

**“The value of investing school funds in
electronic equipment, namely
interactive white boards.”**

**An Investigation by
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Executive Summary

Interactive White Boards (IWB). This study initially set out to assess the financial costs of the IWB, looking for links to an enhancement of student achievement through the investment of this money. However the information gathered surrounding this is subjective and due to the early implementation of the IWB in most schools, there is no concrete evidence that the whiteboards themselves are making a difference to student achievement. This summary will look at the positives of introducing boards, the reasons behind schools choosing to install the boards and conclude with a recommendation for other schools.

Most sources had common agreement on the following positives that the introduction of the whiteboard had to the classrooms, where there was commitment from the teacher to use this tool effectively.

- 🍎 Increased teacher enthusiasm for teaching. (If keen to have one in their classroom)
- 🍎 Increased engagement of students, (especially boys)
- 🍎 Increased attention to mathematics lessons
- 🍎 Efficiency savings in teacher time and lesson set up (If set up well in the school infrastructure).

Reasons for installing the whiteboards also varied. They include:-

- 🍎 Parental pressure. (“Our school has to have the latest teaching advances”)
- 🍎 Bums on seats. (“The school down the road has them and we are losing students as a result)
- 🍎 Modernisation. (“They are new so they must be good”)
- 🍎 Staff pressure (Some staff returning from overseas have used them effectively and want to keep teaching and using them in the classroom as an effective tool)
- 🍎 Making efficient use of teacher time and school resources.
- 🍎 The next step for our school in our delivery of quality teaching programs.

I recommend a careful analysis be done across the school before introducing the IWB. Key features required in a school for the implementation to be most successful are, (in no particular order)

- 🍎 Staff Collegiality, *a willingness and proven ability for staff to work together, model best practice and share ideas.*
- 🍎 Information Communication Technology Capability. *Staff should to be proven, capable users of existing technology equipment, software and the internet.*
- 🍎 Quality Teaching Practice. *Unless the teacher is a good teacher utilising sound management techniques and clear learning intentions the IWB will make no difference to learning.*
- 🍎 Technical Support, *select your provider with a good reputation for product quality and back up support. There are many hidden costs in training and technical backup support. Do your homework. Recommended suppliers for each*

region appear to relate directly back to the personnel of each company in your region. The type of board appears to make little difference to the teaching done in the schools. (There is then a financial consideration) i.e. a large number of similar boards can be found in areas where the salesmen and backup of the company is reliable.

- Information Storage Systems, *make sure all staff can follow procedures for storage of resources created electronically for use by other teachers.*

Other

As good employers it is upon us to make sure our staff are well trained and keep up with modern pedagogy this may mean using IWBs as part of their teaching tools. Are you giving your staff what is due them if you don't allow them experience and training with these tools. As time passes not having this on a C.V. may mean they don't get shortlisted.

Should you go ahead with the introduction of the IWB be aware that to become an efficient user of the IWB as a classroom teaching tool takes around two years. Each school will choose its own path as it should be. As suggested by research from companies supplying the boards.

Good Luck

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Purpose

Our school has been considering the option of installing IWBs in our classrooms for a couple of years. The final decision around this purchasing option needs to come back to the learning outcomes for students, the development of our teachers, and the sustainability of the school over time.

Finances are a limited resource. They only go so far. Additional funding for one off purchases can be obtained through community support but sustainability of resources purchased needs to be carefully considered as part of the process. Thus we came up with the key proposal.

“The value of investing school funds in electronic equipment, namely interactive white boards.”

Background

Pressure to purchase and install IWB in our school has come from teachers who like using I.T. and from teachers who have used them overseas.

Interactive Whiteboards (IWB) are an expensive teaching/learning tool to install in a classroom. The initial set up costs per classroom, require careful budgeting and the ongoing maintenance costs are not easily discernable. As a result our school sees this study as important in terms of the decision making around budget provisions for this investment in learning. Prior to this sabbatical I was able to visit some schools that had the boards. I was unconvinced the learning of the students in the schools had been enhanced by the provision of the IWB in the classrooms. I then decided to also look at the implementation process the schools used to roll out the Boards across the school. Some reading was done of current literature surrounding the use of the Boards in classrooms. Discussions were held with colleagues.

