum content over developing individual pupil understanding. This added to their difficulties in overcoming ingrained habits of unrehearsed classroom talk.

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Overview

Why is the issue important?

Whole-class interactive teaching is a core feature of the national strategies. It involves teachers working in ways that give pupils opportunities to learn through speaking. Teachers can enhance pupil participation in classroom talk through good questioning for example. But the demands of classroom teaching can make it hard for teachers to resist dominating classroom talk.

What did the research show?

To begin with, the teachers tended to prioritise group delivery over developing individual pupil understanding in whole class situations because they were anxious about covering curriculum objectives. They also tended to spread questions widely amongst the class, rather than explore any one pupil's understanding in greater depth, probably because they were concerned about ensuring participation by as many pupils as possible. But over the course of the project, the teachers started to make changes to their practice, implementing strategies that enhanced their pupils' engagement in whole class question and answer sessions.

How was this achieved?

Teachers reflected on videos of their lessons, identifying several strategies likely to extend pupil participation and to improve the quality of pupil contributions. Many teachers decided to experiment with paired talk within whole-class teaching episodes. Some teachers operated a 'no hands up' policy, in which they chose a pupil to answer from the whole class. Other teachers tried giving children more time to think about their answers, with the aim to open up to a wider range of pupils to take part and increase the quality of the answers.

How was the research designed to be trustworthy?

Twelve teachers took part in this study. As well as being its subjects, all the teachers took some part in the research. Three headteachers from the schools acted as key teacher-researchers. They collected a range of data including:

- video recordings of whole class episodes that captured non-verbal interactions and pupil responses
- audio recordings of teachers' talk
- observation of a sample of high and low achieving boys and girls using structured observation schedules to capture their verbal and non-verbal responses
- post-observation interviews with pupils using questions aimed at establishing pupils' level of understanding.

What are the implications?

The research showed the importance of:

- active participation by more children in class
- increasing opportunities for pupils to talk directly to one another
- the benefits of questioning and building upon knowledge pupils have gained outside school.

What do the case studies illustrate?

The case studies show ways teachers have changed their practice to boost the engagement levels of all pupils, and especially quiet pupils. They explore, for example:

- using pupils' prior knowledge in whole class teaching
- teaching children to ask questions
- increasing opportunities for paired work.

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Study

What did teachers believe about using talk as a tool for learning?

Throughout the project, teachers held reflective discussions after watching themselves on video. The researchers analysed the content of these discussions to find out what beliefs teachers held about classroom talk and its uses. They found that teachers often discussed the use of:

- questioning, which they felt to be a crucial element in whole class talk
- talk to make connections between previous learning and the objectives for the current lesson
- interactive talk (by which they meant questions and answers) to encourage the 'active participation' of every child
- talk to develop vocabulary; and
- non-verbal communication to reinforce verbal messages and keep children interested.

One teacher mentioned that offering pupils opportunities to talk helped them to develop socially and another said that talk could be used to establish expectations of social behaviour. A couple of teachers explicitly recognised their use of talk as a tool to inform and instruct pupils. One said:

"My main use of talk is to pass information and instructions on and to check children's understanding."

Teachers believed that questions were a vital part of classroom discourse and used them for a range of purposes. They mentioned using questions for:

- assessing pupils' existing knowledge
- reviewing what had been learned in a previous lesson
- improving pupil participation in the lesson
- asking children to articulate their reasoning
- generating ideas
- promoting thinking and problem-solving; and
- differentiating by directing specific questions to certain children.

One teacher explained how she aimed to use questioning to fulfil several goals:

"I spend several minutes questioning the children about what has gone on before and what they remember about it. I then make a link between that and the proposed work for the current session. I feel it is important for the children to see that link."

Project teacher

The project teachers all believed in the importance of achieving a high level of pupil participation during whole class teaching and wanted to include as many pupils as possible in an active way in their classroom interactions. This was hard to achieve in a class of about thirty pupils, who varied in their eagerness and ability to contribute.

"I am continuously aware of the 'fringe' children - the children who sit around the edges and appear to be listening and doing the right things but who actually have little or no input unless questioned."

What did teachers notice from the early project findings?

At the end of the first year of study, all the teachers involved in the project met to discuss the findings that had accumulated from watching and reflecting on video evidence of their own classroom practice during the year. They identified aspects that they wanted to change and used these to plan the next stage of work. They produced guideline materials to encourage further reflection and changes in practice within each area of concern.

Teachers were especially concerned about:

- generating greater pupil participation in classroom talk
- how to use classroom talk to improve pupils' understanding.

The next sections discuss what teachers did about these areas.

How did teachers decide to improve pupil participation in classroom talk?

Teachers wanted to improve the quantity of pupil talk, to extend pupil participation to the full range of pupils and to improve the quality of pupil contributions. They aimed to do this by:

- making greater use of paired talk
- using more effective questioning techniques.

Many teachers decided to experiment with paired talk within whole-class teaching episodes. They tried to create an expectation that everyone would respond to a question by 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. One teacher said:

"I'd like to develop the idea of exchanging views or write ups with each other and saying whether they are clear or need further work done. The negotiations between pairs are very productive."

Practitioners might wish to read a case study from the RfT 'Effective literacy teaching in the first years of school', in which a teacher promoted pupil discussion of imaginative writing.

Teachers noted that not all the pupils participated, and wanted to improve this.

"I'd like to have much more impact on the whole class"

"Talk in the classroom is very much directed towards those children with the confidence to put their hand up."

Some teachers decided to operate a 'no hands up' policy, in which they chose a pupil to answer from the whole class, rather than choosing from a self-selected, smaller group. Teachers were concerned not to put undue pressure on shy pupils, so pupils had a right to pass if they did not wish to answer. Deciding what is an appropriate response to shy pupils is a difficult issue and practitioners might wish to read a case study on the subject.

Teachers thought that giving children more time to think about their answers might help a wider range of pupils to take part and increase the quality of the answers they gave. They decided to leave longer pauses after asking questions. They also wanted to improve and clarify their own responses to pupils' answers.

"I need to follow up children's ideas and be definite with yes or no responses."

As well as being used to extend pupil participation in the lesson, questioning played an important part in the use of classroom talk to improve understanding.

How did teachers decide to improve pupils' understanding?

Teachers decided to use several strategies to improve pupils' understanding. These included using:

- more open questioning to discover and build on pupils' current levels of knowledge and understanding; and
- clearer, more succinct explanations.

Teachers wanted to develop questions that could help them to assess individual children's understanding more precisely. They reflected that they sometimes asked an apparently open question but still anticipated a specific response that effectively closed the question. Teachers commented that it might be better to give a clear, concise statement instead of asking a leading question.

Improving explanations

Teachers recognised that they needed to say less.

