Becoming a research-engaged school

Using whiteboards and ICT

In 2003, a group of 15 schools began a journey towards becoming research engaged, accompanied by local authority staff and researchers from the NFER. In the first of an occasional series of articles, **Caroline Sharp** shares some insights from the journey as well as some of the findings of schools' research.

From the beginning we knew that we wanted schools to get some research underway, but we also wanted to discover what features of the school were significant in supporting teachers to conduct the research activity. So there was a twofold approach which involved reflecting on the research being undertaken on the one hand, whilst also looking at how this sat within the school, and what helped or hindered. It's been a fascinating journey which has brought some clear illumination in some areas and has raised tantalising questions and scope for further investigation in others.

The 15 schools chose a diverse range of projects on different themes. These included:

- evaluating the impact of new initiatives (e.g. whiteboards)
- raising standards (especially addressing underachievement)
- teaching and learning (e.g. questioning, assessment, speaking and listening)
- serving families (e.g. parental involvement, newly arrived children).

The purpose of this article is to give a brief outline of why schools wanted to engage in research and to provide some examples of their research on a particular theme – in this case, whiteboards and ICT.

Why did schools want to become research engaged?

We asked staff why they wanted their school to engage in research. From these conversations it was clear that school leaders saw the potential of research engagement to help their school develop and move forward. There was a sense that staff in these schools felt fairly confident about their ability to deliver the standards agenda, but that now was the time to draw on the expertise, experience and motivation of staff to take forward the things that really mattered to them. As one primary headteacher said:

> *We were feeling that we needed to change things if we were to retain our motivation. We were conscious of the fact that children and staff had got bogged down in prescription. We perceived that becoming a research-engaged school would offer advantages to individuals and to the school – that has proved to be the case.*

For teachers and support staff, the initiative offered opportunities to gain new skills and to reflect on some of the issues facing them and their school. A secondary teacher said:

> *If you can become aware of what you're doing in a lesson, you start to actively think*

'Could I do this differently?' because you are consciously looking for cause and effect. Encouraging teachers to become researchers is going to have tremendous benefits for the teaching profession.

Others recognised the potential of research-engagement to contribute to professional development for a group of staff, as a primary headteacher said:

We've been used to seeing CPD as sending one person on a course and getting them to filter it down... but doing research with support from professional researchers – that's the best form of professional development you can get.

Research on whiteboards and ICT

Three of our partner schools (two primaries and a secondary) chose to investigate the impact of interactive whiteboards on teaching and learning. The whiteboards had been introduced with high hopes for improving standards as well as involving pupils in more active learning. Would they deliver and were there any insights to be gained about how best to use them?

Little Sutton Primary School is a two-form entry school on the north east edge of Birmingham. There are 400 children on roll, aged from four to eleven years.

Staff at Little Sutton had identified children's writing as an area for development. Although the school was achieving high standards, a comparison of their results with those achieved by similar schools showed a miss-match between children's attainment in reading and writing, indicating that standards in writing could be improved. The school had already decided to purchase 24 interactive whiteboards: this presented an opportunity to consider whether the whiteboards could help to improve children's writing.

The research team was headed by Christina Siekierska and Emma Smyth. At the beginning of the project, Christina was deputy head with responsibility for hardware purchases and Emma was the school's literacy coordinator and an advanced skills teacher. Together they set about planning the research using the school's performance management process. This included clearly stating their target (or aims) for the research, setting out a timetable and considering the resources they would need (including using some of Christina and Emma's non-contact time).

The team enlisted the help of two class teachers (teaching years 2 and 6) who were trained in using the whiteboard. In order to find out whether the whiteboard had advantages over more 'conventional' teaching, the team decided to ask teachers to teach the same lessons to parallel classes: one class would be taught with the whiteboard and the other without. The team wanted to include different viewpoints on the same experiences and so decided to gather information from observers (Christina and Emma), teachers and children. In a bid to make the study manageable, they decided to focus on six children in each class. They tried to make sure that the two groups of children had similar characteristics so the results would not be unduly influenced by differences between the target groups.

What impact did the whiteboards have?