Activities undertaken

Pre sabbatical

- 🍏 Visits to schools that had IWBs. Questions related to costs and sustainability of ongoing costs. Five schools visited
- 🍏 Readings in relation to what was being done with the IWB in classrooms

During Sabbatical

- 🍏 Questionnaire developed. **Appendix 1**. This questionnaire came about as a result of pre sabbatical findings. It targeted areas I felt required further investigation. Some questions gained relevancy and others less relevancy as the study progressed. Each interview also tended to focus on areas arising that had most relevancy to the individual schools.
- 🍏 Visiting schools in the North and South Island. 15 schools in the Bay of Plenty, Auckland, Waikato and North Otago. Data summary. **Table 2**. This shows the cross sections of the schools visited in an effort to get a balance. Includes IWB numbers, classroom numbers, decile and years of IWB use. Also the type of board in that school.
- 🍏 Findings collated, analysed, and summarised.
- 🍏 Report written

Findings

The findings in this report refer to the most important area of this study. The learning outcomes for students. These are listed below and give a picture of the responses available from schools. Most schools were early in their journey and hard data on student achievement is not available. Due to the multiple differences caused by each teacher and class, being individual in characteristics, no one is able to concretely say the introduction of the IWB has made a difference.

Table 1. IWB outcomes for students as supplied by Principals and staff

Table 2 School / IWB information

Table 3 PD and monitoring the use of the boards. Comments from Principals and staff

Table 4. Why install IWB. Decisions as supplied by Principals and staff

Table 1 IWB outcomes for students as supplied by Principals and staff

Increased student engagement and confidence. Sociability of students advanced. Oral language and presentation skills enhanced. Teacher enthusiasm for teaching and use of board rubs off on the children. Tone of the class improved
Motivator. Connections with what they are learning improved.
Engagement of students improved due to hands on nature of the board. Control handed to children not the teacher. Adds a competitive factor for boys. Use of the teachable moment expanded. Better wider use available for feedback opportunities.
Anecdotal evidence suggest they are making a difference.
Undecided
Student progress not tracked or analysed for any impact the IWB may have had. Comment made that clicker response tools put some children off because they don't like getting it wrong, so wouldn't supply answers using the clicker.
Yes kids better at accessing info and discussing it.
“Middle to high achievers made a significant difference but not so with lower ability students. Expectation of a dip in performance as teachers and students experiment with the technology and the learning.” Quote from IT teacher manager about research he had read from the U.K. I was unable to access this research.
Yes. Students and teachers able to more to successfully plan together. Getting into knowledge as appropriate on an as needs basis.
Too early to say

Table 2 School / IWB information

Decile	Number of teachers	Number Boards	Years in use	Cost per room \$	Make/ Brand	Ongoing budgetting	PD budgetting
2	9	9	2-half	8500.- 9000 Excludes curtains	Activeboard	None will have to factor in for bulbs. Estimate \$5000.00 per two years	7500
7	3	2	2	4500	Mimio	None bulbs as needed	0
5	10	10	2-3 yrs	6500	Activeboard	?	AS required
2	12	7	<1	4000-10000	Interwrite	None as yet	?
9	15	8	1.5	6000	Activeboard Senior school Mimio junior school	?	As required
5	14	0	< 1 year	1200 - 1500	Projectors only	\$1500 yr for bulbs	As required
6	14	2, 14 by years end	< 1 year	3500 tops	Mimio	?	Teacher release
3	3	3	4	4000	Interwrite	As required	As required
5	53	All teaching spaces. Including meeting rooms and staff room (56)	< 1 yr	1000.00 approx	Clinicios' built by the school own staff and students using wii technology	As required	As required in house
9	28	28	4yrs some 2yrs all	\$6,000.00	Smart Bd	\$2000 bulbs \$2000.00 projectors	17000.00 PD
10	28	29	2	\$6,000	Smart Bd	As required	As required
3	33	18	4 years	\$4,000.00	Mimio to Smart bd	\$30000 new hardware \$20000 repairs and maintenance	Tap into local high performing school
8	21	4 classes get projector first.	< 1 year	\$5,000.00	Smart Bd	Not yet	
6	11	1	< 1 year	\$4500.00	Active Board	\$10 000	Part of package
7	9	4	9	\$13 000	Active boards	Leased to buy	\$5000

Table 3 PD and monitoring the use of the boards. Comments from Principals and staff

