National Teacher Research Panel
engaging teacher expertise

inSide information
research for teachers, by teachers

Teachers never stop learning...

Teachers never stop learning. This applies whether you are in your NQT year or nearing retirement. We all want to improve and constantly ask ourselves questions:

How can I organise the class to maximise learning? How do I plan for different learners' needs? How can I find out more about pupil learning? The list is endless and we often turn to other teachers for answers and guidance.

The National Teacher Research Panel is proud to offer NQTs – and those who support them - a selection of teachers' own research into teaching and learning issues. These short summaries are designed to answer the questions that teachers new to the profession may well be asking. They all feature teachers who are using research to address real issues in their classrooms. Although they are all very different in terms of their curriculum focus and age range, the comments from panel members help to show how research can be used as a practical tool to move our practice forward.

I wish I had had access to first hand accounts like these in my first year of teaching. For you at the beginning of your career the future is exciting. I hope you find the summaries helpful and that they inspire you to become engaged in and with research. This is about your professionalism, your self-esteem and your desire to be an even better teacher. The NTRP believes that involvement with research empowers teachers to improve and to make a real difference to the learning of the children they teach. We wish you well.

Jill Wilson is Chair of the National Teacher Research Panel and Head of Oathall Community College in West Sussex.

In This issue:

Strategies for writing in French Page 2-3

Can a daily exercise programme improve pupil learning? Page 4-5

What pupils think of learning through laptops Page 6-7

Help with Science for learners with English as an Additional Language Page 8-9

Using mind maps improve attainment & confidence? Page 10-11

KS4 Literacy: Is It Improving Written English Exams? Page 12-13

Engaging with academic research - what's in it for teachers? Page 14-15

Research Websites for Teachers Page16

Effective school leaders have a deep knowledge and understanding of learning for everyone. The teacher researchers writing in this pilot edition of Inside Information use enquiry and collaboration to learn on behalf of their pupils, their teachers and their community. In sharing the processes and the outcomes of their research to improve their schools, they model system leadership, which is at the heart of the Networked Learning Communities programme. The NCSL Networked Learning Group is delighted to support Inside Information. For further information about Networked Learning Communities visit www.ncsl.org.uk/nlc

innovation unit

department for education and skills

GTC

NCSL

Networked Learning Communities

What difference does teaching students writing strategies make to their writing in French?

Belinda Bartley

Belinda Bartley
is Head of French at Lord Williams's School, Oxfordshire

Why focus on writing in French?

Changes to the specifications for GCSE French prompted Belinda to investigate how she could improve the way she taught writing to her Key Stage 4 students. Students were expected to produce a draft of each piece of writing coursework, which the teacher commented upon by ticking relevant boxes on a sheet provided by the examining body. The aim of the comment sheets was to guide the students to the aspects that needed checking before completing their final draft. Belinda felt that in order for this process to be successful, her students needed to understand the advice she gave them and also how to make appropriate changes to their work. Her goal was to devise strategies that would help them revise their drafts – her research showed that she succeeded.

What writing strategies did Belinda teach her students?

Belinda introduced the students in two Year 10 experimental groups to two main strategies, which they practised frequently and regularly during lessons: brainstorming, and verb and tense checking. Brainstorming was important part of the writing process. The brainstorming activity was completed mostly in French – the students were encouraged to write complete phrases they already knew, not just nouns, verbs or adjectives. They worked either individually, in pairs, in groups or as a whole class. Sometimes they were encouraged to develop particular groups of words, such as connectives. They did not use dictionaries at this stage, but noted in English words they wished to look up later. The brainstormed notes were handed in with the writing, to enable Belinda to give the students feedback and suggestions for future pieces of writing.

Belinda also introduced possible techniques to help the students check the verbs they had used in their writing for accuracy: identifying and underlining each verb, and colouring the verbs in different colours to show the tense that had been used. This activity also involved developing other strategies, such as using clues in the text to help identify the tense being used. She introduced verb and tense checking as a whole class activity, then asked the students to work collaboratively on texts before asking them to apply the strategy to their own work. Belinda also created a checking sheet to help the students develop self-evaluation strategies.

What effect did the strategies have on the students?

Most students used the strategies and found them helpful. By Year 11, the students in the experimental groups were writing longer pieces of French and including more verbs in their writing, although the students in the mixed-ability class were still showing a fairly high level of inaccuracy. The two control classes also showed progress in these areas, but to a lesser extent. The level of uptake at AS Level improved too. Confidence (normally the main reason for deciding to drop French) was not an issue for these students. The students' awareness of learner strategies was also raised. Their strategies extended beyond writing, and they were willing to try out new ideas in areas they wished to develop further.

The students commented both positively and negatively about the tense and verb checking strategies. For example, one student thought the strategy was 'hard to use'; another student felt that 'verbs are tricky and need lots of checking'. They commented in a similar way about the brainstorming strategy. For example, one student suggested that it was 'easier than thinking of ideas when translating', whilst another commented, 'it doesn't help with sentences'. Belinda felt that the strategy training allowed the students to experience greater autonomy, which they seemed to enjoy and helped her become aware of the ways the students worked best when writing in French. Introducing the strategy training also influenced her teaching – by the end of the project she had started to adapt some of the strategies for Key Stage 3 students.

How did Belinda find out about the effect of the new strategies?

This project took place over two years in a large (2000+) mixed comprehensive school situated in a rural area of Oxfordshire. It involved four Year 10 French groups – two experimental groups taught by Belinda (a top set and a mixed ability set) and two control groups taught by Belinda's colleagues (both mixed ability groups). The writing of all four classes was assessed according to average sentence length and verb accuracy at the beginning of Year 10, and again at the beginning of Year 11. The students also completed questionnaires.