The research generated a wealth of information from observation, interviews and questionnaires. After comparing results from the two groups of children, the main conclusion was that using the whiteboards had improved children's motivation and involvement. Teachers had positive views about the potential of whiteboards to improve their teaching. In particular, they felt that the whiteboards enabled them to share, model

becoming research engaged has to be driven by a powerful vehicle

and support writing when interacting with the whole class. They found that the whiteboard technology saved them time in preparing activities because provided access to a resource bank of materials. One year 2 teacher said:

> *The interactive whiteboards have made life a lot easier for me. I can share many more resources with the children and make them much more interesting with the use of different software and the internet.*

Observers noted that the whiteboards enabled lessons to be more interactive and varied in terms of presentation. Children taught with the whiteboard were much more likely to offer ideas and answer questions. Behaviour was better, as children were more easily engaged. Evidence from children's comments suggested that their attitudes to writing had become more positive and their standards of writing improved. One year 6 child said: 'The interactive white board helps because you can see it at once and use the pen to write and interact.'

The research also generated insights into what made writing interesting for children. Children enjoyed learning a variety of techniques (such as the use of flashbacks), recognised a link between reading and writing, and responded to their teacher's enthusiasm. As one year 2 child said: 'When my teacher is reading she always makes it sound exciting; then I can put more expression in my writing.'

Reflecting and moving forward

Those involved in the research at Little Sutton felt that it had helped them to become more thoughtful, leading to insights and suggesting ways forward. One year 6 teacher found the children's comments so helpful that she decided to continue seeking the learner's perspective in future: 'I will be able to build children's ideas into the lessons and use them to guide decisions, as I did this year as a result of the questionnaires. It will focus my target-setting more clearly.'

Christina recommended that the school should purchase interactive whiteboards for all classes. This proposal was put to the school governors, who considered the research evidence and endorsed the decision. The school also made a commitment to a programme of CPD and resource development. Ultimately, they would like to achieve a School of Excellence certificate in using whiteboard technology.

Although involvement in this research project was time-consuming, the school has decided that it was a worthwhile investment. Emma said:

> *We have conducted our action research in a thorough manner and the findings have provided us with the next steps in our school development plan. It has created openings for further professional development and enabled us to be reflective about our practice.*

Research activity will continue in the school. There are plans to follow up the work on writing by conducting action research into two new areas, namely adopting criteria for writing in year 3 and using reading journals written by pupils to inform children's writing in year 6. One of the priorities for the current school development plan is to provide regular non-contact time for all teachers as part of the remodelling agenda. Staff have decided to use research to pilot and evaluate alternative models of achieving this objective.

Hammond Primary School is a community nursery and primary school in Hemel Hempstead, Hertfordshire for children aged from three to 11. It is a one-form entry school with a population of 212 children. Anne Heywood, the deputy head, developed the project research question: 'What impact do interactive whiteboards have in raising achievement in writing?'. This question was chosen as the school was increasingly focusing on ICT tools for developing writing and wanted to evaluate their impact.

Zoë Mathie was involved in the NFER research programme from the beginning, first as an assistant and then as the project leader. She had been teaching for nearly ten years, three of which had been at Hammond. She was a consultant teacher and a leading teacher in her LA for literacy, numeracy and ICT.

Challenging findings

Zoë worked with three of her colleagues in the school management team. They gathered data about pupils' opinions of interactive whiteboards through questionnaires and interviews conducted with years 1, 2, 3 and 4.

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Much of the data demonstrated positive responses by children to the whiteboard. Here are some extracts from their interviews:

It encourages you to learn because I learn when something is exciting… a plain board doesn't encourage you to do anything.
Year 4 boy

I really like it – I used to not really understand, but with the interactive whiteboard I learn more and it helps me think better.
Year 5 girl

I like going to the board myself because then I sort of learn when I am using the times tables and I am clicking all these buttons I sort of get something in my head.
Year 4 girl

Teachers thought lessons were 'more varied, hands on and appeal to kinaesthetic learners'. They also felt that using the whiteboards helped them to prepare lessons more thoroughly and enabled them to make lessons more visually and aurally stimulating.

But some of their research findings held challenges for the plan to introduce interactive whiteboards throughout the school. A key finding was that several children in each class did not like working with the interactive whiteboards as they found they were 'too busy looking at the whiteboard and not learning'. They therefore came up with guidance for staff using whiteboards, including the following.

