RESEARCH FOR
TEACHERS

Research for Teachers
Teachers and school-based research

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Teacher engagement in and with research can be a highly rewarding form of professional development. There is also evidence of beneficial outcomes for students. We have decided to summarise one example of such work in this TLA research summary. Because teachers' engagement in/with research involves a dynamic mixture of empirical enquiry, experimenting with new approaches and is often supplemented by peer observation and support, the work is not usually undertaken or reported in forms that are traditional for research. This summary explores how four quite different consortia of schools, funded by the then Teacher Training Agency (TTA) now the Training Development Agency (TDA) and the Centre for British Teachers (CfBT) and working with LA and university partners, blended research and professional development to make a difference to teachers and learners.

Each consortium of schools identified and developed a research and development focus relevant to its own needs: for example, thinking skills, mental mathematics, speaking and listening, and student disaffection. The consortium reports provide a detailed description of teacher engagement in and with research. The experiences of teachers, pupils and others involved in the initiative offer insights into key aspects of the processes. This summary highlights the benefits of this activity for the teachers, their schools and their pupils.

We believe this work is particularly significant in a climate where (i) teachers' professional development is increasingly on the agenda as a lever for school improvement; (ii) educationists are acquiring a better understanding of the challenges - and opportunities - of 'evidence-informed practice'.

We would love to hear from any teachers engaged in/with research themselves, whether as part of a higher degree or as part of a school improvement team approach - do tell us about your work.

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Overview

Why is the issue important?

Teachers' professional development is high on the agenda as a lever for school improvement. Teachers' engagement in and with research is an effective and practical means of increasing their knowledge and understanding of teaching and learning processes, and can have a positive impact on pupil achievement.

What did the research show?

The teachers who engaged in and with research made a number of professional gains, including:

- increased skills and confidence
- a greater capacity for self-questioning and self-criticism
- the development of a strong interest in, and shared language for, talking professionally about teaching and learning with colleagues
- the development of skills in the observation and analysis of teaching and learning.

Teachers observed a number of improvements in their teaching, including: improved planning and lesson structure, more specific and differentiated responses to the needs of pupils and use of research to inform practice. Impacts on pupils included: improvements in tests, improvements in motivation, greater engagement in lessons and extended talk as part of learning activities.

How was this achieved?

Teachers either carried out their own classroom-based research or used the evidence from research to introduce new ways of working in the classroom. For teachers involved in doing research (most of whom had never used research techniques before) activities included:

- identifying issues for research
- planning the focus of classroom observations, video-recordings or pupil learning logs
- devising items for questionnaires and interviews
- discussing results with colleagues
- receiving methodological support from university mentors.

Teachers worked collaboratively in their own schools. They also regularly met teachers from the other consortium schools in their group and colleagues from across the consortium as a whole.

How was the research designed to be trustworthy?

Each of four consortia of schools (two groups of primary and two groups of secondary schools) identified and developed a research and development focus relevant to its own needs: thinking skills, mental mathematics, speaking and listening, and student disaffection. All the participants received support in the use of new teaching and learning strategies, and research methods from teacher coaches, university tutors and school research co-ordinators. The teachers mainly used observation (by peers and through the use of video) for exploring classroom practice. Other tools used included teacher diaries and pupil learning logs.

What are the implications?

The research showed the importance of:

- teachers collecting evidence from classroom observation, to enable them to identify and reflect on their strengths and areas for development
- establishing equity and trust between colleagues when collecting classroom evidence, by for example, ensuring that all participants both observe and are observed
- fostering partnerships with university mentors.

What do the case studies illustrate?

The case studies show investigations carried out by teachers that explored:

- how introducing new strategies helped improve literacy teaching and learning, and raise the levels of pupils' attainment

- the potential of classroom-based research to identify and develop good practice aimed at improving children's learning of mental mathematics
- the potential of thinking skills strategies to develop students' analytical and critical skills which are crucial to high achievement in English at GCSE
- teaching and learning strategies aimed at addressing identified weaknesses
- tackling the problem of disaffection by giving the students more control over their own learning.

Study

What were the overall outcomes of the initiative?

By taking part in this project, teachers' skills and confidence increased. They came to regard research tools less as abstract notions and more as effective and practical means of increasing their knowledge and understanding of teaching and learning processes. Teacher involvement in and with research was highly infectious, and as the initiative developed, previously cautious or even sceptical colleagues became participants. In some schools this enthusiasm was transmitted to pupils too, which led to their participation in some of the research and development activities, such as maintaining learning logs or helping to prepare a questionnaire.

Evidence suggested a number of specific professional gains for teachers including:

- the development of a sense of creativity about teaching and learning
- increased willingness to exercise professional judgement
- a greater capacity for self-questioning and self-criticism
- the development of a strong interest in, and shared language for, talking professionally about teaching and learning with colleagues
- the development of skills in the observation and analysis of teaching and learning.

The initiative provided extensive data about specific features of teaching and learning such as speaking and listening, thinking skills, overcoming disaffection and mathematics. As importantly, from information about the way in which research was organised by teachers and maintained through networked activity, much was learned about the potential of school-based and school-driven initiatives to develop evidence-informed practice in schools.

More details of the benefits of the initiatives to teachers and pupils are given in later sections.

How did the consortia projects work?

The initiative was conceived as a series of pilots, exploratory research and development activities. It was directed partly at identifying the possible benefits that might be achieved by teacher engagement in and with research and partly at understanding the processes of teacher involvement in research activities.

Each consortium involved a partnership between schools, one or more local education authorities and a university. The project took the form of a series of school-based research and development activities, related directly to the teachers' work in the classrooms. The consortia wanted to try and build both 'bottom-up' leadership from teachers, and 'top-down' leadership from school managers. Teachers were supported by colleagues from universities and local education authorities.

Engaging in and with research could mean actually doing research or it could mean using the evidence from research to introduce new ways of working in the classroom. For teachers involved in doing research, most of whom had never used research techniques before, activities included:

- identifying issues for research (see next page)
- planning the focus of classroom observations, video-recordings or pupil learning logs

- devising items for questionnaires and interviews
- discussing results with colleagues
- methodological support from university mentors.

Teachers worked collaboratively in their own schools. They also regularly met teachers from the other consortium schools in their group and colleagues from across the consortia as a whole.

While each consortium responded to unique local priorities and contexts, teachers engaged in activities which were common to all the consortia, including:

- a meaningful focus, which was relevant to the needs and aspirations of consortium schools
- classroom observation processes that were positive and useful to practitioners in enhancing practice as well as in answering their research questions
- collaborative and mutually supportive work by teachers
- collection and use of pupil data.

The various activities are described in the following sections.

Who were the four consortia and what were their foci?
The consortia involved two groups of primary schools, in Leeds and in Manchester and Salford, and two groups of secondary schools, in North East England and in the Norwich area.

Mental Maths
In the Leeds consortium (primary), teachers wanted initially to focus on Continuing Professional Development (CPD). As the work took shape, however, the teaching and learning of mental mathematics was identified as a major area of interest across the consortium. Peer observation (teacher to teacher) became a significant activity on a whole school basis in the third year of the project.