How could you put this research to work for your students?

Robin Bevan & Stella Darke

Belinda Bartley's research has the hallmark of real classrooms and real students. Her structured approach to developing writing skills is 'food for thought' for teachers in a whole range of disciplines. Her study presents us with a number of challenges:

Belinda's approach with Year 10 French demonstrates the need to break down our thinking about students' learning. She shows us the importance of using each stage of students' work to inform the next; but she is also realistic that not all students will respond well to the preparatory steps, unless they see beyond the isolated and artificial feel of such early work.

How can we structure the steps to mastery in a new skill or topic?

Even classroom approaches that are demonstrated to bring significant achievement gains don't "work" uniformly. We could all agree that the learning strategies developed by Belinda help to make the process of learning more transparent, but there are bound to be students who benefit from a range of other approaches. Developing classrooms with alternative routes to the same learning outcomes is a real challenge

What further approaches can we adopt in recognition that not all students learn in the same way?

In the study students are encouraged to refine their own writing with reference to a "checking sheet". Other studies in formative assessment demonstrate how valuable this can be. If students can be taught to look at their work with the same criteria, or evaluation framework, as the teacher then the quality of their work can improve. Research suggests the best way to start this is to involve students in assessing each others' work to consistent criteria.

Can we do more to make our feedback to students useful?

Robin and Stella are members of the National Teacher Research Panel

An interview with **Belinda Bartley**

Belinda's school is a partner in the Oxford University PGCE course. She started thinking about an investigation of her own after a university tutor asked if he could use her mentor course for his research project. The tutor then mentored Belinda through her own project. She also had the support of the other two classroom teachers involved.

Now, when teaching, Belinda thinks a lot more about how students learn. "You can't assume that students will automatically understand things after you have explained it once", she says. "These days I try to break things down for the students and revisit things more regularly." She also believes that students should have the autonomy to select from the different strategies and techniques suggested by the teachers those that suit them best as learners.

As a member of a learn-to-learn group, Belinda kept fellow members informed so they could take her research findings on board. She is now about to embark upon further research into why Year 9 students choose to continue with languages.

Belinda would encourage NQTs to carry out their own research, "It's such a good way to find out about your own practice and also to allow pupils to have a say about what they're learning – this really helps with motivation".

Although Belinda has found subject-specific journals written by teachers to be a good point of reference, she believes that academic research needs to be made more accessible to teachers. "The internet is a useful tool for finding out about research that's out there. Teachernet contains some great links and the Best Practice Research Scholarship site has helpful information about different research methods."

Belinda now teaches one day a week on the PGCE course at Oxford University. The course encourages students to undertake small-scale research projects and students use their two school placements to make comparisons.

Can a daily exercise programme improve pupil learning?

Celia O'Donovan, Pat Preedy & Ruth Wolinski

Why a programme of exercises?

Knowle CE Primary School had already developed a programme that linked physical exercise with learning when the headteacher found out about the research of Sally Goddard and Peter Blythe at the Institute of Neuro-Physiological Psychology (INPP) (http://www.inpp.org.uk/). The INPP showed that if children retained the primitive reflexes that are necessary for early survival, the reflexes may impede their later functioning and learning. The Institute had devised an assessment and daily programme of exercises to inhibit primitive reflexes, which could be carried out in a school setting. Teachers at the school wanted to investigate whether the Institute's exercise programme would help pupils who were underachieving and not responding well to the usual strategies. They found that the programme helped improve their pupil reading accuracy and comprehension and also brought the children personal and social benefits.

What was special about the exercises?

Initial INPP training raised staff awareness of how retaining primitive reflexes could affect children's balance, muscle tone, co-ordination, posture, fine motor skills, left/right orientation, hand-eye co-ordination, and visual and auditory processing.

The subsequent impact upon learning can be profound and can result in:

- specific Learning Difficulties, such as dyslexia, dyspraxia, attention deficit disorder (ADD) dyscalculia (Maths problems), underachievement
- behavioural problems such as hyperactivity (ADHD,) bedwetting, anxiety
- coordination Difficulties such as balance

What could this research mean for your pupils?

Peter Smith

Peter Smith is a member of the National Teacher Research Panel and Headteacher at Swallowdale Primary School in Melton Mowbray, Leicestershire

The benefits of physical exercise are well known and it is widely accepted in the field of education that this will have a positive impact on learning. What is revealing in this study is the way in which specific exercises can reduce the negative influences of reflex actions learned at a very early age. It also reminds us that the conditions for learning are critical.

The Knowle enquiry is an example of reflective professionals searching for reasons and seeking solutions to why the children behave the way they do. Look carefully at patterns of behaviour and possible causes. You might discuss this with your SEN Co-ordinator.

How receptive to learning are the pupils in your class?

This study and the research by Goddard and Blythe indicate that specific exercises prior to the learning activity will make a difference. You might consider other factors such as the environment, timing and events that have just unfolded in the playground!

What do you do to prepare the children for learning?

It was significant that the team informed parents and invited them to use the programme at home. Where parents feel involved in their children's education learning is likely to be more effective.

To what extent do you involve the children's parents in school matters?

Celia O'Donovan is a Governor at Knowle CE Primary School in Solihull

Ruth Wolinski is a Year 3 teacher at Knowle CE Primary School in Solihull

What did it involve?

Nine children were identified at Knowle School and nine children were identified in another school that had a similar catchment & SAT results to Knowle (the control group). Year 3 pupils were chosen for the project because age seven to eight has been found to be a period of intense brain development. The Knowle children followed a daily fifteen minute exercise programme for nine months – from October until July. The control group was offered the programme during the following school year.

