

**Interactive Whiteboards: new tools, new pedagogies,
new learning?**

Some views from practitioners

Teaching and learning

The transformational power of technology in teaching and learning is dependent on its effective use. Work in Birmingham with Primary age pupils indicates that an interactive whiteboard is an effective tool, and has been shown to be of particular benefit to deaf bilingual learners (Taylor, 2002¹). Further evidence from Primary age pupils suggests that the proximity of the teacher to the learners is an integral part of the interactivity provided by the boards (Cogill, 2002²).

English teachers at a NATE conference identified the radical changes to teaching and learning opened up by interactive whiteboards (Millum, 2002³). The North Islington EAZ has found that the pedagogy of teachers using IWB has changed significantly, and that the teachers themselves are able to identify these changes (Crapper, 2002⁴). Teachers develop materials and resources to meet a range of learning styles, and students are provided with opportunities to be involved with their own learning.

Leon Cych⁵ has identified a number of factors that impact on teaching and learning.

“Putting on my developer’s as well as teacher’s hat for a minute what intrigues me about Whiteboards (and especially their use with very young children) is the virtual/ non-virtual aspect of the whole process. It is not the same as using a mouse or a touch screen: as Julie says, the scenario is very much a physical presence process involving the proximity of the teacher and interactions with the peer groups and the whole class with the board there as a focus. The model and setting is similar to real life and especially when dealing with interactive drag and droppable objects: it appears to mimic objects in the real world but those objects are virtual. The people are real enough :-)

So if you are writing an application involving a maths concept – let’s say number - the two-ness of two - already an abstraction, is made easier by the semi-abstract nature of a learning object on the board - insofar as you can manipulate, group, partition, segment virtual objects but you cannot pick them up and turn them over - but in some cases you can make them metamorphose and transform themselves - which is definitely something you cannot do in real life except by sleight of hand. They appear to have a semi-abstract nature, not as concrete an experience as manipulating shells or small world toys - they don’t roll over, drop off the table, fall down cracks in the floor (and those experiences are useful and memorable as well). However you can use the board as a stimulus or a follow on from real world activities. It’s a continuum... What is interesting about the bat making example of Bren’s is that the children manipulated materials ITRW (in the real world), recorded them but then re-modelled the process on the board - the board enabled fluency with manipulating objects, but also aided reflection because of the immediate feedback and that’s where the higher order thinking skills come in - in tandem with the performance, narrative and interactivity between people. Obviously the way the teacher encourages, facilitates and moves the learning on is vital. When you can model an exemplar and talk it through in a highly visible way to others...

Plasma screens take this immediacy one stage further because there is no shadow cast over the objects and they are brighter although they have non-reflective light. How people interact with the board, with each other and the teacher are important considerations. Just because it looks like a chalk or whiteboard doesn’t necessarily mean we should use it in the same way...you can’t interact with a projector in the same way unless you make

finger shadow puppets...;-) With flipcharts if you want a child to come up and draw something or manipulate it you are at the mercy of gravity and fine-motor skills...

To bring this all back on topic - one of the main reasons I started writing flash movies for KS1 pupils for whiteboards was the fact that, at the beginning of NOF, not many resources were out there for younger children and Whiteboards provided a context and setting that seemed familiar: far more so than a small screen that encouraged individualised or at best, small group working, where all the participants are crowded together to see anything. With a whiteboard there is more space to move around and a higher visibility but, more importantly, you can interact with each other and with the teacher in a more natural, fluent way and there is more immediacy in every sense."

Pedagogical issues

One critical issue for teachers is that of power over the technology: interactive teaching is often at the mercy of hardware and software over which the teacher has no control. No matter how sympathetic the ICT co-ordinator, the technician or the person on the help desk, ultimate control over the technology is vested in someone other than the classroom teacher. In a primary school the relationship between ICT, the teacher and the classroom often dictates the shape of the lesson, the integration with the curriculum but, much more importantly, the relationship of the learner to the technology.