For an example of an activity from the Leeds consortium, see case study 4.
Speaking and Listening

In Manchester and Salford (primary), teachers identified a school improvement focus on literacy, numeracy or science relevant to the particular needs of their school. Many teachers believed that the children's main difficulty in science and mathematics was probably related in part to pupils' low level of speaking and comprehension skills and poorly developed vocabularies. Consequently, speaking and listening emerged as an overarching focus across the consortium.

For an example of an activity from the Manchester and Salford consortium, see case study 1.

Disaffection
In the Norwich consortium (secondary), teachers identified disaffection as an issue of importance in all the schools in the area. Teachers firstly explored the nature of disaffection and its interaction with teaching and learning. Later, cross-school themes relating to the needs of individual students emerged. As the initiative developed, teachers increasingly focused on strategies aimed at enabling disaffected students to gain more from their time in school, including curriculum enrichment and new approaches to rewards and sanctions in schools.

For an example of an activity from the Norwich consortium, see case study 5.

Thinking skills
Teachers in the North East England consortium (secondary) began by investigating research claims about thinking skills. As the project developed they created teams of highly skilled teacher-coaches to develop their less experienced colleagues. They involved colleagues from most areas of the curriculum. At first, teachers worked mainly with their university colleagues, and largely within their own schools. Later, cross school themes and projects were developed, including classroom talk, teachers' responses to teaching thinking skills, and teachers' constructs of teaching and learning.

For more details of thinking skills approaches, see case study 3.

What were the benefits?

This was a large-scale initiative which involved different kinds of participants at different levels. Consequently the benefits of the initiative were experienced in different ways by the following groups:

- teachers
- pupils
- universities and local education authorities (LEAs)
- school leaders.

Details of the benefits are presented below.

How did teachers benefit?
One of the most significant pieces of information to emerge from the initiative was the strong sense of 're-professionalising' that many teachers felt. The following comment was typical of the views and sheer enthusiasm of many teachers:

'...doing research gives you more power to deal with things from the outside, and you have a better profile as a professional... schools have so much to learn from each other...league tables put heads and schools into ridiculous competition with each other.' (Evaluation Report)

Another comment echoed this view:

'We've had some rich discussions at meetings and before [the consortium] existed we had hardly any point of contact with teachers in other schools...yes, it's the collaborative work which has been professionally satisfying.' (Evaluation Report)

Specific findings about the impact of the initiative on teachers can be grouped as follows:

- for teaching
- for professional learning and development.

The detailed findings are described in the following two sections.

What impact did the initiative have on teachers and teaching?
A major feature of the initiative was the improvement which teachers observed in their teaching. They emphasised in particular:

- improved planning and lesson structure
- fresh approaches to teaching
- more specific and differentiated responses to the needs of pupils
- use of research to inform practice.

In Leeds, teachers identified the most effective lessons as those in which a small number of clear, focused objectives (rather than a series of classroom activities) informed their teaching. Explicit references to lesson purposes were also a key characteristic of thinking skills interventions in the North East England consortium, a point appreciated by pupils too.

Teachers came to recognise the learning process itself - both in the cognitive sense and in terms of social activity - as a key factor in pupils' learning. For example, teachers implemented a highly structured programme for developing and building on children's language learning. They built in opportunities for pupils to give greater expression to their responses:

'Use of more open-ended questioning prompted children to engage with the problem and to think, more than did questions that were geared towards and

expected a pre-specified reply.' (Leeds)

Teachers aimed to promote pupil-pupil interactions in order to stimulate social construction of learning:

'Thinking Skills has reinforced my view that learning is also a social skill, many things can be absorbed by discussion with other pupils as well as myself.' (North East England)

Teachers began to appreciate the learning needs of their pupils to a much greater extent and became more active in responding to them. Teachers in some Manchester and Salford primary schools developed additional resources to support pupils' use of mathematical language.

In Norwich, teachers explored the nature and causes of both passive and overt forms of disaffection. For example the RHINO (Really Here In Name Only) study (see Further Reading) explored passive disaffection among pupils and provided information which included:

- the identification and description of RHINO students
- their learning and motivation
- suggested intervention strategies aimed at enhancing their experience of school.

Many of the schools involved in the Norwich consortium developed rewards and sanctions policies aimed at improving behaviour and levels of motivation in classrooms. In one approach teachers responded to the perceived needs of students by adapting the credit system to provide an incentive for 'self-directed learning'.

Other teachers responded to the learning needs of boys:

'...we have found that boys tend to go off task quicker and were more likely to be alienated by didactic teaching methods. ...Our aim therefore was to find ways of creating more challenging lessons...by incorporating a range of thinking skills activities into our schemes of work'. (North East England)

What did teachers learn from the research activities?
Teachers reported that their involvement in research processes had helped them to gain professional knowledge and understanding about:

- new pedagogical strategies
- methods of research including teacher diaries, pupil logs, use of video, peer observation, adaptation of analytical frameworks for understanding classroom action and collaborative research with students
- how to apply theoretical tools for understanding classroom phenomena including concept-mapping, visualisation techniques for mental mathematics and thinking skills
- the kinds of continuing professional development that raise pupil attainment and provide a basis for practical change
- self-critical awareness and reflection
- creating an inclusive learning environment.

One of the key features of the consortia initiative was that it involved teachers in an action-learning cycle in which they used classroom experiences to inform their planning and practice. New pedagogical strategies were features of all the consortia. Teachers in the North East England consortium, for example, explored the use of questioning strategies aimed at stimulating metacognition among pupils.

Readers can find out more details of questioning strategies and metacognition in the 'Core features of CASE ' section of our earlier RfT which summarised the Cognitive Acceleration through Science Education (CASE) project.

Teachers clearly felt they benefited from the process of observation and its role in professional development:

'We're always observing each other for various reasons...it's always a bit nerve-wracking...but I found it very useful...because it does focus you, you think, "right, stop, what do I need to teach, you know, to achieve my learning objective..."' (Evaluation Report)

Having a wider platform for exploring practice was welcomed by teachers:

'...you go into a wider arena and realise that other people are interested in...the things that you might be doing in your classroom.' (Evaluation Report)

The opportunity and encouragement to think about their practice helped to foster teachers' growth:

'Nearly all teachers agreed that the programme had helped them to gain a familiarity with new ideas, frameworks and perspectives that were derived from the research of others...provided a 'space' in which to problematise (unpick and reflect on) their teaching and refine it in ways that had a direct impact on practice.' (Evaluation Report)

One result of the project was that teachers tried to accommodate the individual needs of learners and to create more inclusive learning environments. This comment reflects the views of many of the teachers involved in the consortia:

'...it has improved my understanding of them (pupils). I think it has made them feel valued and I think it will probably lead to an improvement in their grades...'(Norwich)

How did pupils benefit?
As teachers became more involved in the exploration of teaching and learning in the classroom they became aware of the complexity of the interaction between interventions and pupil outcomes. This led them to look for evidence of changes in pupils' attitudes, motivation and classroom responses as much as changes in attainment, although they did report the latter. A widespread view held by teachers was that the greatest gains for pupils were in terms of their abilities to talk about their work, to describe and communicate their thinking and to make connections within and between tasks.