"Introductions need to be short, sharp and to the point!"

"Lessons develop into listening marathons for the children."

They realised that their explanations needed to be precise, carefully planned and structured, and to use well-chosen examples, with visual materials for support. New technical terms often needed careful explanation.

"I have recognised that I need to explain things really basically and start from the beginning ... before introducing new ideas."

"I must try not to give the children too many new concepts, words and ideas at once."

Teachers recognised that, although one pupil might demonstrate understanding in an exchange, others still might not understand.

"This talk just found out whether one child could remember how to find the range. The lesson progressed, possibly without every child understanding how to find the range."

They decided that it was helpful to use physical resources, such as individual white boards, coloured cards for signalling agreement/disagreement, or happy/ sad faces to signal understanding or confusion, so as to gain a clearer view of the extent of children's understanding across the class.

What challenges arose in relation to changing classroom talk?

The researchers observed a major change in the pattern of classroom talk during whole class teaching in the second year of the project. When they watched and discussed the videos from the first year, teachers became aware of a common teacher-pupil-teacher-pupil pattern of talk, in which they inadvertently took half of all the available turns in the conversation. They deliberately changed this, following the example of one teacher who broke the pattern when she responded to pupil interest in a discussion of capital punishment. She asked them to talk in pairs for one minute. This had the effect of getting everyone actively involved in the lesson.

As a result, although in the first year of the project only one minute of the 810 minutes recorded a deviation from the teacher-pupil-teacher-pupil pattern of interaction; in the second year, there were 14 examples (and 34 minutes out of 270 minutes recorded) of teachers deliberately breaking this pattern.

Many teachers 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. In a Year 1 lesson, children used cardboard microphones as a prop to interview each other about their families in the middle of a whole class episode exploring belonging and identity.

"I was very pleased with the interviewing activity and would like to develop strategies to encourage less confident children to participate."

In the second year of the project, pupils spent more time interacting directly with each other than before. Practitioners may wish to explore a case study linked to this research on how teachers set up paired work so that it operated smoothly.

Teachers also broke the teacher-pupil-teacher-pupil pattern of discourse by:

- inviting other pupils to respond to something one of them had said
- allowing pupils to answer one another directly
- leaving silence and allowing more time for pupils to think about an answer
- encouraging one pupil to make several responses to a question
- avoiding the habit of repeating each child's contribution.

Nevertheless, some aspects of classroom practice changed little in the second phase of the research. For example, the ratio of statements to questions remained similar. This could have been because the teachers came to believe that making a short, clear statement might be a preferable alternative to asking several closed, leading questions. Improving questioning seemed especially difficult: the research found no increase in the

proportion of speculative or process questions used in the second year, despite teachers making explicit efforts to improve their questioning techniques.

Why might it be difficult to make fundamental changes to the pattern of discourse in whole class situations? Teachers' preoccupations with the need to cover the curriculum and get good test results were important factors. The researchers also pointed out that most teacher talk in the classroom is spontaneous and unrehearsed, even when the content has been planned. They suggested that the structure of this unrehearsed talk may be ingrained by habit and reinforced by expectations of what is appropriate in class, so that it can only be changed slowly and gradually.

Practitioners may wish to look at a case study that shows how a science teacher completely changed his approach to questioning students so as to explore their ideas and support their learning better. This case study is part of the RfT on 'Assessment for Learning: putting it into practice.'

How do interaction and reflection come together in whole-class teaching?

The style of teacher/pupil interaction commonly found in this study of whole class teaching was quite tightly controlled by the teacher. It was characterised by quick-fire question and answer work. Most teacher questions elicited brief, factual answers from pupils and relatively few questions inspired higher order thinking. This pattern of brisk questions and answers was similar to that presented to teachers as part of their training for the introduction of the National Literacy and Numeracy Strategies. The National Literacy Strategy (NLS) states (p112) that whole class teaching is most effective when "it is interactive, delivered at a good pace". However, the NLS also states (p8) that, in whole class teaching, "...pupils' contributions are encouraged, expected and extended". Research evidence from elsewhere suggests that pupils benefit from a more reflective style of discussion that promotes and extends their responses. The researchers in this study pointed out that use of the term 'interactive teaching' was problematic, as it encompassed a number of different meanings and could be interpreted in a variety of ways.

The teachers in this study wanted to include as many pupils as possible in their whole class teaching. They did this by asking a large number of questions to which pupils could give brief, factual answers. This also enabled teachers to remind pupils of what they had previously studied in class and to control the subject matter under discussion so that everyone seemed to move as efficiently as possible towards achieving the planned learning objectives for the lesson. Teachers gave instructions, explained concepts and offered factual information to pupils as part of this process. Despite teachers' efforts, not all children actively participated during the whole class sessions.

It was unusual for teachers to explore pupils' prior knowledge of a topic fully. Teachers assumed that pupils' prior knowledge was based on what they had already been exposed to in class. About eight per cent of questions recapped knowledge that teachers expected their pupils to have, but teachers rarely asked questions to discover and build on knowledge that the pupils might have gleaned from personal experience outside the classroom. Practitioners might wish to read a case study linked to the main study about building on pupils' prior knowledge.

As the teacher-researchers watched videos of their whole class teaching, they became aware of a need to consider what their pupils' answers told them about their actual levels of understanding. The next pages discuss what teachers noticed about how they responded to pupils and how the nature of the dialogue between teachers and pupils affected learning.

How did teachers respond to their pupils?

Teachers' actions during the first year showed that they were anxious to stick closely to their prepared lesson plans and objectives for the lesson. Their discussions highlighted a dilemma they faced. Teachers wanted to be more flexible and responsive to individual children's needs. Nevertheless, they were acutely aware of the need to make sure their pupils performed well in national tests and that the school did well in league tables and Ofsted inspections. They were sure that their teaching needed to be focused and purposeful with clear objectives for learning, in line with the national strategies. Teachers had to balance their wish to respond to individuals with their need to cover a considerable amount of curriculum content. This meant that teachers responded to pupils in ways that did not always connect with their thinking.

The study explored 'critical moments' when pupils gave an unexpected answer that indicated a gap in their understanding. Teachers' responses to these determined the course of subsequent discussion. Videos showed it was rare for teachers to use these occasions to explore the pupils' thinking. They more often responded in ways that made sure that the class continued to follow the teachers' pre-planned teaching objectives. These are some of the ways in which teachers kept the focus of classroom talk on their own lesson plans and stated learning objectives, rather than following up an unexpected response:

- ignoring answers they felt were inappropriate or unhelpful
- giving clear, strong cues to steer pupils towards a hoped-for answer
- overtly redirecting pupils back to the aspect of the topic they wanted to consider
- re-phrasing a pupil's answer so that it fitted more closely the answer they wanted to hear.