The exercise programme was based on infant movement patterns which form the basis of later voluntary movement, following the normal developmental sequence. The exercises ranged from simple head lifts to crawling and using all parts of the body. The children's parents were given a copy of the exercises so that the children could do them at home if they wished.

How did the children benefit?

The Knowle children increased in both reading accuracy and comprehension by an average of fourteen months over the nine-month project. The children in the control group made an average of eight months progress in reading accuracy and four months in reading comprehension.

By the end of the project, the teachers found the children better able to concentrate and to stay on task, enabling them to spend more time on teaching and less time on dealing with inappropriate behaviour.

The pupils enjoyed the programme and they commented on the development of their gross and fine motor skills and their increased self-esteem:

"My balance is getting better. I can also write and colour more neatly".

"My work has got faster. I find throwing and catching easier".

An interview with **Ruth Wolinski** & **Celia O'Donovan**

Ruth had a keen interest in accelerated learning and behaviour. Following a visit to the school by Sally Goddard from the Institute of Neuro-Physical Psychology (INPP), Ruth and her headteacher, Pat Preedy, applied for funding from the local authority to investigate aspects of their pupils' learning.

Ruth and Pat also had support in collecting data from Celia O'Donovan, a parent-governor at Knowle School. Celia has received excellent feedback about the research from other teachers too: "The exercises have been ingrained into the system and carried on even after Pat left", reported Celia. "Teachers have found that the exercises free up classroom time as children are more likely to settle and concentrate."

The exercise programme is run for selected children in Year 3 while infants follow a less formal programme. Ruth selects children on the basis of concerns about hand-writing, co-ordination, concentration or reading. "Completing the research has made me more aware of children's problems", says Ruth, "As a teacher of Year 3 I am able to pick out the children at an age when the exercises are most effective".

Ruth recommends that NQTs try keeping in touch with research through reading and then trying out findings in the classroom. "It's difficult to keep pace with research when you're in the classroom but there are lots of valuable things to learn from it."

Celia stresses the importance of working as a team and of having the full backing and support of colleagues. She thinks that carrying out your own research "makes you more aware of the issues around you and allows you to make your mark on the school".

The TES produced a supplement as a follow-up to the Teacher Research Conference. "It included a section about our work at Knowle with the exercises - which created a lot of interest and follow-up from other practitioners," said Ruth.

Ruth was also asked to take part in the Solihull Annual Learning and Teaching Conference, "It was a great opportunity to see the range of research carried out by teachers in others schools and to spread the word locally".

What do pupils think of pupil-centred learning through using laptops?

Danny Doyle

Why did Danny want to find out his pupils' views about how they used laptops?

Danny's school made extensive use of computer technology in the classroom and he wanted to find out the pupils' views of his school's approach to teaching with computers. All Year 5 and Year 6 children had one-to-one access to a laptop computer. The laptops were connected via a wireless network to give every child and their teacher access to printers, file sharing, internet and email. The teachers used the laptops as a tool to help pupils construct their own knowledge and understanding rather than run skill-based software as in traditional transmission approaches. The teaching approach was based upon Bruner's constructivist theory which stresses the idea of pupils making meanings rather than receiving them passively, and of learning how to learn and think rather than how to recall set bodies of information. Danny found that the children saw the value of the pupil-centred approach and welcomed it.

How did he go about collecting his pupils' views?

The study involved twenty-three Year 6 children at Les Landes Primary School on the Island of Jersey. Danny gathered data through taped interviews with the pupils individually, in pairs and in focus groups of five or six, and from participant and non-participant observations over one school year. He systematically coded the data and put them into categories, such as behaviour, independence and attitudes.

What did the pupils use their laptops for?

During lessons, the children used open-ended software on their laptops, such as Microsoft Word, Excel, Publisher, PowerPoint, Internet Explorer, Paint and Logo. By Year 6, the children were expected to choose the software they used to fit the task in hand, rather than the teacher creating tasks to teach the software. ICT was rarely taught as a discrete subject. Laptop use was integrated into the curriculum and used whenever appropriate and not used when it was not the best, or preferred, tool for the job. The school preferred not to use educational programs that put the computer in the position of tutor.

How did the pupils view the way they used their laptops?

Danny found that one-to-one access to laptops, using open-ended software to solve problems promoted the children's learning. All the children felt that their use of the laptops helped them to be independent, organised and produce better work:

Danny Doyle
is Deputy Head at Les Landes Primary School in Jersey

'I feel happy working independently on my laptop ... because working the laptop is more organised than having lots of pieces of paper all around you'.

Well, computers take less time, because if you're writing, it takes you quite a while, and if you make a mistake you have to start all over again if you're using pen and on your laptop you can use one button and you can delete something'.

They did not consider asking a classmate for help was a sign of lack of independence:

'I think we work independently with no trouble, if we are stuck we will ask each other but then again we don't need others that much'.

The children were aware of a difference between working together at a computer and working collaboratively. They remembered that when there had been fewer computers in school, two or more children would work together at a computer. The children commented on how they used to co-operate with each other rather than collaborate – they did not work together to solve a problem.

Requiring the children to complete tasks that involved higher order thinking skills (such as problem solving with unfamiliar software) helped them to be aware of how they made decisions. Reflecting on their learning helped them cope with new tasks:

'I think in new programs we know what to do because either we have vaguely seen it somewhere else in our life, somebody on our table knows it or you can just explore and if you get it wrong start again or press undo or back. Also we find skills that we have used before'.

The children appeared to welcome the constructivist teaching approach because they saw it helped them to develop independence and ownership of their work and their learning:

'When you (teacher/researcher) tell us what to do it isn't really the same, like it would actually be you telling us how to do it and we would mostly learn nothing because we really didn't do it ourselves, it would be mostly you that did it because you told us what to do'.