Teachers in all the consortia offered a wide range of evidence and commentary on pupils' learning gains. Particular impacts on pupils included:

- improvements in tests
- improvements in motivation
- greater engagement in lessons
- extended talk as part of learning activities
- effective transfer of learning between lessons.

Teachers reported significant increases in the percentages of children in primary schools achieving level 4 or above in the core subjects in key stage 2 national tests. Among secondary school students there were also reported gains in attainment in a number of subjects, including for example, English at GCSE level.

Many teachers identified indicators of improvement in motivation and engagement in lessons, particularly in the increased ability of pupils to work collaboratively for longer periods of time. For example, in their learning logs secondary school students wrote appreciatively of thinking skills lessons as 'interesting', 'different to normal' and 'fun'. There was also evidence that these students responded positively to the cognitive challenge of the lessons: 'It makes us full of questions.' There was evidence too from thinking skills lessons that some students were learning to transfer their skills to other lessons. This comment from a research co-ordinator gave a flavour of the excitement and challenge of thinking skills lessons:

'...they're doing a whole variety of different skills including a lot of discussion work with their peers...where they're challenging each others' ideas at their own level and there are multi-levels within the classroom...we're getting children to listen to other students' viewpoints and commenting on those viewpoints...it's about the way they learn about how each other learns, and how they can learn more effectively.' (North East England)

To find out more about thinking skills strategies and pupils' learning see the TTA conference paper 'Raising Achievement by Teaching Thinking Skills' by Julie McGrane and our earlier RfT about the Cognitive Acceleration through Science Education (CASE) project.

Teachers commented on the marked increases in enthusiasm pupils showed for the new learning strategies, such as visualising mathematics problems. Often these new strategies, which were concerned more with how pupils thought rather than whether their answers were correct, increased pupils' confidence levels and raised their willingness and ability to express themselves.

In the Norwich consortium, teachers reported favourably on the motivating effects of key stage 4 initiatives aimed at overcoming disaffection. They focused on improving rewards and sanctions systems in secondary schools, for example, adapting the school credit system to encourage students to take more control of their learning.

How did the initiative help school leaders?

Whilst all schools opted to participate at a general level because they hoped their involvement would contribute to their school development plans, the details of individual teachers' interpretations of the focus were quite varied and often led to the refinement of the school development plan. Activities that fostered this iterative cycle included:

- the direct involvement of some senior managers in setting out the initial foci of the initiative
- participation of some senior managers in the activities as research co-ordinators
- the growth of some staff into research co-ordinator roles in which capacity they became capable leaders of other staff
- the development of CPD activities, which involved staff collaboratively and helped to spread good practice.

Senior managers valued the effect of participation in the initiative on teachers in their schools:

'The teachers who have been involved in and with research in the consortium are looking at children differently; they are seeing different possibilities for action; they are more sensitive to the evidence when assessing; they are more inclined to seek improvement in their practice, and more optimistic about receiving it; they are more likely to co-operate with colleagues because they are more aware of ways of doing so and benefits of doing so...' (Leeds)

Headteachers in Leeds reported a number of specific benefits including:

- the stimulating effect of collaboration in helping teachers maintain initiatives
- the creation of 'safe to fail' school climate enabling candid discussion and deeper learning
- an awareness of the importance of active rather than passive implementation of national strategies
- the development of a more questioning culture.

How did classroom observation become a positive experience which is useful to teachers?

Teachers and university colleagues identified classroom observation as an activity which not only provided researchers with information (data) about teaching and learning processes, but offered teachers the opportunity to reflect on their classroom experiences in a structured and supportive environment.

Two main roles were adopted by schools in the consortia:

- peer observation
- the use of video.

How was peer observation used?

Building on and adapting a model for academic research, teachers in the Leeds consortium classified observed teaching strategies under the following headings:

- modelling
- instructing
- contingency management (behaviour management)
- questioning
- cognitive structuring (offering explanatory and belief structures that organise and justify responses).

Thirty teachers in six primary schools in the consortium undertook peer observation. Because teachers were anxious, at first, about exposing their practice to observers, it helped that certain principles were agreed in advance by those taking part. These were:

- everyone who observes is also observed
- the same system of observation is used both by the observer and by the teacher observed, when the roles are reversed
- all the participating teachers take part in discussion and analysis in both roles - as the observer and as the observed.

Actual practice of peer observation varied among teachers. In some cases only a pair of teachers was involved while in others a group of teachers employed a rotation system. Similarly the observations varied from those using open observations with no pre-determined structure to those which measured, for example, the frequency of occurrence of previously agreed types of teacher behaviour or the impact of certain teacher actions on pupil responses.

Teachers in the Leeds consortium highlighted a number of benefits of structured peer observation to teachers, including that it:

- promoted trust between teachers and so enhanced the quality of working relationships
- helped teachers to develop a shared language for discussing their observations, which was based in the context of the observations themselves
- raised teachers' awareness of change in the practice of others and of themselves which helped them to grow professionally
- explored real classroom issues
- raised the self-esteem of teachers including those who were at first reluctant to participate.

To find out more about peer observation see the TTA conference paper 'The Nature and Benefits of Peer Observation' by John Threlfall (see Further Reading).

Advice about how teachers can plan, record and evaluate their professional learning is provided by the GTC Teachers' Professional Learning Framework.

How was video used?
Teachers in the North East England consortium introduced video-recording as a tool for exploring classroom practice and the practice spread throughout all the consortia. In terms of professional development teachers found video to be useful at two levels:

- teacher reflection
- peer coaching.

In some schools video was used at both levels. One activity from the Manchester and Salford consortium, for example, involved two teachers and a university colleague who operated the camera and took part in the peer coaching.

What were they looking at?
They adopted a framework for using video which focused on six areas of classroom activity:

- the teacher's questioning style
- the children's responses
- inclusion
- teacher - pupil interactions
- teacher strategies for stimulating listening
- teacher strategies for stimulating speaking.

How did they use video?
The use of video consisted of a number of stages. Initial recordings focused on teacher practice and pupil responses. A second recording then enabled teachers to have a more detailed look at some of the features they had identified, such as pupil involvement in small group discussions. Subsequent recordings offered the

teachers the opportunity to try out different strategies to improve observed practices and observe the effects. For example, they found that the pupils they recorded did not effectively engage in discussion. Systematic reflection about the activity and discussion with colleagues helped the teacher to develop another strategy incorporating a more directed and structured approach to group work, which was seen to be successful.

Despite her feeling of vulnerability under such close scrutiny, the use of video had enabled the teacher to develop fresh understandings of her practice, to implement new strategies and to analyse their effects.

To find out more about using video see the TTA conference paper Teachers Working with Video to Improve Teaching and Learning by Claire Van-es and Sarah Brealey.

The use of video has continued its widespread appeal to teachers wishing to engage in classroom observation. For example, in a recent Best Practice Research Scholarship project, teacher-researcher Karen James used video to offer herself and her colleagues the opportunity to capture and analyse children's play activity in a nursery setting. More information is given in Further Reading.