Sometimes, teachers accidentally misheard or misinterpreted what pupils said. Nevertheless, the outcomes of such exchanges were missed opportunities to discover the learning implications of what the pupils had said. Watching the videos made teachers more aware of what was happening and they determined to do something about it.

The videos also showed that it was rare for teachers to extend a conversation with any individual. They usually praised each responding pupil and then moved on to ask another question of a different pupil. Teachers' tendency to spread questions widely amongst the class, rather than exploring any one pupil's understanding in greater depth, probably stemmed from their concern (highlighted in teachers' reflections on watching the videos) to ensure participation by as many pupils as possible.

Working on different wavelengths

Sometimes, it seemed that teachers found it hard to spot connections between individual pupil's responses and their own plans. In the example below, during a discussion of similes, the teacher expected a particular answer and missed her pupils' different interpretation of the word 'light'.

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

Sarah: Stars.

Teacher: Stars? Would stars be light? What made you think of stars? Interesting. Any others? 'As light as...?'

Alex: Sun.

Teacher: Oh, so you're thinking of light, too. What do you think I mean when I say lighter than here? [She uses a balancing motion with her hands.] What do you think I mean?

Carl: Weight.

Teacher: I was imagining the weight of the snow. What could be lighter than snow?

The teacher initially missed the connections her pupils were making between the whiteness of snowflakes and stars and the double meaning of the word 'light'. If she had allowed time for a response to her question, 'What made you think of stars?', the pupils could have produced similes about brightness, which would have fulfilled the lesson's learning objectives about similes equally well. This teacher later reflected on the importance of remaining aware of alternative meanings for words so as to be able to respond flexibly to pupils.

How did patterns of classroom talk affect teaching and learning?

Watching the video recordings allowed the teacher-researchers more time to think about possible alternative responses that might have helped them to explore their pupils' thinking and extend their understanding.

As in all classrooms, pupils in the study gave unexpected answers to questions and teachers had to make a split-second decision as to how to respond. These unexpected answers could indicate that:

- a pupil had interpreted a question differently
- a pupil had misunderstood something
- a pupil had a deeper than anticipated understanding of the question
- a pupil was preoccupied with something else.

During the cut and thrust of a lesson, teachers rarely caught these critical moments and did not pursue whatever lay behind unanticipated answers. However, there were instances, especially in mathematics lessons, when teachers encouraged pupils to think out loud, listened carefully to the implications of what pupils were saying or thinking and responded more flexibly. These instances helped to promote learning. Practitioners may wish to read a case study from the RfT on 'Effective teachers of numeracy' that explores how secondary mathematics teachers encouraged more reflective dialogue during whole class teaching.

Even following reflection on the video evidence, there was room for debate about whether flexibly pursuing the learning of an individual child was the best response in a whole class context. During a whole-class interaction, teachers had to consider and balance the needs of many learners with the needs of each individual. The teachers in the study taught Year 2 and Year 6 classes, the year groups in which pupils take national tests. As we explained above, the teachers were conscious of pressure to ensure that their pupils did well in these tests. It was not surprising that they were keen to focus the content of each lesson strongly on areas that they thought would improve their pupils' performance, to avoid distractions and to stick closely to their prepared plans.

Controlling pace

The national strategies emphasised the importance of maintaining a brisk pace in whole class teaching and the teachers in this study used questioning to control the pace of the lesson. They picked up the pace of the lesson (and tried to include as many pupils as possible) by asking several short, factually based questions, each requiring only a brief answer. If a pupil did not respond quickly, the question passed to another pupil until it was answered correctly. Teachers sometimes answered their own questions to prevent the lesson pace from flagging.

Teachers occasionally slowed the lesson pace. In one lesson, a pupil offered an unexpected "right" answer at the very beginning of a carefully pre-structured series of questions. His correct answer was ignored and the teacher continued at the pace she had planned. In the example below, the teacher's focus on her own agenda (which was on sharing whole numbers and did not include teaching about fractions) prompted her to dismiss an answer that showed a deeper than expected understanding of the problem set.

Teacher: Can we share 9 equally into two?

Child: No...we could chop the spare one in half.

Teacher: We could, but if we have whole numbers, how about if we give them one more?

Practitioners may wish to look at a case study about how a primary school improved classroom dialogue so that it supported learning. Teachers in this case study found that their biggest challenge was to relinquish sole control of classroom talk.

How did pupils' participation in classroom dialogue vary?

The study made detailed observations of the behaviour of three sets of high and low achieving girls and high and low achieving boys in both Years 2 and 6. The numbers involved were small, so the findings comparing different types of pupils need to be treated with caution, especially when a given behaviour was observed only rarely. Nevertheless, the study reported some interesting patterns of behaviour that showed both differences between the sexes and differences between achievement groups in the extent to which they actively participated in the lesson.

Willingness to answer questions

The study examined how often different groups of pupils put their hands up to answer questions and joined in collective responses. High achieving pupils of all ages showed these behaviours more often than low achieving pupils. This level of enthusiasm and compliance might have reflected a greater confidence on the part of high achievers. Girls were generally more inclined to put their hands up or join in collective responses than boys of the same achievement level.

Teachers sometimes invited specific pupils to respond to questions. The study found that in Year 2, low achievers received more invitations to answer and in Year 6, high achievers received slightly more invitations. In Year 6, boys of different achievement levels were equally likely to answer a question after being invited to

do so, each doing so on about one quarter of the observed occasions. High achieving Year 6 girls were more likely than any other group to be invited to answer questions. Low achieving girls in Year 6 were the least likely group to be invited to give an answer. Practitioners might wish to read a case study that focused on quiet, 'invisible' students (many of whom were low achieving girls), highlighted the need to address their lack of confidence and explored a way of doing so.

Shouting out and off task behaviour

Occasionally, pupils would shout out a comment or response. In Year 2, low achieving boys did this more than other pupils and in Year 6, both high and low achieving boys shouted out more often than girls. The researchers speculated that boys might be less willing than girls to conform to classroom expectations of taking turns and putting their hands up and generally more resistant to teacher orchestration of classroom talk.

Low achievers were more likely to be off task than high achievers but, encouragingly, time on task improved for all groups between Year 2 and Year 6. Low achieving boys, who were the most likely group to be off task in Year 2, improved more than other pupils.

Initiating talk

The study wanted to examine which groups of pupils were most likely to initiate work-related conversations with their teachers or peers. Low achieving boys were most likely to do so in Year 2, high achieving boys most likely to do so in Year 6 and low achieving girls were consistently the least likely pupils to start work-related conversations, but it was rare for any pupil to initiate work related talk. The few questions pupils asked were mostly procedural ones, such as whether they could use particular resources. Practitioners might wish to read a case study about encouraging and teaching pupils to ask questions.