<p>One day release per term – 3 teachers one and a half hours with trainer. Extra one and a half hours together the next day to consolidate. All teachers must attend user group meeting once a term. Once a term a staff meeting focuses on show and tell using boards. Appraisal development goal linked to whiteboards.</p>
<p>No monitoring in our school. Previous experience from the UK had an expectation that teachers would use the board all the time even when other types of teaching would be beneficial. Cost factor. “Costs a lot so use it.”</p>
<p>Walk through in classrooms to get feel for use or non-use. Expectations of use. Planning and uses to be shared at staff meeting and feedback given during discussions</p>
<p>Mentor teachers supporting others in the school.</p>
<p>Component for teacher release on as needs or identified basis for interested teachers</p>
<p>Focus of PD on literacy not really ICT.</p>
<p>To be timetabled into holiday time for PD. Part to be in appraisal process. Regular reporting back component expectation on teachers for use of IWB. One teacher released for five days to become very familiar with board, set up system for storage of resources. Other teachers to be given three days each to work with the key teacher. Not to re-invent wheel with resources but build an electronic resource for use by all teachers. Expectation of resource sharing. IWB set up in meeting room.</p>
<p>Due to being a champion school there has been lots of support for PD and opportunities for this to expand as teachers change.</p>
<p>All teachers expected to monitor own use. All classes given projector in first instance.</p>
<p>AP observations and support as required.</p>
<p>None from supplier. Done in house. Research suggests best model is all at once. Teachers go from consciously incompetent to unconsciously competent. Process expected to take two years</p>
<p>Teacher user group in school and outside options utilized as needs are arising.</p>
<p>Supplier provided 4hrs per board. Initially 4 boards.</p>

Table 4. Why install IWB. Decisions as supplied by Principals and staff

Way of the future x 2
In line with current flow of school wide P.D. and pedagogy surrounding ict/teaching development across the school. Sharing of subject specific resources. Enhances teaching efficiencies. Pushes students to be responsible for learning and demonstration of learning concepts being worked on.
Thinking and learning skills can be easily shown recorded and analysed using the boards.
Phasing in over years. Had projectors for 3 years. Teachers keen to take next step. Aimed for syndicate consistency and phasing in of the boards.
Not going there yet. Trying to lift skills in computer use first. Has installed projectors in each room first. Not convinced IWB will make a difference.
Progression from where we are. Increasing effectiveness of teacher time. Sharing resources and methods successes.
Asked to be a champion school. As Principal expressed interest in the product. Plenty of support and good pricing options as a result of being a champion school.
School identified as mediocre in delivery, use of ICT and technology by ERO. Needed to find a cost effective way to bring school up to speed in the use of ICT and modern teaching methods. Ensures staff jump in and progress themselves.
Parental pressure from home and school group. School should have them so children get the best deal. Parents did all the fundraising for the boards. Teachers not opposed.
We were losing pupils to a school down the road because they were more modern so we had to get the boards to keep the kids.
Keep the school at the leading edge of school teaching and learning development
Principal conference exposure. Local Principal motivator
Keep up with modern initiatives. Prepare teachers and students for the future
The Intermediate has them so we felt obligated to prepare our students for when they moved onto intermediate

Comments

The costs for installation in each classroom vary widely. This is dependent mainly on who the best salesman in the area is. The decision on whether to stick to the basic installation package or a whiz bang one with all the associated peripherals and gadgets connected to the boards. The issue of curtains in classrooms, security and how much P.D. costs there are, in getting the teachers using the boards. The more remote you are the less service and more costly the P.D.

The Principal, the size of the school and the technological support available to the larger schools makes a huge difference in terms of the ability to provide P.D., and keep the IWB running without breakdowns.

For the large investment of funds some of the decision making around the reasons for installing the IWB had little to do with the outcomes of learning for the students and the professional advancement of the teachers.

The roll out of the boards across a school varied considerably. Each school chose its own path dependent on the financial constraints as a main inhibitor of delivering them across the school. There were some schools where boards were not given to a classroom because the teacher would have been unable to use it efficiently enough due to lack of computer skills and confidence. It would have limited the students learning rather than enhanced it. Schools that installed them in no more than two or three phases seemed to find more success through the development of staff cohesion, support and mutual learning. It builds a critical mass of interest and enthusiasm for advancing skills among the staff. Where this didn't happen quickly there tended to be some divisions within the school. The "haves" and the "have nots", the preferred teachers and the other teachers. Where the boards were placed at various levels an unexpected negative for the Principals was the pressure from parents to make sure their child was placed in the room with the board in the next year. There was also some discussion on the children moving from a room with a board into a room with out a board. The children had begun using the board for a considerable part of their learning day and then had this resource removed.