How were teachers supported in research activities?
All the participants in the initiative regarded support for teachers as a crucially important part of the work of the consortia in order to enable teachers to become skilled in the use of research methods and to become familiar with new teaching and learning strategies. It developed in a number of ways including:

- teacher coaches
- support by universities
- school research co-ordinators.

How were teacher coaches used to support other teachers?
In the North East England consortium, peer coaching was a core feature of research activities. In the earlier phases of the research and development activities teachers engaged with and in research to identify and explore the effectiveness of thinking skills strategies on pupils' learning, including longer-term effects. In a later phase of activity teachers analysed the role of teachers' attitudes and beliefs.

Successive cohorts of teachers were coached by the previous cohort, which had by then become familiar with thinking skills strategies and their implementation.

A typical approach to coaching involved two cycles. In the first cycle the teacher being coached observed and video recorded a thinking skills lesson taught by the coach. The teacher then discussed the lesson with the coach and proposed a plan for their own lesson which the coach would later observe and video. The teacher and coach discussed the teacher's lesson and produced an action plan which highlighted what the coachee would focus on in the next lesson when the cycle was repeated. The benefits of coaching were quickly recognised by participants:

'The coaching session provided a supportive environment for open discussion and constructive criticism. Mutual observation and the use of videos have been crucial elements of the coaching process. Observation and analysis of the coach's lessons provided a model to follow and also created an atmosphere of trust. Using video one can carefully dissect the lesson in its various stages thus presenting manageable areas of focus.'

Peer coaching has continued to attract the attention of teachers as a tool for helping them improve their practice. For example the National Union of Teachers has recently developed and run a peer coaching programme. For more information see Further Reading.

How did the universities help teachers become researchers?
The university acted as the administrative base for research. This was largely due to the pre-existing networks and partnership arrangements they had with schools as well as administrative resources for managing networks.

Groups of university tutors and mentors' groups provided guidance and support for teachers at school level in

a number of ways including:

- training teachers in research methods and analysis
- providing guidance to necessary reading
- inducting teachers into research knowledge
- providing access to specialist knowledge and access to literature
- guiding and supporting the initial project design
- participating in all stages of research activities - initiation of research, conducting the research, and data collection and analysis
- practical help with, for example, typing up interviews and transcribing and copying videos.

Reporting the outcomes of the research activities was shared between the schools and universities - sometimes with joint presentations at research conferences in regional, national and, occasionally, international settings. University tutors/mentors supported and guided the teachers in writing up their reports, although often university colleagues were the principal authors of research papers, supported by teachers.

The relationship between university staff and teachers seemed to have been highly effective. One headteacher echoed the views of many with the comment:

'...the university...worked very hard to be very approachable, not to blind people with science, to make it...accessible'. (Manchester and Salford)

For the universities, much was learned about how research and educational practice can inform one another and about the benefits of building genuine partnerships that integrate research and professional development.

School research co-ordinators
School research co-ordinators played a number of key roles including:

- helping to identify issues for research
- engaging teachers interest
- helping to develop research plans and tools
- implementing research and development activities in the schools
- providing access to the literature
- coordinating the work of colleagues
- developing peer observation and feedback frameworks
- helping to sustain teachers' involvement over a period of time.

In the first stages of the initiative the impetus largely came from the universities and LEAs and it took a little time for activities to develop in the schools. The school research co-ordinators were instrumental in helping this transition to take place.

The majority of the 25 school research co-ordinators were 'volunteered' by headteachers, LEA officials and others. They were cautious about taking on the role because of fears about workload. By the end of the initiative they were were comfortable with and in some cases excited by the part they had played and what they had achieved.

As the research processes got under way, school research co-ordinators 'worked first as apprentices, then as craftspeople and finally as coaches, quality assurers, co-ordinators and initiators, supporting and learning from the work of others' (Overview Report). Their involvement and enthusiasm were infectious and they caught the attention of their colleagues. Their engagement in research, as opposed to with research, enhanced their practice and their pupils' learning while also, importantly, providing the modelling which became the foci for collaborative activity among their colleagues. Co-ordinators' authority and influence grew during the initiative irrespective of their position in the school hierarchy. It was not uncommon to find relatively junior or middle-ranking research co-ordinators providing information to or collecting data from colleagues across the school hierarchy.

What sorts of pupil data did teachers collect and how did they use them?

A major factor in encouraging teachers to take part in the consortia initiative was the emphasis on pupil learning and achievement. However, as the initiative developed, teachers and researchers were increasingly confronted by a difficult balancing act between working to improve learning, and working to produce evidence for that improvement.

Another important factor was that teachers were constantly integrating new strategies into their day-to-day practice. Changes in teaching and learning became cumulative and it became difficult to isolate the effect of specific activities on pupils' learning. Furthermore, busy schools quickly moved on from earlier and less successful practices and tended not to revisit evidence about them. For all these reasons, teachers became aware of the complexity of attributing a causal relationship linking interventions and outcomes.

Many of the data therefore had less to do with changes in pupil performance as measured by formal assessment but rather more to do with changes in pupils':

- perceptions about learning
- attitudes to learning
- willingness to engage in classroom activities, particularly those that involve teacher - pupil and pupil - pupil interactions.

This data was used to inform teachers' planning. In combination with formative assessment data about pupils' attainment it provided detailed information about pupils' learning needs and preferred teaching and learning styles.

Despite the complexity of measuring impact on pupils, teachers did try to trace the impact of their efforts on pupils' learning by:

- following the overall trajectory of pupil learning and achievement at school or consortium level
- collecting evidence about specific strategies.

The results were positive although groups of pupils making faster than usual progress still took steps backwards as well as forwards along the way.

What can other teachers do in their own classrooms and schools?
As a number of consortium teachers became aware, practitioners were already conducting some features of research in their classrooms without necessarily realising they were doing so and the same is possibly true for others. Many teachers have probably, in one way or another experimented with:

- questioning techniques
- group work
- word lists
- seating arrangements.

Teachers may have evaluated the effects as part of their classroom practice. All teachers have been observed for one reason or another and many will themselves have acted as observer. Some may have experimented with video, although few will be acquainted with the more formal techniques of classroom observation.

Whilst not intended to be prescriptive, teachers who are considering undertaking research in their own schools might like to consider the following factors as those most likely to win support among their colleagues:

- suggest research issues which are relevant to teachers and related to their work in the classroom
- begin with small-scale research, for example, peer observation could be initiated by two teachers agreeing to do so and to report their findings to other staff
- plan research which teachers feel they can have a go at
- include pedagogic issues on school or department staff meeting agendas
- win support from senior staff in order to provide 'space' in the timetable for observations and analysis
- ensure that teachers maintain ownership of the research
- when budgeting the time for the various stages of the research anticipate the demands on teachers made by other

initiers in the school or department.

(The above suggestions are drawn from a number of reports from the consortia, including the Leeds consortium final report and the teachers' advice pack prepared by staff at Westwood Primary School in the Leeds consortium.)

Details of the research tools which were successfully used in the four consortia and which teachers may wish to consider for use in their own schools are presented in the next section.

