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Implementing interactive whiteboards: What can we learn?

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What is it about?

There is considerable preoccupation regarding the involvement of technology in the learning process, at all levels of education. Views range from excitement about the reality of the 'connected classroom' to a fear of computer tutors totally replacing the classroom teacher. Of concern is the sheer cost of technology that is often seen as a financial drain on schools. Talk of the 'black hole' aspect of computing costs is common.

Between the hype on one hand and the limits of applying technology to learning on the other, the real point in question, more commonly is 'To what do I allocate my few resources?'

One of the more recent developments has been that of the fully interactive digital whiteboard. Commonly referred to as Interactive Whiteboards (IWBs), these pieces of equipment are being increasingly appreciated for their versatility and learning enhancement potential.

A typical Interactive Whiteboard installation consists of a large format, touch-sensitive board (generally around 1 x 1.5 metres) connected to a video projector and a computer. A complete, installed system costs approximately \$A5,000 - \$A8,000 per classroom. Such a system allows the display and manipulation of a variety of interactive multimedia on a large-scale display, using familiar desktop layout controls. Despite the cost, what users have found is that adding an IWB to the classroom environment generates excitement, increases the engagement of both learner and teacher, and engenders change. The process is almost organic. This article describes and comments on the IWB implementation process in some 'case study' schools.

How did it start?

Initial investigation identified several sites, in Australia and overseas, as already having interactive

whiteboard policies. In the present case studies, coordination and direction of integrating the IWBs into the learning environment of the selected schools was provided by an IWBNet representative with assistance from an academic advisor/analyst. Both individuals chaired site meetings held in schools.

Much of the experience reflected in the current study is based around boards developed by ActivBoard, SMART Technologies and Promethean.

While the investigation concentrated on the effect of IWB take-up in the wider teaching and learning context, it is often difficult to isolate individual factors contributing to altered learning patterns. To assist with this aspect, responding schools were selected for a whole-school take-up of the new technology. Rather than look at implementations where only a minority of teaching areas were to receive IWBs, we chose to focus on schools whose intention was to have the equipment in every teaching space, but ones which did not necessarily commence their implementations with a specific aim to 're-equip' the school. A traditional 'before and after' comparison provided a framework for evaluation.

Thus the focus of the project was on schools that were willing to consider the potential teaching and learning value of IWBs and prepared to implement a wide-scale application of the technology.

What happened? What did we discover?

Leadership

All schools involved, thus far, typically included school administrations that were committed to 'try out' IWB implementation and devote the necessary resources to it.

We contend that strong leadership is critical for a successful IWB 'takeoff'. It needs to be school-wide and definitive. Elsewhere we contend:

Unless it is patently obvious the school leadership is whole-heartedly behind the wise use of ICT in all facets of teaching and learning, and has very high expectations of the technology, the strategy has little chance of success.¹

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A typical interactive whiteboard allows the display and manipulation of interactive multimedia
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In all the case study schools, the principal played a key role in facilitating the whole-school acceptance of IWBs. The nature of the role played, and the leadership style adopted differed, but in all instances the principal played a leading role in seeing through the implementation program.

Project management

A leadership style of devolved responsibility identified an active and respected teacher who had staff support, acquired some experience with IWBs, and displayed visionary capacities. These 'project managers' were then provided with back-up, and in some cases the time to lead the project, enthuse teachers, demonstrate possibilities and develop resources.

Every school selected a project manager who was a 'doer', a driving force, who coordinated the everyday implementation of the IWB take-up; at the same time engendering enthusiasm and pointing out resources (people or materials) that would be helpful. Their brief often included an aspect of 'research' regarding IWB use and improved pedagogy. Some participating schools split their co-ordination role two ways, appointing an e-learning leader from among their staff and then following with the appointment of an e-teaching leader.

In every school, individuals guiding the innovation worked closely with the principal and, in most cases, were given encouragement and support in taking charge of the change process. All of the program coordinators held a position of responsibility within the school (mostly at the deputy principal level). Those selected displayed change management skills and all were interested in using the IWBs to enhance teaching and learning. Appointing effective co-coordinators led to the rapid implementation of the IWBs, while achieving successful implementation, in part, was explained by team building efforts; unity of purpose thus became an important factor.

Maximum take-up

With funds to acquire a critical mass of IWBs, and expertise and school leadership to mount a whole-school implementation, it was possible to adopt a structured implementation program and achieve high teacher involvement.

Schools starting without the funds or IWB expertise were still able to achieve full teacher ICT usage within a relatively quick time. But, invariably, they commenced with less clarity of purpose and needed to acquire funds and shape their implementation program 'on the run'. In schools where there was an attempt to move from paper-based operations to a digital operating environment, IWBs were assumed or expected to assist in this transition. Anecdotal data collected suggest that

IWBs may play a part in reducing photocopying costs.

Most schools that shifted to full IWB implementation succeeded in convincing staff to take the technology innovation 'on board' in a relatively short time. By the close of the third year, all staff were using the boards. One public primary school with approximately 400 students, and the initial funds and expertise, achieved full staff take-up in only four months, while a secondary school of 700 students achieved it in eighteen months.