Once again there has been little or no direction or support from the Government. Schools are left to go it alone. Their will be success stories and disasters in terms of financial management of resources in installing the IWB.

Principals were very aware that because they spent less time in the classrooms they were disadvantaged and would find themselves behind the rest of the staff in terms of ability to use the boards and assess the effectiveness of the teachers and students using the boards.

Summary/Conclusions

The implications of this study are that the introduction of IWB to classrooms is unproven in terms of increased student learning outcomes. There are indications that for the I.T. savvy teacher there are teaching efficiencies to be made in their planning, program delivery and in some cases assessment of student learning. There seems to be increased engagement in learning (especially for boys who tend to be gadget oriented), and this should have a flow on effect in terms of student performance. It is important to remember that learning is multifaceted and no one specific tool or initiative will make a significant difference to learning and achievement..

It seems that over time schools where principals and staff look to take advantage of new technology and teaching tools the IWB will become more common. The reasons for installing them are wide, and not always due directly to improving student achievement. The type of IWB seems to make little difference except in terms of how much you spend. This amount does not reflect IWB reliability, training provided or back up support in terms of technical issues. This seems to be based on the local company representative and the area they service. Again not related to brand.

Professional development for the teachers using the tool is appearing to be the most influencing factor. The findings seem to indicate that the schools that think the PD through and use in-school demonstrations, sharing, observations and allow 2 years for teachers to become effective at making them part of the classroom program. The learning that comes from the use of the IWB is best demonstrated when the students have control not the teacher.

Teacher enthusiasm for teaching seems to spike when they want a board and get one. This has a positive flow on for their students and other staff. It helps develop the school culture of sharing and working together to share new ideas and learning resources. Technical issues and software glitches are a major hurdle and frustration for teachers and Principals. If they don't work they are an expensive ornament. Often a teacher has spent many hours preparing resources and when it doesn't work on a regular basis it tends to be used for maths games etc.

Once again as with all research on learning the most common denominator for improving student achievement is the teacher.

Recommendations

After finishing this study I will be recommending that our school install interactive whiteboards. We have an enthusiastic staff who will work hard to ensure the tool is used to maximize student learning. It will provide another learning medium for our students, and will motivate some students in activities they would normally see as not for them due to the hands on opportunities it can provide.

In house PD with a selected in-school expert seems to be the way to get the best uptake from teachers and outcomes for students. I will be looking to implement this within our school after discussion with the staff.

The type of IWB is yet to be decided. Ideally one platform will provide better in school support networks but this isn't always the case. Again further discussion and negotiation with suppliers, especially due to our geographical issues will need to take place.

To other schools that read this I would recommend that you look local. Talk to other schools to gauge their successes or issues. Get local recommendations and ask about equipment reliability and professional development follow up.

Acknowledgements

I would like to thank all those who assisted me with this study. I apologise if I miss someone out. There were many people who gave me their valuable time and shared their experiences.

I would like to thank the Ministry of Education and NZEI for making these sabbaticals available. They are valuable for schools, our communities and for Principals. I know it has allowed me to be more reflective, recharge myself and go back into my school with renewed passion and energy.

Special thanks go to the Pembroke School Board of trustees for agreeing to this sabbatical and for supporting me with it. I would like to thank my staff for carrying on doing what they do well with special mention to my Deputy Principals, Catherine Lamb and Mike Turner for stepping up and ensuring the ship kept sailing smooth waters.

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Bibliography

See it to believe it

Interface magazine Issue 8 | Term 2, June 2008 | Posted: 3/06/2008

From inspired to dreadful, Peter Kent's seen just about everything when it comes to interactive whiteboards. Here he talks to INTERFACE editor Greg Adams about their potential and how teachers should be using them.

http://www.interfacemagazine.co.nz/articles.cfm?c_id=9&id=26

Whole School IWB Use Discussion on the net

<http://iwbrevolution.ning.com/forum/topics/whole-school-iwb-use>

Interface Magazine | Reader Briefing | Issue 18

12 Ways To get The Best Out Of Your Board

http://www.interfacemagazine.co.nz/articles.cfm?c_id=&id=205

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