Danny concluded that the children's views supported the current shift in thinking from traditional teacher-centred instructional methods to pupil-centred classrooms. He also suggested that integrating ICT with problem solving activities helped realise the pupil-centred approach because the children took greater responsibility for their own learning.

What might Danny's research mean for your pupils? Robin Bevan

Investment in technology and computer-based teaching have both expanded substantially in the last decade. Danny Doyle's small scale study highlights a range of key issues.

Danny's goal for his pupils goes beyond the accumulation of content and the completion of tasks. He wants the children he works with to become autonomous, to ensure that they are self-motivated, that their work is self-regulated, and that they are capable of collaboration. Even more than that, his desire is to see the children deciding when to collaborate, when to use their technology, and when not to.

What steps are appropriate in our classrooms to allow pupils choice in their tasks, tools and working patterns?

Danny's report refers to the pupils' own judgements of the project. In this instance the children are clearly enthusiasts, and have been well prepared for the one-to-one laptop approach. It is unlikely that the provision of the technology alone, without a clear framework for use, would have been so positively received.

What can we learn from Danny's approach about the importance of asking pupils to comment on their classroom experiences?

The approach at Les Landes is consciously based on Bruner's constructivist theory of learning. You might want to investigate different learning theories when deciding how best to put technology to use in your own classroom.

What other theoretical approaches to learning might help in decisions about technology in the classroom?

Robin Bevan is a member of the National Teacher Research Panel and is Deputy Headteacher at King Edward VI Grammar School in Essex

An interview with **Danny Doyle**

Danny's idea for a classroom investigation came after his school was involved in a large-scale research project involving 28 schools in the UK. When he read the researchers' final published work he felt they had missed out something that was crucially important – the pupils' perspectives. "The researchers had consulted with the teachers and parents, but not the children". He knew that the children were doing far more than was suggested by the research and that the researchers had missed discovering this because they hadn't consulted with them.

Danny used his postgraduate studies to learn about researching children's perspectives, including different ways of collecting and coding the data. His research enabled him to combine his interest in constructivist teaching with gathering pupil voice data. As the children found individual formal interviews with their class teacher rather daunting, he tended to sit in on a group discussion, with a tape recorder running. The children soon forgot they were being taped and talked freely. "My headteacher was a great help during this time. She gave me time to analyse my data because she could see the value of what I was doing". Talking with the children in his class made Danny question what he was doing and why he was doing it. "They were really honest about what helped them to learn. I've applied some of the things they said with subsequent classes".

The whole school's interest in research has been raised. Frequently, the staff discuss a piece of research they have come across – for example newspaper articles reporting research – during staff meetings. "If someone finds an article that's relevant, they'll photocopy it and put it in our pigeon holes to read beforehand, then we'll spend maybe 5-10 minutes discussing it at the meeting". The school is encouraging another teacher to submit an application for funding to investigate role-play areas with Key Stage 2 pupils.

Danny's advice for doing classroom research is, "You haven't failed if you find it doesn't work – it's just as important to know what doesn't work as what does!" Danny also points out that research is a very natural activity for teachers. "We do it all the time when we are assessing the children's learning and recording what we find out".

How can learners with English as an Additional Langua

As ethnic minorities achievement grant (EMA) co-ordinator, Julie's attention was drawn to the fact that students from a Pakistani background (around 10% of the school population) were falling behind other students in terms of achieving Level 5 in mathematics and science. She decided to team up with the science staff at the 1800-strong De Ferrers Specialist Technology College in Burton-on-Trent to investigate the reasons for the discrepancy and to look at ways of closing the gap.

How did Julie assess the extent of the problem?

Julie spent the first term of the two-term project assessing how accessible the science curriculum was for learners whose first language was not English. She used a combination of discussions with students, classroom observations recorded on audio and video, and analysis of teaching and learning strategies to pinpoint where the problems were. She concluded that a more focussed approach was needed when it came to teaching how to use key words, plus careful scaffolding through writing processes. She found that lack of knowledge and confidence in the use of English put children off seeking help from their teacher. One student said that he didn't want to give the teacher the impression he didn't understand by asking for words to be explained, "because they might think I'm in the wrong set, but I don't understand because I'm learning in another language".

One student remarked, "When I look in a dictionary for a word I see lots of explanations but I don't know which is the science one."

Writing was a particular problem for the children for several reasons. There was an issue with general writing skills, such as when to use passive and active voice. There was also uncertainty about what information should be included where. As one student said: "I wrote down Method, Result and Conclusion for lots of experiments and never understood and still don't know what to write in each heading." Even copying from the board brought problems for the students, as often they did not fully understand what they were writing down. The children also complained that the teacher would explain the work while they were still copying, so they weren't able to concentrate on what the teacher was saying.

What materials did Julie design to help EAL students in science?

Julie led the development of a variety of materials for two Year 7 groups to use in the second term. Among these were games and activities developed with subject staff, including card games where students had to match words

How could you put this research to work for your students?

Mary Martin

Julie noticed that a group of students in her school was falling behind in mathematics and science and this prompted her to find out the reasons why and what she could do to help.

Have you noticed a particular group, or groups of students who seem to be falling behind in the classes you teach? Could you investigate effective approaches for groups that are under-achieving?

The EAL learners in Julie's school benefited from the strategies she introduced to increase their understanding of subject keywords and the writing process (such as compiling a dictionary and using writing frames).

Mary Martin is a member of the National Teacher Research Panel and is Deputy Principal at Comberton Village College in Cambridgeshire

Could you find out what aspects of your subject your students have the most difficulty with and which strategies they feel best help them to learn?