However, where teachers are confident and supported by ICT advisory teachers and consultants, the impact on classroom praxis is considerable: modelling mathematical concepts and modelling language are just two of the ways in which teaching and learning has been transformed (John, 2002⁶).

When the technology is being provided for the schools the imperative is for all of the educational issues to be identified, and the provision of equipment related to that. Concern has been expressed that ways in which equipment has been ordered, supplied and installed was unrelated to the educational needs of the school: boards installed at the wrong height; equipment and software more appropriate to a training institution than a school; boards ordered – and installed - without data projectors.

Where interactive whiteboards are correctly installed the teacher and the class have a much closer relationship as they are grouped around the board: the whole class can see, individual students and small groups can work with the board and the learning becomes a socially constructed experience. This is particularly true for young children (Cogill, 2002⁷).

Work in the North Islington EAZ suggests that, with appropriate hardware, software, support and training, teachers have a technology that they can understand and use. Not only that, but pedagogy changes significantly and the teachers develop a community of practice (Crapp, 2002⁸). The cost of this significant intervention is £10,000 per classroom. Grimsby Education

Action Zone reported similar results when they approached the installation of interactive whiteboards on a similar scale (Bunting, 2002⁹).

Some interesting comments have been made about the pedagogical assumptions underlying the installation of whiteboards.

The basic set up does seem to promote chalk and talk as the best way for pupils to learn - we as educators know the truth is far from this. I am increasingly worried about the tendency towards whole class uses of ICT to the exclusion of individual and collaborative creativity. The reason for this seems to be that those in authority believe that technology should empower teachers rather than pupils. They should try and remember how tedious it is to sit through yet another presentation at a conference or sales pitch - the thrill of PowerPoint transitions and such like soon wears off. They should try and put themselves in a child's position when they are recipients of the same methods in the classroom. We all prefer to do rather than listen and we all have a need to take an active part in our own learning. ICT is no different - the power is in the using rather than the receiving. ... Many good examples of the use of whiteboards in the learning process which have, interestingly, come mainly from primary schools. These have involved pupil participation and collaboration.

Could it be that (teachers who use IWB) feel in control using whiteboards? Does it reinforce their need to be central to the learning process? I am aware from my own experience of using a projector in front of a class for the first time that it gave me a buzz - I enjoyed it. On reflection however I wonder how much the children actually learnt. (Baugh, 2001¹⁰)

Another contributor noted:

I do think we're in danger of blaming the tool itself, rather than the user and the underlying pedagogy. The difference is in how the whiteboard is used. In the hands of a teacher who is interested in developing the independent, creative, thinking skills of their students it will be used to further these purposes. It can really be used to promote collaborative creative modes of learning (lots of Mirandanetters have done this). On the other hand, in the hands of someone who is really an autocratic, transmitter of "facts", the whiteboard will be used in the most stultifying way possible. It's not what you use it's how you use it (Potter, 2001¹¹).

Institutional transformations

Motivating teachers to adopt interactive whiteboard technology is dependent on a number of factors. An effective training programme is seen as critical in transforming cynical teachers into inspired enthusiasts. Coupled with this is a fixed installation in classrooms, with teachers freed from logistical problems of setting up machines so that they are free to teach. (Bunting, 2002)

Learner motivation has also been seen to increase, with an improvement in attendance and focus in the classroom.

Models

Mimio

The Mimio system is used in the Ultralab 'Classroom of Tomorrow' project (Heppell, 2002¹²). It is not an interactive whiteboard, but rather a system which enables writing and materials on existing boards as an animated gif or a QuickTime movie to be captured. They can then be annotated and edited. Mimio systems work on Mac or Windows platforms, are inexpensive, light and portable. The system is also used in the School of Cognitive and Computer Science at Sussex University. Existing whiteboards, walls - even class walls or window panels – can be used with a mimio system to create the effect of an interactive board from a computer display (Brewster, 2002¹³).