What research tools can teachers use?
Tools and instruments were a crucial working feature throughout the lifetime of the initiative, providing vehicles for both research and CPD in the teachers' own contexts. Other teachers might find these tools useful in their own schools. They included:

- pupil learning logs
- teacher diaries
- peer observation
- collaborative design of teacher packs
- use of thinking skills approaches
- teacher coaching
- video.

Teachers introduced pupil learning logs as a tool for gathering data about pupil perceptions and for encouraging pupils to think about their learning. In one school in the North East England consortium pupils' entries in their logs were based on four questions:

- What did you learn in this lesson?
- What did your teacher do to help you?
- Could you transfer what you learned here to another situation?
- Any other comments?

Teacher diaries were used in some schools. They contained evidence about teachers trying out the strategies, experiencing setbacks, consolidating practice, and developing commitment to practice.

Teachers in a number of schools worked together to produce packs which helped teachers to share and promote good practice. Teachers in the Leeds consortium, for example, who undertook research into numeracy teaching and learning, wrote up their observations of teacher and pupil behaviour and shared them with other schools in the form of information packs. The packs contained useful advice about setting up classroom based research projects, conducting and recording observations and strategies for teaching and learning.

For details about the package prepared and distributed by one school in the Leeds consortium see case study 4.

How can teachers develop thinking skills strategies?
Teachers specifically planned thinking skills lessons to challenge pupils' thinking. These lessons were more about how pupils' think than what they were thinking about.

Teachers aimed to present pupils with a cognitive challenge in which they were faced with a problem where what they knew already was not, by itself, sufficient to enable them to answer it. This they could only do with support from the teacher. (This approach derives from the Russian psychologist Vygotsky who developed the idea of the zone of proximal development (zpd) which lies in cognitive terms between what a learner can do on their own and what they can do supported by more able peers or, in the case of young people, adults).

Two crucial elements of the mediative role of teachers by which they helped pupils to move through their zpd are:

- metacognition

- scaffolding.

Metacognition means thinking about thinking, an activity which teachers believe generates new knowledge and understanding. Pupils were encouraged to be explicit about their thinking. and teachers sought to bring in other pupils so that thinking about thinking became social.

Scaffolding refers to the ways in which the teacher provided encouragement and support to pupils to help them to gain the confidence to engage with challenging activities. This involved the use of explanations, demonstrations or stories and included the teacher's reinforcing and valuing pupils' contributions.

Examples of activities used by teachers in North East England consortium schools included:

- story-telling, in which the teacher's spoken words were transformed into memory and then back into the spoken word
- living graphs, in which the pupils interpreted statements and put them into a sequence on a graph
- mind movies where the activity stimulated pupils to transform the spoken word into visual images.

In thinking skills lessons both teachers and students had to adapt to this new teaching style. Successful practice was characterised by interactions in which:

- teachers asked pupils to reflect on their reasoning using questions like 'So how did you do that then? 'What made it work? How could you do it better next time?
- teachers asked pupils open-ended questions designed to draw in responses from pupils to be reflected and commented on by other pupils and asking for expansion, clarification or justification of answers
- pupils gave responses during whole class discussion which were much longer than they had been previously
- pupils' responses became increasingly more reflective.

A number of examples of teachers' use of thinking skills strategies are presented in our earlier RfT summarising the Cognitive Acceleration through Science Education (CASE) project in the main study and in the supporting case studies.

How might a mentor support teacher development?
Some of the most successful aspects of the consortia activities involved collaboration between teachers and other teachers and university staff. All the reports emphasised the benefits of such partnerships in enabling the initiative to make progress. Teachers may wish to consider the ways in which partnership with a mentor could help them to conduct research and development activities in their own classrooms and hence further their professional development.

From the various reports and papers which came out of the consortia it is possible to characterise the successful mentor or coach as having:

- successful experience as a classroom practitioner
- good knowledge of the curriculum
- belief in the importance of, and an understanding of, learning processes
- enthusiasm for teaching and learning
- an ability to build relationships
- openness and trustworthiness
- a willingness to share knowledge
- some knowledge of observation/research methods and tools such as classroom observation, pupil tracking, teacher and pupil diaries etc.

(These characteristics were drawn from a number of comments and observations in consortia publications including the Leeds consortium full report, the North East England consortium full report and the Evaluation Report.)

Teachers involved in such collaborative relationships in the consortia reported favourably on the way in which other teachers or university mentors helped them identify blocks in their performance.

Feedback from a mentor who has experience of classroom observation techniques can draw together elements

of a teacher's practice, which may not be easy for the teacher to see.

Not only can mentors help teachers to identify their strengths and weaknesses, they can stimulate teachers into trying new approaches and where they have the knowledge and experience to do so can bring new educational ideas and research to the teachers' attention. By working together and discussing the teachers' beliefs, understandings and practice a good mentor can encourage a teacher to be more reflective and analytical about their teaching.

Implications for practice
Teachers may wish to consider the following implications of the findings of this research:

Pupils gained particularly from opportunities to talk about their work, communicate their thinking and make connections between tasks. Could you work with colleagues to plan increased discussion opportunities for students?
The use of open questions asking students to expand, clarify and justify their answers made pupils more reflective about their work. Would asking questions to encourage clarification and justification help you to refine your use of open questions?
The study identified the benefits of collecting evidence from classroom observation and the importance of establishing equity and trust between colleagues, for example, by ensuring that all participants both observed and were observed. To what extent might supportive and mutual peer observation encourage you to try out new practices and identify your strengths, as well as any areas for development?

Head teachers and senior staff may wish to consider the following:

- The study found that teachers who took part in classroom based research increased in skill, confidence and knowledge of teaching of learning and became more reflective and creative practitioners. This process was helped by a partnership with their peers and with university mentors. How could such partnerships be used to foster effective CPD within your school, or across a network of local schools?
- The study noted the difficulty of balancing the process of working to improve learning and working to produce evidence of improvement. This difficulty could arise in other areas of assessment. To what extent might evidence from research tools such as pupil learning logs, teacher logs and evidence from observation be used (with permission from participants) to support the process of school self-evaluation?
- The research consortia in the study refined their agreed research focus over time. If a research focus of benefit to all participants takes time to establish and evolve, how might you build in some flexibility when planning research of your own? Might you need to agree periodic occasions for review and reflection on the relevance of the research topic to all concerned?

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 email: research@gtce.org.uk
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Case studies

There are five case studies in this RfT.

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 email: research@gtce.org.uk

Improving literacy

This case study shows how new strategies can improve literacy teaching and learning and raise the levels of

pupils' attainment. The project was set in an inner-city school in area of great social deprivation in the Manchester and Salford consortium. The improvement of pupils' literacy was a high priority in the school's development plan. Research and development activities were focused on low attainers in a Year 5 class and involved a four-week intervention which aimed specifically to improve their reading abilities. Specifically the research aimed to explore strategies for teaching polysyllabic words in order to raise reading ages.

What did the research show?
Teachers in the school found that the intervention helped to:

- increase children's reading abilities to a level above that expected
- improve children's motivation
- raise the amount of time children spent on task.