What patterns of talk characterised whole class teaching at the start of the project?

The researchers analysed video evidence of many episodes of whole class teaching to count and classify who spoke, how often and the purpose of each utterance. The full results can be found in the study report.

Questions

Teachers believed that questions were important. They asked many questions and used them to fulfil a wide range of functions, including:

- eliciting or recalling facts or information (41% of questions)
- inviting children to think about ideas and concepts (17%)
- inviting pupils to practise skills (9%)
- gathering information about the topic or theme (10%)
- checking understanding of ideas already covered (7%)
- developing reflection (5%)
- managing the task or the pupils' behaviour (6%)
- checking prior knowledge from outside school (3%)
- developing vocabulary (2%).

Most questions (64 per cent) were questions of fact - they tested pupils' knowledge and recall. Some (8 per cent) were related to the organisation or management of the lesson, for example, "Can you all see?" The rest (28 per cent) were more open questions that tried to prompt deeper thinking or a more extended response from pupils. These included speculative questions (16 per cent), which invited pupils to offer ideas, opinions, or hypotheses, for example, "If you did x, what do you think might happen next?" A second type of open question invited pupils to explain their thinking, or to articulate their understanding of learning processes, for example, "How did you work that out?" or "Can you explain why?" The researchers called these process questions (which accounted for 12 per cent of questions asked). The number of speculative and process questions teachers used varied markedly in different subjects.

Pupils in the study asked only 20 questions during the 54 sessions observed in the first phase of research. Most of these related to how they were to fulfil a task (for instance, "Can I use a highlighter?") rather than queries about their learning. Practitioners might wish to read a case study about teaching pupils to ask questions. (Link to case study 5 on page 19)

Statements

Teachers used statements more often than they asked questions needing a response. The ratio of statements to questions was about 3:2. Statements were used to:

- inform pupils about the subject matter and learning processes (27% of statements)
- give pupils instructions about behaviour or the learning task (26%)
- elaborate pupils' answers by correcting or expanding them (19%)
- explain or introduce concepts or connecting ideas (16%)
- socialise and establish relationships within the class (12%).

More teacher statements made during whole class teaching delivered information to pupils than built on pupils' own ideas. During the study, teachers became aware that many of their statements were too lengthy, so they aimed to make more clear, concise statements to help pupil recall and understanding.

Overall pattern

During whole class teaching, a pattern of classroom talk prevailed in which:

- teachers and pupils took turns to speak
- teachers responded to each pupil utterance and some teachers repeated or rephrased pupil contributions to make sure everyone could hear clearly
- teacher utterances were sometimes long
- pupil responses were brief - four words long, on average
- pupils rarely responded directly to one another.

Study participants realised, on watching the videos, that they inadvertently took half of the available turns in each conversation and the remaining turns had to be distributed amongst 30 or so pupils. In whole-class teaching situations, the opportunities for any individual child to speak were rare and fleeting.

How did dialogue in mathematics differ from that in other subjects?

As in most primary schools, each teacher taught a variety of subjects. Teachers changed some aspects of their classroom talk when they taught different subjects. The study examined questions and statements used in literacy, numeracy and one other subject in each class. (These other subjects included art, science and religious education.) The patterns of use of statements and questions varied across different parts of the curriculum. Numeracy, in particular, was quite distinctive.

In literacy and other subjects, teachers often used statements to inform pupils, whereas in numeracy lessons, they were more likely to use statements that had an instructive function, such as how to manage a task. In literacy and other subjects, the ratio of statements to questions was about 3:2. In numeracy, teachers used nearly as many questions as statements.

The types of questions asked also differed, especially the types of open questions intended to provoke more thoughtful, reflective responses from pupils. During literacy lessons, teachers asked speculative questions four times more often than in numeracy lessons and about twice as often as in other subjects. These were a type of open question that invited pupils to offer opinions, hypotheses, ideas and imaginings and they stimulated higher order thinking as a result.

In contrast, although numeracy lessons rarely featured speculative questions, they often included process questions. This type of question also prompted higher order thinking, as it invited children to explain their thinking and make their understanding explicit. During numeracy lessons, teachers used process questions four times more often than they used them during literacy lessons. The study also found that, in numeracy lessons:

- the most common type of question invited pupils to practise a skill - almost all of this type of question observed in the study came from numeracy lessons, for example, "Will you divide this number by two?"; and
- teachers used factual questions about as often in numeracy as in other subjects.

The use teachers made of process questions to develop reflection on learning in mathematics showed that they recognised that it was more important for pupils to understand how to tackle a mathematical problem than to

arrive at the right answer. Compared with other subjects, teachers' questions in mathematics were focused much more on process and understanding.

For example, a teacher in a Year 6 numeracy lesson took time to ask questions that clarified her pupils' understanding of the term 'average'.

Mark: Doesn't average mean normal, though?

Teacher: Pretty much, yes, so what do you think that means then, if it said it will average 42 miles per gallon?

Ivan: It will normally be.

Teacher: You're pretty much there, Ivan. Anybody else got any ideas?

Child: You should be able to.

Child: Approximately.

Teacher: [Defines average then continues to probe the pupils' understanding] Have you heard average used anywhere else?

Susie: Normal, if you are an average person.

Teacher: Right, "You are of average ability" you might have heard, yes? By that, I mean that there are some people more, some people less, but generally, you are in the middle. What about in sport?

The conversation continued as this teacher focused on extending pupils' understanding of the term. It also exemplified an instance of a teacher thinking on her feet and responding flexibly to a pupil's unsolicited question.

How was the study designed?

This investigation into patterns of classroom talk in whole class teaching was funded by Economic and Social Research Council (ESRC). It started in 1999, not long after the introduction in England and Wales of national strategies for both literacy and numeracy, and ran for two and a half years.

Practitioners were heavily involved in setting up and conducting the research, in partnership with the university research team. Three head teachers were key teacher-researchers. Twelve teachers were invited to be participant teacher-researchers, whose role was to discuss findings and prepare and evaluate teaching materials. Other teachers asked to be part of the study were so enthusiastic about taking an active role in the project that they also became participant teacher-researchers.

The study collected evidence from a variety of perspectives, including those of the researchers, teachers and pupils. The evidence included:

- video recordings of whole class episodes that captured non-verbal interactions and pupil responses
- audio recordings of teachers' talk
- observation of a sample of high and low achieving female and male pupils using structured observation schedules to capture their verbal and non-verbal responses
- post-observation interviews with pupils using questions aimed at establishing pupils' level of understanding
- a narrative description of the context of each episode.

The videos were used to elicit teachers' evaluations of the effectiveness of their own talk in the episode observed and as basis for discussion of teachers' beliefs about the role of talk in developing learning.