Cleverboards

The Mimio board bundled with a standard dry-wipe whiteboard is marketed as a Cleverboard.

e-beam system

The e-beam board is very similar to the Mimio board, and is also sold as a bundle with a standard dry-wipe whiteboard.

Smartboard

Smartboards come with a wide range of interactive features and software. Smartboards can be operated by touching the screen with a finger, and writing can be done using fingers. The attractions of such features become clear when using them with young children: ostensiveness, the ability to point and touch as part of the learning process, is an integral feature to this design.

The Smartboard website features lesson plans, case studies and downloadable classroom resources. The majority of the resources, however, would appear to be more appropriate to a North American curriculum

Promethean ACTIVBoards

Promethean ACTIVBoards come as a full educational package, and contain a wide range of features. A feature of ACTIVBoards is the intensive training provided as part of the package, and the Community of Practice that Promethean have established for teachers and schools. This focuses on a wide range of curriculum applications to transform teaching and learning.

The Promethean website features case studies, an extensive range of downloadable resources, user groups, training and conference details and the Promethean Best Practice Accreditation for users and trainers.

Other makes

A wide range of manufacturers produce interactive whiteboards: the range of data projectors is even wider. Many re-sellers supply and install equipment. Without appropriate educational software, however, the full pedagogical value is difficult to develop. Throughout the NAACETALK exchanges there is one dominant theme: that teachers, advisers and curriculum developers have a key role in specifying what role interactive whiteboards should have, and how they should relate to the transformation of teaching and learning.

Notes

¹ Taylor, B. (2002) Content Manager Birmingham Grid for Learning Case study by Alison Carter of Longwill School in Birmingham, at: <http://www.bgfl.org/bslwhiteboard>

² Cogill, J. (2002) Research Consultant

³ Millum, T. (2002) Director, National Association for the Teaching of English

⁴ Crapper, S. (2002) North Islington Education Action Zone

⁵ Cych, L. (2002) Educational Consultant; Software developer, <http://dfee.org>

⁶ John, K. (2002) E-learning Consultant for Blackburn with Darwen

⁷ Cogill, J. (Ibid.)

⁸ Crapper, S. (Ibid)

⁹ Bunting, D. ICT Co-ordinator, Grimsby Education Action Zone

¹⁰ Baugh, D. (2001) dbaugh@dircon.co.uk

¹¹ Potter, J. (2001) Lecturer, ICT in Education, Goldsmith's College, London University

¹² Heppell, S. (2002) Director, Ultralab

¹³ Brewster, D. (2002) Researcher, School of Cognitive and Computer Science Sussex University

References

Baugh, D. (2001) Mirandalink: Whiteboards and projectors. 08.11.01

Brewster, D. (2002) NAACETALK: Interactive whiteboards. 04.02.02

Bunting, D. (2002) NAACETALK: interactive whiteboards. 16.10.02

Cogill, J. (2002) NAACETALK: interactive whiteboards. 11.10.02

Crapper, S. (2002) NAACETALK: Interactive whiteboards. 16.10.02

Cych, L. (2002) NAACETALK: Interactive whiteboards. 11.10.02
Heppell, S. (2002) NAACETALK: Interactive whiteboards. 04.02.02
John, K. (2002) NAACETALK: Interactive whiteboards 09.10.02
Millum, T. (2002) NAACETALK: Interactive whiteboards. 15.10.02
Potter, J. (2001) Mirandalink: Whiteboards and projectors. 09.11.01
Taylor, B. (2002) NAACETALK: interactive whiteboards. 10.10.02

Interactive Whiteboards: Information and resources

[Brasshouse Language Centre](#), Birmingham (Adult Education Centre)

[Cleverboard](#)

[e-beam](#)

[Mimio](#)

[Promethean](#)

[Smartboard](#)

An early evaluation and case study is on the [MirandaNet](#) website.

The [Wedgwood IT Group](#) have a 20-page resource to download in .pdf format.