In the three or four months prior to the intervention, the project children made reading progress at roughly one third of the speed of the average child. During the month of the intervention, however, the children made four times the rate of progress of the average child. Teachers found that oral group work had a positive effect on motivation and learning. They also found that spelling and poetry helped to develop children's phonic and reading skills, and that short-span tasks with clear learning objectives motivated children and increased time on task. As the children improved their reading in syllables, they grew to enjoy the challenge of reading more difficult words.

How was the research designed?
At the beginning of the project 16 children in a Year 5 class of 34 were identified as having reading

ages below their chronological age. The range of reading ages was 6.5 to 10.0. Baseline data were established using a number of methods:

- PhAB (NFER) test for phonological awareness (on the 16 project children)
- NVR (NFER) test for overall ability and to measure progress in reading (on the whole class)
- Harter self-esteem test.

The project children were divided into two equal groups and both received an intervention, which was planned to be of one month's duration, although for one of the groups this became drawn out to two months.

Each group was given an intensive course of 20 lessons each of 50 minutes. The course contained four main components:

- phonics
- spellings
- sentence construction
- poetry and performance.

Reading ages were measured again at the end of the intervention and at the end of the year.

What did the intervention programme consist of?
The teacher who initiated the research reasoned that the children had come from key stage 1 into key stage 2 without acquiring the full set of phonological skills which their peers had developed by this point. For example, the children still tended to decode words letter by letter.

The phonological awareness test and teacher observation supported this analysis and areas of learning difficulty faced by 11 of the 16 children were identified:

- decoding of polysyllabic words

- low vocabulary level
- poor phonological awareness
- poor memory skills
- poor rhyme recognition, awareness of pitch and sense of rhythm.

The teachers involved in the project based the course around sets of 30 words per week, chosen to illustrate and teach the children about particular word endings. For example, in week one all the words had endings which were pronounced 'ur' such as -er, -ar, -or and -our. Spelling was reinforced through homework and spelling tests. Children combined words from the list to make sentences such as 'Mrs. Jennings is glorious and not hideous or tedious'. They enjoyed these activities as their comments show, 'The sentences were really funny and weird ones', '...we had a laugh about it when we called each other.'

In the final part of each lesson the children studied poetry and practiced reading it for performance to another class. Poems were selected for their humour and interest and the children found it enjoyable to re-read them over and over again. The strong sense of rhythm and the presence of large numbers of polysyllabic words in the poems helped to reinforce children's learning of the new vocabulary.

Reference:

Improving literacy - an intervention for low achieving pupils
TTA Manchester and Salford Consortium,
Summary report from Friars Primary School.

Temple goes mental: Researching the learning and teaching of mental maths

This case study from the Manchester and Salford consortium illustrates the potential of classroom-based research to identify and develop good practice aimed at improving children's learning of mental mathematics. Ninety-five per cent of the pupils at the school spoke English as an additional language. Teachers were concerned about the low level of pupil performance in the key stage 2 national tests and saw the consortium initiative as an opportunity to develop new strategies for teaching and learning mathematics.

What did the research discover?
The teachers reported a number of findings including:

- improvements in national test results at the end of key stage 2 with the proportion of children achieving level 4 or better increasing from 49 per cent in 1998 to 58 per cent in 2000
- average pupil attainment improved in each phase of the three-year project
- there was a close correlation between pupils' mathematics improvement and their pre-intervention
- Stage of English Acquisition (SELA) grades
- teachers spent more time on planning
- pupils' interest and motivation increased and there were far fewer behaviour problems
- pupils' reasoning skills improved
- pupils' mathematical vocabulary improved
- pupils' self-esteem and self-confidence increased.

Teachers reported that the children were very enthusiastic about the greater variety of teaching approaches adopted by their teachers, particularly when they were encouraged to describe and explain their own methods of calculation.

Pupils, particularly low attainers, also seemed to learn more effectively when they explored a fewer number of problems in greater depth. All pupils benefited from the group activities which developed their communication and reasoning skills.

For teachers the project stimulated extensive debate about issues of teaching and learning and led to the development of a shared vocabulary. They identified questioning as a significant strategy for improving pupils' mathematical reasoning. Teachers spent time finding out about research into teaching and learning based on Swan's (1997) work on reflective teaching methods and Straker's (1993) ideas on talk.

How was the research designed?
The project involved 54 pupils as they moved from Year 4 to Year 6, and their teachers.

A variety of different kinds of data were collected including:

- pre and post tests each year
- Stage of English Acquisition data
- attendance rates
- teacher interviews
- pupil interviews
- teachers' lesson plans
- pupils' classwork
- classroom observation including the use of video and audio recording
- teacher diaries.

National tests at the end of year 6 provided evidence of overall attainment in numeracy.

What did the teachers do to improve pupils' learning?
The teachers engaged in classroom observation and made extensive use of video to share good practice.

Specifically this included:

- improving questioning strategies
- increasing teacher expectations
- building in more opportunities for children to explain their reasoning.

Video evidence highlighted the effectiveness of open-ended questions for challenging children's thinking. It also showed that when children were offered the opportunity to create and explain their own methods of calculation, they responded enthusiastically. It was significant that pupil responses in this activity were related to pupils' gains in the post-tests.

The project was characterised by an emphasis on mathematical vocabulary and mental methods and teachers found the following approaches helpful:

- building mathematical dictionaries and word books
- reviewing lessons orally and in writing
- encouraging pupils to construct test questions
- displaying mathematical vocabulary prominently on posters.

Pupils worked to discuss and solve multi-part problems. They had to identify and explain their methods to the rest of the class using words, signs, numbers, pictures and anything else that was helpful.

Teachers encouraged the children to listen, to share their methods, to take turns at explaining, and to challenge at the end of an explanation, focusing on the use of appropriate vocabulary and pupils' explanations rather than 'getting the right answers.'

Reference:

Temple goes mental: researching the teaching and learning of mental maths
TTA Manchester and Salford Consortium,
Summary report from Temple Primary School.

Using thinking skills to develop higher order English at GCSE

In this case study teachers explored the potential of thinking skills strategies to develop students' analytical and critical skills which are crucial to high achievement in English at GCSE. The study was set in a large comprehensive school in the North East of England. Its intake was drawn from a socially-mixed catchment area and was considered by staff to be truly comprehensive in its ability range. The research focused on an upper band GCSE group, consisting of 12 boys and 15 girls, who were taught by the same teacher for the two years of the course.

What did the research show?
Evidence indicated that:

- students' confidence rose
- many students gained higher than predicted grades at GCSE in English and in literature
- students and teachers developed a common language for the learning taking place in the classroom
- collaborative activities helped to promote social learning
- there was some evidence of students being aware that the skills were transferable to other subjects.

Comparison of final GCSE grades with Yellis predicted grades showed gains for many students. This effect was particularly noticeable for boys' and girls' English grades where nearly all students did better than their Yellis prediction indicated. The teachers reported that:

'Using thinking skills activities helped to develop the analytical, interpretative and critical skills needed to achieve higher order English skills...The structure of the strategies and their reliance on collaborative and interactive features helped to develop confidence and social aspects of the classroom.'