Julie felt she benefited from working with her colleagues to develop materials for EAL learners in her school.

Could you identify an area for common collaborative focus?

ge (EAL) be helped to progress in Science? Julie O'Connor

and meaning. These were designed to be used in twos or small groups. Teachers also created word searching activities, for example, a 'four in a row' game where students had to answer true or false questions to complete the game.

Julie prepared worksheets to aid the writing up of experiments, using formats such as tables, cloze activities, where students needed select a word to fill the gap in a sentence, and sequencing, which required students to put jumbled sentences in the correct order. Students also used writing frames to structure their report, which provided the students with sentence stems, connectives, and specific vocabulary. In order to help students learn specialist vocabulary independently, a science dictionary was also published, containing key words for each topic with simple definitions.

How did Julie assess the project strategies?

Julie used students' comments, end of module tests and classroom observations to evaluate the strategies she developed in the course of the project. The end of topic tests showed an improvement for the majority of the group. Students also felt they had more information in their exercise books to revise from, and that they had taken a more active part in their report writing, not merely copying from the board. Staff also noticed that all students improved their oral contributions when they were taught specific keywords, and that students were more likely to use the correct vocabulary in their group discussions. In addition the structure of students' written work improved as did their use of specific science vocabulary.

Julie O'Connor is EMA Co-ordinator at De Ferrers Specialist Technology College in Burton-on-Trent, Staffordshire

Interview: **Julie O'Connor**

Julie works as an Ethnic Minority Achievement (EMA) Co-ordinator. She was inspired to carry out her research after looking at data on KS3 achievement that showed that EAL students were underachieving in Science. "I was particularly surprised when I found out that it was the girls, the ones who sit and work quietly, who were performing at a lower level than the boys", said Julie.

Julie enlisted the support of the Science Inspector for Staffordshire and the Senior Inspector for Raising Achievement who linked her with two science teachers from the two other secondary schools in Burton on Trent.

The Head of Science helped Julie to put together a bid for a Best Practice Research Scholarship (BPRS). She also worked closely with colleagues in the Science Department throughout the project - and continues to do so by helping them to plan and deliver lessons by looking at language. She explained that "The research has helped to raise the profile of ethnic minority students and has helped deepen teachers' understanding about the needs of EAL students and the resources needed to help them to access the curriculum".

"Doing your own investigation is a great way of focusing on an idea", says Julie. She enjoyed the experience, which bought her time to plan together with colleagues - which she found to be one of the most useful parts of the project. Also, the opportunity to carry out in-depth interviews with students enabled her to "find out things that I would not otherwise have known."

Although dubious at first, Julie was pleased that the Science Inspector had managed to convince her to video aspects of the research as it proved to be a really helpful communications tool. "I was thrilled to have the opportunity to debrief my research activity to all the primary and secondary EMAG colleagues within the Staffordshire authority".

Julie keeps up to date with current relevant research through being a member of the National Association of Language Development in the Curriculum (NALDIC) and also attends regular Staffordshire LEA meetings for EAL colleagues.

How can using mind maps improve attainment and confidence?

Maureen Cain

As Headteacher of a relatively small primary school in Warrington (190 pupils), Maureen was concerned about some pupils' under-achievement in reading and writing when measured against previous attainment and predicted expectations - especially as most pupils enjoyed good pre-school provision and supportive families. Also, as children moved up the school they appeared to be reluctant to apply themselves to improving the quantity and quality of their work.

Maureen teamed up with two colleagues to develop the use of mind maps in the classroom to help pupils visualise their mental organisation of knowledge, and to see where new learning fitted in. The lessons also encouraged the pupils to become active learners by, for example, taking part in discussions and role-plays using real and familiar situations.

How did Maureen's team carry out their research?

The focus of the study was on five Year 3 and six Year 5 pupils, who had been identified by teachers as underachieving. Information on the children's performance and emotional development was collected throughout the one-year study. Maureen used classroom observations, assessments and interviews as a means of tracking their progress. Teachers were released for two afternoons each term to work with the children to discuss their learning.

How did they introduce mind mapping?

The teachers used mind mapping and 'pole-bridging' as techniques to improve the children's learning and emotional development. Mind mapping is a way of creating a visual image of mental associations. For example the headings 'school', 'nursery', and 'university' might be written as subcategories around the central theme of 'education', with further associations such as 'exams' or 'sandpit' radiating from them. Pole-bridging is an exercise in helping develop connections within the brain by talking about ideas in detail. In the case of mind maps children explain why they have arranged their ideas in the way they have and explore further ideas through discussion. The children were made familiar with these techniques in the following order:

- The teacher led a brain-storming session at the beginning of the topic and wrote what the children knew on the board.
- The children organised the information into four or five key areas, which the teacher wrote on the board.
- The teacher put the topic word in the middle of a piece of paper and drew branches from it with the key words written on the branches.
- The children wrote the information along twigs connected to the appropriate branches, enabling them to see the connections between the different pieces of information. After a trip to an environmental centre, for example, the children were able to use this technique to make connections which involved food chains and predators.

Subsequently teachers used a mind map at the beginning of each topic, which was displayed in the classroom. Once a week teachers would refer back to the mind map to discuss any new information that the pupils had learned. They added this to the mind map using a different colour so that pupils could see their new learning. The pole-bridging discussions enabled the children to assimilate and understand new information as they progressed through the topic. Once it was established, pupils were encouraged to use this technique to plan stories, recall information, create individual profiles, and evaluate their own learning.

What impact did the use of mind mapping have?