- Make sure that you select the interactive whiteboard for the correct purpose.
- Don't make the presentations too 'izzy whizzy' as it may be confusing for some pupils, particularly those with autism.
- Ensure pupils are sitting comfortably and that they do not have to angle their heads.
- To avoid headaches and eyestrain, don't use white as a background colour – use muted colours.

A voyage into the unknown

When this journey began, Zoë did not know where it would take her or her school. Towards the end of the project Zoë reflected on her experience and wrote:

> *There were, at times, doubts as to whether there was enough time to fit everything in. I am sure that these are all thoughts that people have when approaching something new. I did feel that we were starting a voyage into the unknown with very few signposts to mark the way. This can be very exciting, but at times can also be frustrating and lead to self doubt.*

Zoë recognised that being involved in the NFER Research-Engaged Schools programme had 'been a struggle'. She also thought that this was all the more reason for Hammond Primary School to try to put the research to good use.

Blue Coat Church of England Secondary School is a voluntary-aided Church of England comprehensive school for 11–18 year olds. There are approximately 1300 students on roll. The school has specialist science status and is a Leading Edge school. They used research to explore the effectiveness of e-learning to teach geography. In doing so they worked with a 'researcher in residence'.

The research team included Stephanie Sinfield (head of geography) and Michele Campbell (a PhD student from Manchester University who had worked with the school before on other projects). Stephanie and Michele were responsible for the coordination, design, data collection and reporting of the project. Dorothy Rank and Caroline Wolfe (both Leading Edge coordinators) acted as critical friends and were the first port of call if questions arose. Julie Hollis (headteacher) and Brian Davenport (deputy head) were the link to the senior management team.

Going digital

The main focus of their research project was e-learning in key stage 3 geography. The department had recently acquired a new data projector and an interactive smart board, which provided a boost to their technological resources. Stephanie said: 'We wanted to look at how we can use this equipment to engage students.'

The research enquiry focused on two groups of mixed ability students in year 7. Both groups experienced a lesson that centred on a study of microclimates. One used the new digital ICT resources (computers, data projector and digital images) and the other used more traditional methods and resources.

After the students had experienced their lesson, the research team wanted to find out how they felt about it and what they had learned. In order to do this they gathered both qualitative and quantitative data. Students filled in a questionnaire and were interviewed. The researcher in residence observed both lessons and collected photographic and video recordings.

To their surprise, the team found that the two groups recalled the same information about microclimates, leading them to conclude that e-learning had not had any noticeable impact on learning outcomes. Despite this, the qualitative data demonstrated that the e-learning was well received. Students said they enjoyed the e-learning lesson and particularly mentioned liking the opportunities for independent learning. One said: 'I could go back and have a look if I forgot something' and another commented: 'I liked having a change – the difference meant I learnt more'. From this evidence the team surmised that the main benefits of using e-learning were improved student motivation and enjoyment. Since completing their research the school has retained a strong commitment to developing and using ICT resources.

A different model of research engagement

Using an outside researcher gave the team a chance to better understand the different ways they could gather and analyse the data they collected. Blue Coat staff found their experience of working with a researcher in residence so successful they decided to employ a researcher to work with them on a different project and included this post in a bid for additional funds. They have also decided to offer bursaries to staff who wish to take on a research project.

school leaders saw the potential of research engagement to help their school develop and move forward

Further information

This research and development programme was funded by the NFER, the Local Government Association, the General Teaching Council (England), the National College for School Leadership, the five partner local authorities (Birmingham, Essex, Hertfordshire, Oldham and West Sussex) and the schools themselves.

Full versions of these accounts can be found in the book based on the research, *Postcards from research-engaged schools*, edited by Caroline Sharp, Anna Eames, Dawn Sanders and Kathryn Tomlinson. It is available from the NFER, priced £25.00. Call the publications unit on 01753 637002 or visit the online bookshop at www.nfer.ac.uk/bookshop.

Weblinks

For more information on becoming a research-engaged school, please visit our website: www.nfer.ac.uk/researchareas/research-engagedschools.

About the author

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