Student learning logs provided evidence about the benefits of working with others: 'It has helped me to listen to others and make group decisions, which would keep everyone happy. It has made me change my opinion by taking into account what other people think.'

Students seemed to be aware that they could transfer thinking strategies into other contexts and that, for example, annotation, dealing with time and chronology, analysis and speaking and listening could apply in any subject. Some students appreciated that particular skills were helpful in different subjects:

'I could use the graph plotting in maths and physics, and I could use the annotation in subjects like history and textiles where you have to give lots of reasons for things.'

How was the research designed?
The teacher collected a number of different types of data including:

- Yellis predicted grades in English and literature
- final GCSE grade

- pupils' learning logs
- data from peer observation
- comments in teachers' diaries
- audio-tapes of classroom discourse.

Other forms of data such as teachers' and students' comments from logs and diaries were used to complement peer observation data.

What sort of activity did the intervention involve?
The activities selected by the teacher were those that seemed most appropriate for developing the analytical and interpretive skills students would need if they were to gain access to higher grades in GCSE English subjects. In the 'Speaking and Listening' component of the curriculum, for example, students were expected to take a leading role in discussion, understand and discuss content which challenged their thinking and analyse and articulate complex ideas.

One particular activity was "Mystery - 'Merchant of Venice'". As an introduction to the activity students were given a brief background to a main element of the story, which was the pact between Shylock and Antonio. They then read the text. Working in groups they had to address the question of why Shylock continued to insist on his pound of flesh although this now seemed unnecessary. In order to aid discussion students were given access to 20 statements which illustrated evidence both from the play and also from sources regarding the historical treatment of the Jews. During the group activity students were required to filter out irrelevant statements and to produce a group hypothesis for Shylock's actions which was backed up by evidence and reasoning. A final, important activity was to devise questions that they needed to ask of the text to develop their understanding or test their theories.

The teacher reported on the positive way the students embarked on their task. She also commented that during the debriefing part of the exercise, when she prompted students to explain their reasoning, there were signs of a growing understanding of their own learning among the students. Evidence from students' learning logs suggested that students were gaining skills and understanding in character motivation, writer's use of language and the structure of writing.

Reference:

Using thinking skills to develop higher order English skills at GCSE
TTA North East Consortium,
Heaton Manor School.

Improving the performance of KS2 pupils in maths problem solving

This case study reports how staff explored teaching and learning strategies aimed at addressing identified weaknesses. They also prepared an advice pack for other teachers, based on their research experiences. The research was set in an inner-city primary school in Leeds.

What did the research discover?
Teachers at the school reported the following findings:

- children's mean class scores for mathematics improved for each class
- national test results at the end of key stage 2 improved
- teachers became more confident in using visualisation techniques
- teacers planned lessons more carefully with very specific planned learning outcomes;
- children were more motivated and focused on their work
- children's reasoning skills improved

- there was some evidence children were taking learning strategies into new areas of mathematics.

Mean class scores for each class increased with the largest learning gains being made by the middle and lower achievers. This improvement continued into the national tests, which showed an increase from 53 per cent (1998) to 65 per cent (1999) of children achieving at level 4 or above. Whilst the teachers recognised that other factors such as the introduction of the national numeracy strategy may have played a part, they were reasonably sure that the new strategies they implemented also had an impact.

The report also cited an impact on teachers. It commented:

'Teachers felt the project made them think more deeply about "how" and "what" they were teaching... (it) ... was effectively leading them into an upward spiral of increased competence.'

Evidence indicated that pupils enjoyed lessons more and reached a better understanding. They used terms such as 'It was more fun', 'I could work it out better thinking this way' and 'I can see what the question is asking'.

How was the research designed?
The research activity involved four teachers and three classes from each of Years 4, 5 and 6. Research activities included:

- analysis of pupils' answers from the 1998 key stage 2 national tests to identify strengths and weakness of mathematics teaching and learning in the school
- teacher questionnaires for collecting data about teachers' attitudes
- paired observations to explore teacher practice, particularly in the use of visualisation techniques, and to assess children's competencies
- pre- and post-testing of all classes using appropriate Heinemann mental mathematics tests.

What did the intervention consist of?
From their initial analysis the teachers concluded, for example, 'more work required on language of mathematics', ' teaching of decimals and fractions needed to be more rigorous' and 'children need more practice in using maths in different contexts'. The teachers used their analysis for future planning. Classroom observations prompted teachers to conclude that visualisation strategies showed potential for further development to:

- increase flexibility in pupils' thinking
- encourage pupils' reflection on their answers in the light of context and the numbers involved
- help pupils explain their reasoning to teachers and other pupils.

A visualisation strategy designed to help children relate fractions, decimals and percentages to each other, for example, consisted of three number lines:

0 0.25 0.5 0.75 1 etc
0 25% 50% 75% 100% etc

Children could then read across the lines and so understand equivalences.

'Is this project for you?'

The teachers offered the following guidance to others who may have wanted to undertake research:

- checklist points to be included in research plans

- advice about baseline assessments, for example, staff attitudes to mental arithmetic and children's competence in mathematics, and suggestions for data collection
- how to conduct classroom observations
- giving and receiving feedback
- examples of how visualisation techniques could be used
- lessons drawn from their own engagement in research.

The checklist offered useful general and specific guidance about, for example, timing, establishing a baseline and classroom observation. Other guidance included suggestions about how visualisation techniques could be used to address pupils' misunderstanding of 1/10's and 1/100's by displaying the problem on mm squared paper.

Further guidance suggested how teachers could plan using a visualisation approach. The core questions teachers needed to ask when planning were:

- What is the teaching/learning objective?
- How can the key points be represented visually - by number line, fraction display, digital clock, etc.

The guidance sections also contained samples of classroom observation recording sheets and teacher questionnaires and other data collection sheets for teachers to use in their own classrooms.

Reference:

Improving the performance of KS2 pupils in Maths Problem Solving by encouraging the children to "SEE", "VISUALISE" or "PICTURE" the maths behind the question
TTA Leeds Consortium
Westwood Primary School

Encouraging and rewarding self-directed learning through technology homework

This study describes how teachers in one school attempted to tackle the problem of disaffection, which had been identified as a focus in the Norwich consortium. In this case study teachers of technology aimed to increase the motivation of Year 8 students by giving the pupils more control over their own learning.

What were the findings?
The teachers reported a number of findings which included:

- over a six-week period approximately half of the students achieved at a higher level than expected
- students enjoyed having more control over their learning
- students considered that a credit system provided a suitable incentive
- girls were more likely to attempt work beyond their minimum target level than boys
- differentiation by 'distance' was more effective in motivating students than differentiating by 'complexity' (see below).

A large majority of students interviewed enjoyed having greater control over their learning, but students were divided in their opinions about targeting. Perhaps unsurprisingly successful students were inclined to be in favour while the less successful ones were not.

Students reported that self-direction enabled them to work at their own pace and it also gave them greater access to their teacher during lesson time. Girls (60 per cent) were more likely to attempt tasks beyond their

target level than boys (40 per cent). This was found at all ability levels.