Rather than using a pre-determined method of categorising questions, the researchers classified questions in terms of their form and function by repeatedly examining the video evidence of how teachers used questions in the classroom. Different researchers coded the questions independently. The emerging question categories were discussed and validated with other researchers and compared with additional evidence that appeared over time.

Implications

Teachers wanting to improve the quality of classroom talk to promote learning may wish to consider the following questions.

The study found that teachers really wanted to extend active participation to more children and that the traditional hands-up method of responding to questions did not achieve this. Might you or your colleagues 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?

The sheer quantity of teacher talk and the way in which they took half the conversational turns concerned the project teachers. They successfully tackled this by increasing opportunities for pupils to talk directly to one another. What do you think might be the effect in your own class of making more use of techniques like the 'time out' technique, in which you give pupils one minute to discuss in pairs what they think about a topic? The study found that teachers rarely questioned or built upon knowledge that pupils had gained outside school. Which of your pupils might find it especially helpful to link new concepts to what they already know from outside school, if you could find ways of getting them to talk about or demonstrate this prior knowledge?

Leaders wanting to improve the quality of classroom talk to promote learning in their schools may wish to consider the following questions.

The study found that teachers' questions were more concerned with teaching than with learning and that teachers' anxiety to pursue lesson objectives that they believed would support the majority of pupils in their national tests led them to ignore real, in-depth learning opportunities for individuals. How can you support your staff to focus on developing their pupils' long-term understanding?

The study found that process questions were most often used in mathematics lessons and that speculative questions were most often used in literacy lessons. Might the teachers in your school find it helpful to discuss in a staff development session which sort of questions are used when and why in different subjects? Might there be any pupil benefits in trying to use process questions more often in literacy, or speculative questions more often in numeracy? How can you help staff to extend their skills when asking higher order questions?

The study participants gained a great deal from taking time to examine and reflect on their teaching and discussing this with colleagues. The ability to examine video footage of their teaching, although uncomfortable at first, gave the teachers credible and authentic evidence to help them focus on learning. Could such video evidence prove a useful form of continuing professional development for staff at your school?

Filling in the gaps

Gaps that are uncovered in a piece of research have a useful role in making sure that future research builds cumulatively on what is known. But research also needs to inform practice, so practitioners' interpretation of the gaps and follow-up questions are crucial. We think the following kinds of studies would usefully supplement the findings of the study:

- research continued over a longer period of time to find out whether teachers could extend the early changes they made to patterns of classroom talk
- research into pupils' views on their levels of interest and understanding during whole class teaching and how this compares their interest and understanding during other forms of classroom activity
- studies which explore the different types of questions used in different parts of the curriculum, the reasons teachers give for using them and pupils' responses to them; and
- studies which explore the effect of wait time on children's responses.

What is your experience?

Do you have any evidence regarding the nature of teacher and pupil talk during whole class teaching in your school? Are you involved in action research or enquiry based development programmes to explore pupil dialogue, which we could perhaps feature in our case study section?

Your feedback

Have you found this study to be useful? Have you used any aspect of this research in your own classroom

teaching practice? We would like to hear your feedback on this study. To share your views with us please email: research@gtce.org.uk

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Case studies

We have selected the following vignettes and case studies to illustrate what teachers have done to change their practice. Case studies 1, 4 and 5 were drawn from independent classroom-based research conducted by teachers. Case studies 2 and 3 were part of the study itself.

Pupils who do not participate

Teacher researchers in Myhill's study wanted to boost the engagement levels of all pupils and were concerned about quiet pupils who rarely participated in classroom discussion. We have chosen this case study because it explored the issue of non-participating pupils.

This study followed the progress of 10 (initially 12) 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 12 were girls. All bar one had excellent records of school attendance and they represented a range of ethnic groups. The study used classroom observations and interviews with students 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
- 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 student." 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
- the importance of active participation in lessons to be made explicit to all.

Reference:

Janet Collins(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

Effective paired work

The school in this case study was one of those that took part in the research that is the main focus of this RfT. 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
- 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
- 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
- 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
- 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 and 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?*

Using pupils' prior knowledge in whole class teaching

We chose this study because it investigated how teachers could improve their use of pupils' prior knowledge within whole class teaching sessions. The school was one of those that took part in the research outlined in the main part of the RfT summary.

The study investigated two classes: one in Key Stage 1 and one in Key Stage 2. Six fifteen-minute whole class teaching episodes were video recorded in two consecutive lessons of numeracy, literacy and another subject. The observer took field notes, including quiet comments and asides that children made during the teaching episodes. She also interviewed six children from each class to find out what they thought the lesson was supposed to be about, what they had learned from it and what they previously knew about the topic.

What helped learning?

The study found that learning seemed to take place best when teachers:

- told children clearly at the start of the lesson what the focus of the lesson was and what they were going to learn
- clarified the meaning of the vocabulary they were using
- listened carefully to what children said were alert to potential pupil misunderstandings
- gave clear, factual statements of information, rather than using a question and answer session in an attempt to elicit factual recall.

Tuning in to alternative meanings

On one occasion, confusion arose because the teacher was not consciously aware that some pupils had understood her use of the word 'light' to mean 'bright' or 'pale-coloured' when she had intended to use it to refer to weight. She was bemused by children's subsequent references to bright things such as 'stars' and 'the sun'. This and other instances led the researcher to conclude that teachers needed to pay careful attention to vocabulary and meaning.

Being aware of differences between pupils' understanding and knowledge

Able pupils were more likely to put their hands up and contribute answers than less confident and knowledgeable pupils, who had a lower level of verbal interaction with the teacher. The teacher researcher found that it was possible to remain unaware of confusions and misconceptions amongst the quieter class members and to assume that all pupils had a greater level of understanding than was actually the case.

Other ways of assessing prior knowledge

The teacher-researcher drew the conclusion that, during a sequence of questions and answers in a whole class situation, it was not possible for the teacher to make a realistic assessment of all the pupils' levels of understanding. She also concluded that there were more opportunities for pupil misunderstandings to occur during whole class question and answer sessions than when the teacher clearly stated information which the pupils needed for the forthcoming lesson. She suggested that teachers might be better able to build on pupils' prior knowledge (from within school and outside it) if they developed and used alternative methods of

assessing pupils' prior knowledge, such as practical, open-ended, exploratory tasks.

Reference: Margaret Brackley, Hawthorns First School, BPRS Ref. No. 2049 *How teachers' questions enable or disable children from making connections between their prior knowledge and new learning.*

Talk for learning - improving classroom dialogue

We chose this case study because it shows how one school began a programme to improve the quality of classroom dialogue and helped children to become more confident and reflective in their oral and written work as a result.