The children's work rate, attitude and self-esteem improved, and the team believed that this contributed to the Year 5 children achieving considerably higher than expected results in their Key Stage 2 SATs.

Mind-mapping is now used in every classroom of Maureen's school.

How could you put this research to work for your pupils? Peter Smith

This is a creative and refreshing study that highlights just how well children respond to learning when they are actively engaged in the process and when it is designed with their learning preferences in mind.

Maureen started every topic with a brainstorming session to find out what the children knew. You may also want to ask them afterwards to discuss with a partner or to explain to the class what they have learned.

To what extent are your pupils encouraged to reflect on their learning?

As Maureen's study shows, it is not always necessary to follow conventional norms. Pupils will find new ideas stimulating. This study indicates that children, many of whom are predisposed to learning visually, responded very positively to the mind-map approach.

How do your children record their planning/information?

How well do you know your pupils? You are likely to get helpful insights by asking pupils about their perspectives on teaching and learning.

What information can you get from your pupils about how they learn?

Maureen worked closely with colleagues, assessed the children and planned very carefully. Working as a team provided opportunities to share good practice and overcome difficulties. Following the success of the initiative, it has now been xtended to every class.

How might you introduce such an approach in your school?

Interview: Maureen Cain

Maureen Cain was Headteacher at Newchurch Primary School in Warrington and now provides consultancy and training for LEAs in schools

Maureen's thinking about the investigation described here was her concern that some children in her school were not achieving as they should. As headteacher she knew how important it was to involve classroom teachers and to build their sense of ownership for the project. So Maureen set the scene for the research, involving both the two teacher-researchers and a colleague from Chester College who acted as a mentor for the project.

Once the research was completed the two teacher researchers told their colleagues about the impact it had made on their pupils' learning. It quickly became a whole-school initiative. Other teachers were then keen to be involved. Maureen particularly remembers the thrill of receiving examples of mind-maps from SEN students whose learning had advanced significantly as a result of the project.

"Go for it!" is the advice Maureen would give to NQTs who want to undertake small scale research projects in their own classrooms. "Carrying out your own research gives you a deeper understanding of how people learn". She warns that it is best to start small to begin with- "a whole class of 30 children can be quite daunting. Focus on just 2-3 children, but keep the bigger picture in mind. Centre on an interesting issue for which you may want to concentrate on very bright pupils or middle-of-the-road students for example". According to Maureen, the purpose of the research is to then "get inside your pupils heads to find out what strategies of learning work for them".

"Whatever research you do you should try to share it with other schools and networks," she says. "Going into other people's classrooms may be scary at first but it's a very powerful way to receive feedback. Getting involved in Network Learning Communities is a great way for NQTs to keep in touch with relevant research in their area".

Since completing her research project, Maureen has been working with schools that are carrying out action research, giving guidance on how to use mind-mapping techniques. She has also been helping schools with workforce remodelling and changing cultures. And just in case that wasn't enough, she's an NPQH Tutor at the Centre for Educational Leadership in Manchester.

Key Stage 4 Literacy Programme: Is It Improving Written Examination Responses in English Examinations?

Maggi Fisher

In an effort to improve her students' reading experience and to encourage them to engage more 'actively' in their learning, Maggi developed and implemented a literacy programme for Key Stage 4. She and her colleagues in the English department of Kingsmead School in Enfield, a culturally diverse mixed comprehensive school with 1344 students (11-18), were also hoping to raise the school's overall performance in GCSE English Language, which at the start of the study was 34% A-C grades. They wanted to see whether a structured approach along the lines of the Key Stage 3 National Literacy Framework would be beneficial for their older students preparing for GCSE.

What did the literacy programme involve?

The focus of the programme devised by Maggi and her colleagues was on spelling/vocabulary, reading and writing skills, with material drawn from across the curriculum. Lessons were loosely structured on the literacy hour pattern with a starter activity, main body and plenary. The students would start the lesson with a word-based activity focussing on topic related vocabulary, such as matching words with their definitions or solving anagrams. Having checked the answers for the initial task the main teaching point of the lesson would then be introduced through a longer activity where students worked individually or in small groups. The skills focus of this lesson was selection of information and evaluation of evidence. The final part of the lesson was given over to feedback, a summary of learning points, and a discussion of the possible uses of what had been learned.

Central to Maggi's approach was the format of the lessons, allowing students to work at their own pace. The activities were designed to encourage student collaboration and discussion, sometimes exploring possible outcomes to a problem which had no 'right' answer. The programme also contained study skills activities so that students could learn more about their own learning styles and use this knowledge for self-support.

How did Maggi measure the impact of the literacy programme?

Key Stage 4 English students were divided into blocks of five groups across the ability range which completed written tasks to test technical ability (such as range of sentence length and number of spelling errors) and quality - such as

Maggi Fisher Maggi Fisher, teaches at Kingsmead School in Enfield

originality and use of figurative language - once during and once at the end of the study. GCSE results for all the students were analysed, from before the start of the programme to when the third cohort had completed both years.

What was the impact of the programme?

Over a period of three years, from the year before the programme to the end of its second year, the school's GCSE grade A-C results improved as follows:

- English Language from 34% to 43%
- English Literature from 38% to 50%
- all subjects from 36% to 45%.

Analysis of the written responses revealed the following changes in the students' performance:

Number of words, polysyllabic words, and sentences used:

- Decrease among more able students, which Maggi interpreted as more efficient use of language.
- Increase among mixed ability group, suggesting greater engagement with the task.

Sentence length, spelling and punctuation:

- Improved performance by more able students.
- No change among mixed ability students.

Accuracy of grammar and syntax and use of figurative language:

- Both groups made improvements in these areas.