Differentiation was based on tasks set at four bands of difficulty, A, B, C and D (D being the band of least difficulty), which overlapped in terms of task complexity. Students could proceed along bands in a linear way, for example, along band D and then on to the next, in this case C. The teachers called this approach differentiation by 'distance'. Students also had the option of 'hopping' from one band to another in which case they were undergoing differentiation by 'complexity'. The evidence collected showed that for the particular technology activities covered, four times as many students preferred differentiation by distance to differentiation by complexity.

How was the research conducted?
The focus group consisted of 210 Year 8 students (122 boys and 88 girls) over a six-week block of technology.

Data was collected in the following ways:

- teacher assessment at the beginning of the year to establish a baseline
- opportunity sample of numbers of students who had correctly completed work beyond their target level
- student interviews.

The initial teacher assessment made it possible for the teachers to set realistic targets for the students, based on what they knew already.

The teachers stressed that their findings about student achievement only applied to the area of the technology curriculum covered in the six-week teaching block.

What form did the project take?
The overall shape of the project involved the linking of the school's rewards and sanctions system to differentiated extended projects in technology. Teachers designed two differentiated approaches to extended homework tasks. The two types of activity considered by the teachers to be the most appropriate for the project were:

- practicing the application of principles in new situations
- undertaking research or preparation activities.

From an initial teacher assessment of students' performance the teachers placed each student on band D, C or B and set them a performance target designed to stretch them from working within their initial, minimum, performance band to a higher target band. No student was placed in the A band so that all students had the opportunity to move into a higher band.

Students who successfully completed a transition from a lower to a higher band were rewarded with a credit. There was also an additional credit for the number of bands passed through so that a student on band D could gain a maximum of seven credits by achieving band A. This was regarded by the teachers as an extra motivational feature.

Reference:

'Credit where credit's due': encouraging and rewarding self-directed learning through technology homework
Hine, A. R. and Pine, J.D.
TTA Norwich Consortium
City of Norwich School
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Further reading

1. What else might I enjoy reading?
GTC (2003) A guide to peer observation. London: GTC.

James, K. Capturing play in a nursery setting. [M.Ed. thesis, unpublished]

contact Karen by e-mail at jameste@talk21.com

Consortia reports
Individual reports from the four consortia can be obtained from: Leeds - TDA, Portland House, Stag Place, London SW1E 5TT Manchester and Salford - Olwen McNamara, e-mail: olwen.mcnamara@man.ac.uk North-east - Louise Wilson, ECLS, University of Newcastle, Newcastle upon Tyne, NE1 7RU Norwich Area - http://research.edu.uea.ac.uk/publications/norwichareaschoolsconsortiumnascfinalreporttothete

Vygotsky, L. S. (1978) Mind in Society: The Development of Higher Psychological Processes., Ed. Cole, M., John-Steiner, V., Scribner, S. and Souberman, E. London: Harvard University Press.

Adey, P. and Shayer, M. (1994) Really Raising Standards: Cognitive Intervention and Academic Achievement London: Routledge.

2. Where else might I find information online?

DfES Standards website including the 'Research informed Practice' website. The 'Research informed Practice' area of the website presents online digests of research of interest to practitioners. It can be accessed from the main standards website:
www.standards.dfes.gov.uk/

NFER website. This contains educational research in a large number of topic areas.
www.nfer.ac.uk
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Appraisal

The reports of the TTA/CfBT funded school-based research consortia initiative, 1997 - 2000, Teacher Training Agency.

Norwich Area Schools Consortium Final Report, 2001
John Elliott, Barbara Zamorski and Ann Shreeve

Report On The Work Of The Leeds Consortium, 2001
John Threlfall And Lesley Woods

Manchester And Salford Schools' Consortium, Final Report 2001
Olwen Mcnamara And Bill Rogers

North East School Based Research Consortium, Final Report 2001
Viv Baumfield and Marie Butterfield

School-Based Research Consortia Initiative: An Overview Report, 2002
Philippa Cordingley and Miranda Bell

All reports are available from the individual consortia or the TTA.

Introduction

The outputs from the TTA funded School Based Research Consortia initiative are rather more complex to appraise and summarise than a single report of a single study. The initiative was funded by the TTA and CfBT over 3 years to support teacher engagement in and with research as a means of improving teaching and enhancing learning. The four participating consortia were Leeds, Manchester and Salford, the Norwich Area Schools Consortium (NASC) and the North-East School-Based Research Consortium (NESBRC). Each consortium was made up of a partnership between schools, one or more local education authorities (LEAs) and a university (HEI). Each consortium identified and adopted a specific research focus, perceived as relevant to their particular schools.

Taken together, the individual consortium reports help to illustrate and exemplify the processes involved in engaging collaboratively in and with school-based research. Those involved aimed both to tackle specific teaching and learning issues and to explore how research and evidence can contribute to teaching and raising standards of achievement. Their collective outputs include academic papers, journal articles, a book, teaching materials, videos, CDs, evaluation reports, interim annual consortia reports and a number of summary documents. Here we appraise the four final consortia reports plus the Overview Report which draws together some of the cross consortia key messages. The individual reports are rich in detail about the school contexts in which the teachers carried out their research.

Robustness

The initiative was never conceived as a 'pure' research project, but rather as an experimental approach to engaging collaboratively in and with research as a vehicle for advancing teaching and learning. The different consortia worked within different methodological frameworks that also varied in the degree to which questions and data collection processes were organised to enable cumulative analysis. However the research scaffolding provided by the programme lent consistency and rigour to all of the projects included in the reports. Many of the teachers involved in the initiative had never undertaken research before, but the partnership with more experienced HEI researchers helped to introduce them to the research methods which they then used in their classrooms and schools. All of the projects used multiple data sources. The most commonly used data collection tools were classroom observation (including extensive use of video) and feedback; pupil assessment; survey questionnaires; pupil learning logs and teacher diaries. The authors of the reports make few claims which directly link the observed or measured advances in pupil learning or behaviour to the interventions, but there are strong correlations between them.

Relevance

Although pupil learning gain spurred the teachers in the projects on to further research and helped to encourage other teachers to join in, it was the professional gains for the teachers themselves that come across most strongly from all four of the consortia reports. They are relevant to teachers' interests and concerns in a number of ways, not least in their demythologising of research as something abstract and irrelevant to practitioner needs and capabilities. They vividly capture the growing enthusiasm and reinvigoration of the participating teachers and offer do-able examples of the many benefits deriving from professional discourse, peer collaboration and networked partnerships.

Applicability

The overview report draws on the consortia experience to show some of the key ways of effective

collaboration across schools and between schools and other collaborating partners. There is plenty of detail both in the overview report and in the individual consortium reports to show how such problems as finding time, overcoming resistance among colleagues and coping with the different institutional cultures were accommodated. There is also evidence of the importance of such factors as senior management support and the roles and responsibilities of the different partners - as well as some examples of how different schools organised the work to take account of their individual circumstances.

Writing
This was a multi-layered and complex programme and the writing sometimes reflects this. We would suggest that the RoM refers readers initially to the summaries of the five reports which are the subject of this appraisal so that they can get a clear picture of the initiative before digging deeper into the individual reports. In most cases the case studies of the individual schools are clearly and accessibly presented.Back to top