The small, rural primary school featured here was one of 42 schools in North Yorkshire that were invited to take part in a five year Talk for Learning project (TLP) run by the Local Authority as part of its education development plan. It had mixed age classes and the children most involved in the project were those in the Year 4 to Year 6 class.

How can teachers recognise talk that is helpful for learning?

At the start of the project, teachers received five days of training that covered the key aspects of talk that is helpful for learning and how it could be recognised in the classroom, as well as how to use digital video recorders to collect evidence. During these five days, the teachers recorded baseline video evidence in the target classes. The training was led by Robin Alexander of the University of Cambridge, who identified the following important aspects of such talk:

- collectivity - teachers and children address learning tasks together both as part of groups and in whole class situations
- reciprocity - teachers and children listen carefully to one another, sharing ideas and learning to consider alternative viewpoints
- cumulation - teachers and children build on their own and others' ideas, chaining them into coherent lines of thinking and enquiry
- support - this helps children feel secure enough to express their ideas freely and without embarrassment
- purposefulness - talk is planned and undertaken with specific learning outcomes in view.

Classroom talk that shows all these characteristics is labelled 'dialogic talk'.

The learning context

The school had a strong ethos of valuing its children's views. It developed a curriculum that included a variety of experiences and imaginative events and initiatives, such as role-play days, drama days, a programme of visits, links with a twinned school in Bradford and support for a Romanian orphanage. The head teacher believed that:

"Encouraging deep thinking and rich talk in children cannot occur without broadening children's speaking opportunities and giving them rich experiences to reflect upon."

The school increased opportunities for children to talk in circle time, in assemblies, in citizenship and philosophy sessions and as part of exchanges in class. The staff received training on teaching citizenship through philosophy for children from Will Ord of the Society for the Advancement of Philosophical Enquiry and Reflection in Education (Sapere). This advocated certain ground rules be used to structure discussion. For example:

- insisting that pupils did not say things intended to hurt others
- allowing pupils choice about whether or not to contribute.

The school found it helpful to establish such ground rules.

What did the school find out from its focus on encouraging thoughtful dialogue?

Even at an early stage in the project, the children involved showed signs of:

- being able to express themselves more effectively
- greater confidence
- more reflective oral and written work.

The school found that pupils could be adept at rescuing difficult situations when they were working within a clear structure as to what was expected. In one instance, difficult issues emerged about pupils' rights within a conversation about human rights. The teacher chose to remain silent - valuing silence is part of this approach - and a young pupil in the class made a comment that brought the discussion to a positive conclusion.

Teachers discovered that quiet pupils could be deeply mentally engaged in the discussion, even if their contributions were rare.

"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."

There were some challenges. The biggest of these was that dialogic talk was unpredictable. Teachers found it hard at first to relinquish control of the classroom talk and to adopt instead, a type of dialogue in which responsibility for the dialogue was shared with the pupils. Teachers needed to walk a fine line between feeding in ideas and developing discussions that had got stuck in a loop and taking over.

A further challenge was that young children could express opinions in philosophy sessions that were problematic for others who held very different views. This was especially true on the subject of religious faith, when children could be shaken as they encountered diverse views for the first time. In such situations, it helped to acknowledge that different people feel strongly about some things and that it was possible for a person's viewpoint to change over time.

This five-year project still has some time to run and the local authority hopes that it will help to boost academic outcomes in due course.

Reference: *Dialogic talk for learning project*. Available online at:
www.teachernet.gov.uk/casestudies/casestudy.cfm?id=306

Teaching children to ask questions

We chose this case study because the main study identified how rare it was for children to ask questions and start a dialogue in class. The three primary teachers who undertook the research in this study believed that pupils asking questions and being encouraged to investigate their own questions were vital parts of learning. They wanted to help their pupils to develop questioning skills so they could take more control of their learning and become 'enquiring, autonomous, critical thinkers'.

The teachers each had a slightly different focus:

- one teacher used investigative play with early years pupils to encourage their use of questions
- the second teacher used practical science investigations to encourage pupils in Years 2 and 5 to raise questions and develop their own investigations
- the third teacher used ICT to extend Year 6 pupils' scientific knowledge through active enquiry, rather than passive reading of information.

All the teachers modelled the process of asking questions for their pupils and supported their pupils in a variety of ways that they referred to as scaffolding and prompting. They found that the children with whom

they tried these strategies:

- showed sustained interest
- were more focused on their work
- developed and retained a deeper level of understanding than children in a control group.

How did teachers help pupils to ask questions?

Teachers modelled the process of asking questions. For example, in practical science, the teacher asked:

"Why is that hard thing sinking and this hard thing floating? I wonder what's different about them?"

Whilst playing alongside the early years pupils, the teacher asked:

"How can we make it stronger? How can we make it not fall down?"

The teachers also supported pupils by providing appropriate vocabulary, or asking questions that prompted pupils' recall of alternative words they could use. For example, when a Year 6 pupil using ICT to investigate a topic was having difficulty, the teacher intervened:

"I want to find out how fish breathe, but I can't find anything using 'breathe'."

"Let's find another word to help you search. What do fish use to breathe?"

"Oh, yes, they use their gills."

"Well, let's look under 'gills'."

In each year group, the teachers set up groups of mixed ability. The teachers tried to scaffold the process of their pupils' learning by devising activities that focused on asking questions. The target groups of pupils received question-generating input from the teachers and the control groups explored the activity without using questioning as the main focus.

This worked well in the older groups but, in the early years group, when the teacher focussed on eight target pupils during investigative play, the children in the control group (who did not initially benefit from the same level of support) quickly lost interest in the activity. The teacher decided that both groups should benefit from support and scaffolding. She built on the children's existing language during structured play and encouraged the children to talk to one another and to her.

Assessing the pupils' knowledge

Teachers brainstormed with the children 'what we think' and 'what we know' before starting the activities. This helped the teachers to assess pupils' knowledge levels and also to share ideas so that the target and control groups started from similar points. The teachers assessed the children afterwards by asking them to remember and report back on their activities. The Year 6 children presented their findings to one another and the Year 2 and Year 5 scientists repeated the 'what we think/what we know' exercises whilst the teacher observed what they said. The youngest children explained what they had just done to their peers.

What did the pupils learn?

The youngest pupils generated a variety of questions, predictions and hypotheses during their work with the teacher. The teacher noted this exchange between pupils:

"What will happen when we pour on the water?"

"It will get wet."

"It will be rained on."

"The water will push it, won't it?"

"It will knock it down."

In all three schools, the 'target' groups of children remained on task longer and showed a greater depth of understanding when reporting back to peers, or through reassessment by teachers at a later date, than their peers in the control group.

The groups doing practical science showed evidence that their thinking about floating and sinking had developed. The target group's investigations seemed to be of a higher quality and the pupils showed sustained interest in the scientific concepts involved.