Originality in writing:

- Improved among more able students.
- No change among mixed ability students.

Use of description rather than statement:

- No change among more able students.
- Improved performance among mixed ability students.

For Maggi, the findings indicated that the students had learned to think critically about their work, and to evaluate their own work independently.

How could you put this research to work for your students?

Stella Darke

How far should we structure classroom talk to encourage independent thinking and how do we decide which written tasks will benefit from exploratory oral work and at what level or depth?

Maggi describes how the lessons she designed promote the development of word level, sentence level and text level work combined with thinking skills to improve written technical accuracy and fluency. Many of the written tasks are preceded by either pair or group oral work.

The linguistically diverse make-up of Maggi's school led her to develop the format of the lessons which allowed students to work independently and at their own pace.

What steps can you take when differentiating material to ensure that you have accommodated the needs of the EAL students?

Maggi aimed to develop her students' problem solving skills by asking them to collaborate on problems in pairs or groups, using approaches that involved thinking skills (such as sequencing, matching, reasoning, evaluating).

Could you do more to develop your students' problem solving skills, perhaps using similar approaches to those which Maggi used?

Would strategies such as evaluating each others' work or evaluating their own work using a list of criteria help your students to understand how to improve their work more clearly?

Do the students in your classes have a clear idea of how they could improve their written work?

Stella Darke is a member of the National Teacher Research Panel and is a classroom teacher at Curledge Street Primary School, Devon

Interview: **Maggi Fisher**

After Maggi designed a thinking skills learning programme for KS4 she needed a mechanism to evaluate it – was it effective in enhancing her students' learning? This formed the basis of her research through the Best Practice Research Scholarship, supported by Viv Baumfield at the University of Newcastle and the Centre for Thinking Skills.

The first thing Maggi did was to convince her senior management about the benefits of the research. Colleagues within the English department were very supportive throughout the project - plus a colleague from another department acted as an "objective critic" within Maggi's school.

As a result of the research, Maggi now regularly tries to challenge children to articulate the way they think about things - and she tries to provide more active learning within the classroom. The techniques and teaching methods used in the research have been adopted by members of Maggi's subject team and have also spilled over into the Citizenship Health Religious Education (CHRE) department.

One spin-off has been that Maggi's experience has proved invaluable to her A Level students who are themselves required to complete a piece of original research coursework.

Maggi would advise NQTs who are interested in carrying out their own research to "be pragmatic and don't take on more than you can realistically manage". "It is essential that the research is classroom focused," says Maggi "and that you have a sympathetic, more experienced colleague to support you".

In terms of personal development, carrying out the research has taught Maggi an immense amount. "I was scared of numbers and statistics but now I know how to use the figures to improve my teaching!"

Maggi feels it was important to make the children critically aware of the quality of their own work and to make learning more exciting for her students. "Giving the students an objective critical stance is fundamental to independent learning" says Maggi.

Since completing the research Maggi has become an AST and has had an input into the work of the Manchester Diversity & Inclusion team.

Engaging with academic research - what's in it for teachers?

Lara Dawson, Andy Clark and Sandra McLeod

Why did the teachers choose to work with research?

Lara (a secondary school geography teacher), Andy (a Year I teacher) and Sandra (a Year 3 teacher) became involved in a professional user review of research through responding to an advertisement that invited teachers to take part in a project exploring connections between research and practice in environmental education. They were all interested in education for sustainable development (ESD) and keen to learn more about the topic. They found their involvement in the project helped them learn how research evidence can make an impact on their classroom practice and their students' learning.

What activities did their project involve?

Lara, Andy and Sandra worked with four other teachers on a professional user review on education for sustainable development, commissioned by the British Educational Research Association (BERA). Professional user reviews are designed to inform practitioners about current, reliable research in particular fields of education, with the specific aim of encouraging them to make use of research in their own practices. BERA has produced professional user reviews on a range of topics, including numeracy, citizenship and ICT.

Lara Dawson teaches geography at The Ridings High School in North Bristol.

Over the course of a year, the teachers were engaged in ESD research - reading research articles on the topic and making notes on particular areas of interest. They also met together five times to discuss the research and the implications of the research for classroom practice, and communicated with each other between meetings via email. Finally, they conducted a small-scale research project in their own schools -putting into practice the connections they had made with the research. Some members of the team reported on the project and took part in discussions with researchers and teachers at BERA annual conferences.

By the end of the project, the teachers had created a four-step model for using research:

- identifying questions to ask of the research
- reading the research and identifying points of interest
- exploring connections between these points and classroom practice
- reflecting on lessons learned and ways forward.

Did the project have an impact on their professional lives?

All the teachers felt they had learned a great deal from the project, including updating their knowledge of current issues and rethinking their approaches to teaching, and they felt invigorated by the process. They also explained how engaging with research had affected them individually:

- At the start of the project, Andy used a questionnaire, but was uncertain about which questions were appropriate. During the project, he found that a better approach was to use the research as a focus for discussion. By prompting the audience to express their opinions, he discovered that many of his audience's key areas of interest in sustainable development corresponded with the research findings.
- through not believing the findings of one particular study, Lara came to discover an area of research that particularly interested her. The study had found that pupils did not really understand the word 'pollution' and that they could not give examples of different types of pollution. She carried out similar research to see if the same was true of her own class and found that it was!
- having found the discussions about the research with researchers and other teachers stimulating, Sandra was keen by the end of the project to find ways of making research a more prominent part of teacher's everyday lives - helping schools see the value of giving teachers time to read, disseminate and discuss research.

Further details about the project are available at: http://www.nfer.ac.uk/eur/

How could engaging with research work for your students?