At yet another school, IWBs were in normal use in every classroom within 10 months of commencement of implementation; a fact noted and commented on in an inspection report. In one school where the implementation was still 'a work in progress', more teachers were using the technology and parents were requesting that their children be included in classes using IWBs; an interesting outcome.

Classroom benefits

The technology's educational benefits are enhanced when clear expectations are outlined regarding its usage on a daily basis, in an integrated way. Boards, in all of the schools sampled, were used as a part of everyday teaching and not as lesson or task specific items. This was in line with relevant research findings.² Thus IWBs are expected to be an integral part of curriculum delivery at all times. Further, the technology is seen as being utilised by staff and students, with neither group dominating the usage. Two schools involved parents as well as the staff and students in their whiteboard rollout; the technology was clearly regarded as an important aspect of the whole learning process and not as an end in itself. These observations 'echo' findings by a study in Kent (UK) schools. There, IWBs were used to support lessons across the curriculum and delivered a variety of learning benefits in the classroom. It was shown:

- They provide, electronically, all the familiar features of a traditional classroom chalkboard or roller whiteboard.
- Whereas the number of pupils that can practically be accommodated around a standard computer set-up is limited, whole classes may comfortably participate in whiteboard presentations.
- Lessons can be enhanced by easily integrating video, animation, graphics, text and audio with the teacher's spoken presentation.
- It is possible to highlight and annotate key points, using the marker pens. Anything on the screen can be saved as a 'snapshot', making it easy to review and summarise key teaching points.

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- Material can be displayed from a number of sources, including CD-ROMs, websites, DVDs, VHS tapes or television.
- Notes, diagrams and entire lessons can be saved, archived and added to the school intranet or similar centralised teaching resource.³

Using IWBs and recognising their facilitation of learning has been an experience common to schools studied to date. In a brief review of one of the early Australian whole-school applications of whiteboard technology, researchers summarised the findings at one school as follows:

...within two years it has achieved something that few other schools have done. [The ACT school] has successfully integrated a pedagogically different use of ICT in every facet of education from Kindergarten to Year 6. It has every staff member wanting to use the strategy and also caused the parents to embrace and actively support the strategy. The key has been integration, in particular integrating into the 'whiteboard' deployment a host of educational and administrative activities, while linking the whiteboard initiative with a range of other whole-school student development and teaching programs. It has achieved all this with no external assistance, and with no charts to show the way.

The potential implications of this development for ACT schooling are profound. [The school] would be the first to say the impact of the strategy needs to be better evaluated, but when the response from the children, the parents and the staff is so positive and when the small staff is so preoccupied with acquiring and making the most of the technology, the school has little time itself to devote to research.⁴

At one school in NSW, teachers reported definite changes in teaching approaches, with less time preparing spectacular files and more time working with students. Some said they felt their teaching was 'revitalised'.

What did we conclude?

Two clear and compelling conclusions may be drawn from our findings. In the first instance, strong administrative support that incorporates a delegated responsibility will ensure rapid and effective technological change, particularly relative to interactive whiteboard take-off.

Secondly, IWBs as a technology are highly suited to classroom practice. They have the potential to encourage adoption of, and confidence in, ways that other existing technologies don't easily match. Beyond that, they offer some real advantages to classroom teaching practice, developing a higher level of learning generally, increased engagement, and greater collaboration.

In summary, it is our opinion that IWBs applied

purposefully and strategically, make a significant contribution to utilising technology for stimulating, effective teaching and learning in schools. **TEACH**

Endnotes

¹ Lee, M. (2004). Is it time to rethink your ICT and education strategy? *The Practising Administrator*, 26(2), 14-16.

² Greiffenhagen, C. (2000). A report into whiteboard technologies. Unpublished report, Oxford University Computing Laboratory, Oxford University, UK.

³ Smith, H. (2003). Interactive whiteboard evaluation. Retrieved January 24, 2006 from: <http://www.kented.org.uk/ngfl/ict/IWB/index.htm>

⁴ Lee, M. & Boyle, M. (2003). The educational effects and implications of the interactive whiteboard strategy of Richardson Primary School – a brief review. Retrieved January 23, 2006 from: <http://www.richardsonps.act.edu.au>

Food Challenges New teachers' resource

The Sanitarium Nutrition Service has teamed up with the Victorian Home Economics and Textiles Teachers' Association (VHETTA) to produce a new teachers' resource. **Food Challenges** encourages students to appreciate great food, have a go at making it themselves, and—above all—take lifetime ownership of their own health.

Designed for upper primary and lower secondary students, it is an invaluable resource for the teaching of Home Economics, Food Technology, and Health.

Each chapter looks at a different situation or occasion and features hands-on food production, design challenges, nutrition investigations and case studies. From eating breakfast, to snacking after school, to attending a celebration, this resource challenges young people to be informed, aware and confident decision-makers and consumers.

To find out more about **Food Challenges**, view a chapter of the resource and download an order form, just visit our website

www.sanitarium.com.au/nutrition/resources.html

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