The target group in Year 6 gave a better presentation to the rest of the class than the control group and their folders were better organised and of a higher quality than those of children in the control group.

Reference: Agar, J., Jones, S. & Simpson, G. (1999) *Teaching children to generate questions designed to improve their capacity to think critically about scientific problems*. A research project funded by the Teacher Training Agency as part of the Teacher Research Grant Scheme 98/9. Available online:

<http://www.tda.gov.uk/upload/resources/doc/a/agar-jones-simpson.doc>

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Further reading

What else might I enjoy reading?

Alexander, R., (2004) *Towards dialogic teaching - rethinking classroom talk*. York: Dialogos.

Brown G. & Wragg, E., (1993) *Questioning*. London: Routledge

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

Related resources

Developing learning through talk: research report

This report of the research project is available online at:

www.ex.ac.uk/~damyhill/talk

Summaries of research

How classroom talk supports reading comprehension

This TRIPS digest emphasised the need to allow time for children to respond during interactive teaching - it found that only 10 per cent of pupils' utterances were more than three words long. Available at:

www.standards.dfes.gov.uk/research/themes/speakandlisten/classroomtalk/

Resources

Developing effective teaching of speaking and listening:

http://nationalstrategies.standards.dcsf.gov.uk/node/21178?uc=force_uj

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Appraisal

Appraisal

The book based on this study is:

Talking, listening learning: effective talk in the primary classroom

Myhill, D., Jones, S. and Hopper, R. (2006)

Open University Press, Maidenhead

Robustness

This well-designed study described Project TALK (Talk to Activate Learners' Knowledge) which set out to explore and develop teacher-pupil interactions for learning during whole class lessons in primary classrooms. It provides a variety of perspectives: those of researchers, teachers and pupils and a contextual perspective. The author, who was the project director, referred to a considerable body of research literature about social learning in which children work together to construct meanings, and the way language is used in the process (function) and the type of language used (form). The study explored a number of questions including:

- How interactive are whole class episodes?
- How do teachers build on prior pupil knowledge?
- How do teachers use questions?
- What do teachers believe about talk as a tool for learning?

The study took place over a two and a half year period and had two phases: the first phase offered the teachers the opportunity to observe and reflect on classroom interactions that they were part of; the second provided scope for teachers to adapt their approach in the light of the professional learning they had acquired.

A particular strength of the study was the involvement of teachers in the research, which was considerably greater than is generally the case with educational research. Three headteachers from the schools acted as key teacher-researchers. They undertook much of the research themselves, including data collection and analysis (with the support of a research assistant and the project director). Extensive cross-validation of the data analysis was held to ensure both reliability and validity of findings. All the participating teachers took some part in the research in addition to being its subjects. Data were collected using classroom observation, teacher reflections and pupil interviews; the researchers used video recording so they could analyse and code interactions later.

Relevance

The exploration of teacher-pupil interactions in the primary classroom is very relevant in England where whole-class interactive teaching is a core feature of the national strategies. The study highlights the difference between the types of interactions teachers would like to have and those they actually do have in the classroom. This suggests implications for professional learning in relation to teachers' understanding of assessment for learning which CPD coordinators and providers will find relevant to their work. The findings will interest any teacher who is trying to build effective discourse into whole class teaching. There are also implications for practitioners undertaking curriculum planning. The report included quotations from teachers involved in the project that provide useful insights into teachers' professional development and engagement in research.

Applicability

The findings showed that the teachers were aware of the value of talk in allowing children the chance to express their thinking. The teachers identified a range of features in their own whole class teaching, which they viewed as important areas for development: teachers dominated the patterns of interaction, pupil-pupil interaction was rare and teachers rarely explored and built on children's prior knowledge gained from out of school contexts. The teachers also recognised that their responses tended to be heavily focused on their own agendas and they noted a tension between responding to individual needs and catering to the needs of the class as a whole, especially the need to ensure their pupils performed well in national tests. The study contains many illustrations of teacher-pupil interactions including an analysis of how these changed between the two phases of the research. The illustrations and the extensive teacher reflections reported will enable readers to compare their own experience with that of the project teachers.

Writing

The report is written without jargon in a user-friendly style. All the main features of the study are helpfully signposted with subheadings and additional material is presented in appendices. The report includes several tables with numerical data, but there are no technical or statistical data.

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CPD leader resource: Asking questions for different purposes

Objective

This activity will help you to:

- understand the ways in which you make use of questions
- recognise common patterns in the use of questions.

Before doing this activity you might want to encourage participants to complete the matching activity that accompanies this RfT. The matching activity will help participants to understand the different purposes for which teacher talk is used, and identify and match different kinds of classroom talk to their purposes.

Timing

This activity will take approximately 20 minutes to complete:

- Introducing the session (2 minutes)
- Completing the activity (10 minutes)
- Debriefing the activity (5 minutes)

Resources

Each group will need:

- a copy of the 'Purposes for asking questions' document.

You will need:

- copies of the 'Findings from the RfT' document showing the frequency with which questions are used for different purposes (provided as a resource for this activity, or on page 10 of the RfT), and
- a flipchart to record the top three purposes for each group as part of the debrief.

What to do

Before the session:

- Download and print enough copies of the 'Purposes for asking questions' document and the 'Findings from the RfT' document as you need for the group you are working with.
- Decide on the composition of the groups. Groups of between three and five seem to work best, including, if possible, people with a range of experience.

Introducing the session (3 minutes):

- Explain to participants that they are going to work together to think about how often they make use of questions for a variety of different purposes.
- They will then compare how often they use questions for different purposes with common patterns in the use of questions from research.
- Finally they will discuss the ways in which they might enhance their use of questions to support teaching and learning.

Completing the activity (10 minutes):

- Give each group a copy of the purposes for asking questions.
- Encourage participants to identify a particular class or year group that they teach to focus on while completing this activity.
- Ask groups to read the purpose at the top of the list and work together to identify what percentage of the questions they ask are for this purpose, ie what percentage of the questions they ask invite children to think about ideas and concepts?
- Ask participants to work through the rest of the list identifying what percentage of the questions they ask are for each purpose. Remind them that the total should add up to 100%.
- Ask each of the groups to share the context they were thinking about (ie which year group/subject) and the top three purposes they use questions for in that context.
- Record the top three purposes for each group using a tally on the flipchart and reflect on the similarities and differences across the groups and their chosen contexts.
- Once participants have worked through them all invite plenary feedback and discussion. Notice and explore interesting differences between the groups.
- Next, encourage participants to imagine a perfect lesson with the same group of pupils in six months time. Ask them to identify the percentage of questions that would be directed towards each of the different purposes in that lesson.
- Then give them a copy of the research findings document, which show how often questions are used for each purpose in common practice.
- Ask participants to compare their percentages with the findings and discuss any similarities and differences and discuss the possible reasons for them.
- If you have more time you might like to encourage participants to repeat this activity for another subject or year group.