Robin Bevan and Stella Darke

This study shows how teachers can become involved with reading and using academic research. There is no doubt that the teachers involved in this research were 'enthusiasts' for Education for Sustainable Development, and their reactions were dictated by their genuine interest. However most teachers are (or were) enthusiasts: whether for a subject area, student development, or some other aspect of the classroom. Two themes emerge from the study for all teachers to reflect on:

Engagement with relevant research has an impact on practice: the teachers who took part in this study changed their teaching - informed by their reading. Their attention was drawn to the research because it was relevant to their interests. Having secured their attention, the voice of the academic researchers spoke through the journal articles and found listening ears! The classroom teachers took their ideas, adapted them to local contexts, and new approaches became integral to their continuing work.

Have you thought about investigating what professional development opportunities your local HEI can provide or could your LEA's CPD Adviser help you to link up with an academic research project that is of interest to you?

An essential element of this project was the development of a learning community. Over a period of time the group of teachers discussed and debated issues relating to their common interest. While each worked on a specific aspect that was of particular concern, they worked collaboratively to create a model for using research. Sandra mentions how stimulating she found this type of professional development and how keen she now is to encourage her colleagues to engage with and in research.

Are there colleagues in your school or LEA who might wish to participate in a joint enquiry into some aspect of school life, possibly using the four step model identified in the summary?

Interview: LARA DAWSON

Lara applied to become involved in the Education for Sustainable Development research project after having read Mark Rickinson's review of environmental education. "I read the research but didn't believe it so wanted to test it out with the children I taught", said Lara.

The research has really made an impact on the way Lara teaches, "I am now aware that you can't make the assumption that children will understand basic terms and concepts".

Since completing the research Lara has re-written schemes of work to include enquiry and exploratory based activities. She now regularly questions students about their understanding of key concepts and encourages the pupils to question the concept themselves. Lara practices what she preaches too, "With regards to my own learning, if something interests me, I question it".

Lara's advice to NQTs interested in carrying out research in their own classrooms would be, "Don't take on too much, too soon – be realistic". She also recommends securing funding for supply costs and travel expenses which can mount up! Lara also feels it is important to have support from a colleague in school - your Head of Department, for example, or School Mentor. Lara was supported throughout the research project by the other teachers involved via regular e-mail communication.

For NQTS that want to keep in touch with new research, Lara recommends three places to go:

- the internet - the 3 sites Lara would advocate are NfER, BERA and GTC (particularly the Research of the Month item); (see back page)
- the TES; and
- university tutors.

What did it for me.... NQT Katherine Hall writes

This year has been enjoyable, yet busy and at times stressful. I am always looking for advice and information and I believe that this publication can act as an important source of guidance for you, as it successfully has for me. I have read the teachers' research summaries plus the panel's suggestions as to how these studies can be applied in the classroom and can really see the benefits of these ideas for NQTs. They demonstrate real examples from practising teachers.

Research Websites for Teachers

NTRP – National Teacher Research Panel

http://www.standards.dfes.gov.uk/ntrp/

If you like the summaries in this publi-

cation you can find the longer versions plus lots more, produced for the NTRP Teacher Research Conference 2004, on this site. They can be searched by theme or author. Downloading is FREE

The Research Informed Practice Site (TRIPS)

http://www.standards.dfes.gov.uk/research/

Visit the Research Informed Practice Site for 'digests' of recent educational research that have been written especially for practitioners. Studies all come from peer-reviewed journals, and are appraised for their evidence base and relevance to practice. They are then summarised into a series of short pages which can be read in any order. The full digest can also be easily downloaded as a FREE Word document. You can see the three latest digests on the site on the home page, or you can subscribe to be alerted when new digests are added to the site. The full set of around 90 digests on the site can also be browsed by title, author, keyword, or theme. Research themes cover current "hot topics" such as Pupil voice and Behaviour, and key subject areas such as Literacy, Numeracy and Science.

Research of the Month (RoM)

http://www.gtce.org.uk/PolicyAndResearch/research/ROMtopics/

For more in-depth excavations of educational research, visit the General Teaching Council's Research of the Month website, another FREE resource. Each month a new study is added to the site turning large-scale research inside out to tell the story of findings. A unique feature of this website is that large scale academic findings are hot linked to teachers own case studies. These help put the findings of the RoM into context and show how they can work in practice. The further reading section provides links and references for related reading. Summaries can be downloaded in PDF form if required.

The National Teacher Research Panel is an independent group of practising teachers sponsored by the GTC, DfES and NCSL. The NTRP work to support quality in practice-based research and to make connections between teachers, research and policy.

This publication is also available as a downloadable file on the National Teacher Research Panel website at

www.standards.dfes.gov.uk/ntrp

http://www.standards.dfes.gov.uk/ntrp

TOPIC online

http://www.topiconline.co.uk/index.asp

Supplied by the National Foundation of Educational Research (NfER), TOPIC is a subscription service for teachers and head teachers interested in keeping up to date with the practical applications of current educational research. Research themes have covered Inclusion, Homework, and Bullying, and there are over 70 summaries available for download from the site.

All studies are appraised for their robustness and written for a practitioner audience. You can search for summaries by author, or by keyword, and you can also search by school type or by issue. TOPIC is sent out twice a year in hard copy.

Learning Exchange Online (LEO)

http://nlg.systemassociates.co.uk/portal/research/index.cfm

LEO allows Networked Learning Communities to share information on activities and research done by their schools and networks. There are also 200-word abstracts of recent research, many of which are then written up into longer summaries, together with concept maps to illustrate the key points of the research visually. You need to sign up to use this site, but it is FREE.

This publication has been developed by the National Teacher Research Panel, edited and co-ordinated by CUREE www.curee.co.uk