Debriefing the activity (5 minutes)

- Ask participants to work together to identify why it might be difficult to use an optimal mix of questions in their lessons.
- Encourage them to work together to discuss possible strategies for overcoming these obstacles.

Activities to take learning further

You might like to encourage participants to extend their learning further between sessions by completing one of the following activities.

- Encourage participants to choose one of the purposes for asking questions and ask them to work together to discuss what an effective question, for this purpose, might look like.
- Encourage participants to make use of the RfT to support and develop their thinking.

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CPD leader resource: Matching activity

This activity is about identifying the purpose for different types of talk. It relates to the September 2006 RfT summary (formerly known as Research of the Month, or RoM) on 'Effective talk in the primary classroom.'

Objective

This activity will help you to:

- understand the different purposes for which teacher talk is used
- be able to identify, stimulate and match different kinds of classroom talk to their purposes.

Timing

This activity will take approximately 45 minutes to complete:

- Introducing the session (3 minutes)
- Completing the matching activity (30 minutes)
- Debriefing the activity (10 minutes)

Resources

Each group will need:

- a set of cards containing examples of pupil teacher conversations (labelled 1-12 including two blank cards), and
- a set of cards containing the possible purposes of teacher talk (labelled A-L).

What to do

Before the session:

- Download and print enough sets of the matching activity statement cards as you need for the group you are working with.
- Cut the cards up and use an elastic band or paper clip to keep them in sets.
- Decide on the composition of the groups. Groups of between three and five seem to work best, including, if possible, people with a range of experience.

Introducing the session (3 minutes):

- Explain to participants that they are going to work together to think about how they make use of different types of talk in the classroom.
- They will then use this understanding to analyse some examples of teacher talk and identify their purposes.
- Finally they will discuss the ways in which they might improve their use of talk to support teaching and learning.

Completing the matching activity (30 minutes):

- Give each group a set of cards containing the examples of teacher pupil conversations, and a set of cards containing statements describing the different purposes of teacher talk.
- Ask them to familiarise themselves with the different purposes for teacher talk by reading through the cards.
- Ask them to choose one of the cards containing an example of teacher talk and work together to consider the teacher's contribution work to the conversation and match it to one of the purposes of teacher talk. Encourage groups to discuss whether the example could be matched to more than one purpose. (If participants think of any other purposes not included on the cards encourage them to write it on a blank card.)
- Ask each group to make a note of their matches by writing down the number from the example conversation card and the letters from the purpose cards.
- Then ask each group to repeat the activity with two or three other example conversations. If participants finish quickly, or you have longer, you might like to encourage participants to continue to work through the rest of the examples, or ask them to have a go at the follow up activities.

Debriefing the activity (10 minutes):

- Ask two or three of the groups to share one example conversation they were looking at and explain which of the purposes they matched to the teacher's contribution. Ask the other groups to say whether they agree or disagree with that groups choices and explain which purposes would they would have chosen and why.

Activities to take learning further

You might like to encourage participants to extend their learning further between sessions by completing one of the following activities.

- Ask participants to notice any of the purpose cards they haven't matched to an example of talk. Encourage participants to use a record part of a lesson (using a video or tape recorder) and work with a colleague to identify their own examples which could be added to a card for use with this activity next time.
- Encourage participants to think about the way in which they use non-verbal communication, like hand gestures, to

support communication with their students. They might like to ask a colleague to observe them teaching and identify the different ways in which they use non-verbal communication and to what purpose.

- Encourage participants to visit the RoM website to explore the full RfT 'Effective talk in the primary classroom' or one of the other RfTs from which the examples were taken. Encourage them to look for examples of the different ways in which:
 - teachers decided to improve pupil's participation and understanding through the use of talk
 - how different patterns of talk affected teaching and learning.

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CPD leader resource: Understanding common patterns

Objective

This activity will help you to:

- deepen your understanding of the way you use talk in the classroom
- explore common patterns in the use of talk by teachers.

Timing

This activity will take approximately 30 minutes to complete:

- Introducing the session (3 minutes)
- Completing the matching activity (15 minutes)
- Debriefing the activity (10 minutes)

Resources

Each group will need

- a set of the cards provided listing statements about teacher/pupil interactions
- access to the RfT website or printed copy of the RfT.

Each individual will need:

- a copy of the grid for recording their reflections.

What to do

Before the session:

- Download and print enough sets of the statement cards and reflections grid for the group you are working with.
- Cut the statement cards up and use an elastic band or paper clip to keep them in sets.
- Ensure you have either sufficient computers connected to the Internet with the webpage for the RfT 'Effective talk in the primary classroom' bookmarked, or download and print enough copies of the RfT to give to the groups.
- Decide on the composition of the groups. Groups of two or three five seem to work best for this activity.

Introducing the session (3 minutes):

- Explain to participants that they are going to work together to reflect on the way they use talk in the classroom by identifying whether a series of statements are true or false for the different groups they teach.
- Then look at the evidence presented in the RfT to find out if each of the statements is true or false in common patterns of teacher talk.

Completing the true/false activity (15 minutes):

- Give each group cards with the statements about teacher talk. Ask them to pick one of the statements and discuss the

circumstances for which the statement is true. For example is the statement true for a particular group of pupils, or a particular subject? Ask participants to make use the table to record their discussions by making a note of the statement number in the first column and the groups for which it is true in the second column.

- Now ask participants to make a note of the circumstances when the statement is false and record this in the third column in the table. As participants are doing this encourage them to think about the differences between the circumstances where they have identified the statement as true and those where they have identified it as false.
- Ask participants to repeat this activity with another 3 or 4 statements.
- When they have finished encourage participants to work with their group to discuss why particular statements are true or false dependent on the circumstances. Ask them to work together to reflect on the possible reasons for these differences.
- Finally ask participants to visit the RFT 'Effective talk in the primary classroom'. Ask participants to use the RoM to find out whether the researchers found these statements to be true or false in the common patterns of use of talk by teachers.

Debriefing the activity (10 minutes):

- Ask two or three of the groups to share one of the statements they choose, the circumstances for which they thought it was true and those in which it was false.
- Ask them to share their reflections on what they thought were the differences between the circumstances in which it was true and false.

Activities to take learning further

You might like to encourage participants to extend their learning further between sessions by completing one of the following activities.

- Encourage them to choose one of the case studies and then work with a colleague to reflect on how it reflects their own practice and whether it offers any strategies that they could make use of to support classroom talk.
- Encourage participants to visit the pupil talk research tasters found in the Behaviour for Learning section and explore the practical suggestions for making use of the evidence in their own classrooms.

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