

FROM PROJECTION TO INTERACTION: THE WHITEBOARD GOES DIGITAL

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Abstract

This paper describes how teaching with an interactive whiteboard (IWB) changed from its initial implementation to one of curriculum development. The setting for this study was a Victorian Government Secondary School (Australia) which had only recently begun to use IWBs. The IWBs were provided to year 7 and 8 English and English literacy support program students. The main research point is how IWBs will be used: as a tool for engagement or catalyst for a more digitised curriculum. Findings suggest enhanced student interest and participation when an IWB was used, regardless of the teaching context. Teachers are using this technology as a replacement for a traditional whiteboard, creating a more digitised learning environment.

Introduction

As a learning technology, interactive whiteboards (IWBs) have been a part of the modern classroom for over a decade. Much of the extant research is drawn from the UK where the Government has invested heavily in projects such as the Schools Whiteboard Expansion (Lewin, Somekh, & Steadman, 2008; Moss, Jewitt, Levaic, Armstrong, Cardini, & Castle, 2007). Research into the features of IWBs and their influence on learning (Kennewell & Beauchamp, 2007; Slay, Sieborger, & Hodgkinson-Williams, 2008), the evolution of teacher pedagogy (Glover, Miller, Averis, & Door, 2007; Lewin et al., 2008) and student perceptions (Hall & Higgins, 2005) suggest students become more engaged and that students and teachers have become co-learners in the classroom where they work together and adopt less than traditional roles.

Research into pedagogy and use of IWBs is emerging in the Australian context. A study conducted by Schuck and Kearny (2008) for the New South Wales (NSW) government

report on six participating schools where teachers were actively using IWBs in primary (years 2, 4, 5 and 6) and secondary (years 7 to 12) classes. Findings suggest that many tasks were still highly structured allowing students little room for developing solutions to open-ended and complex tasks that required problem solving skills. Schuck and Kearney believe that IWBs have the potential to “disrupt traditional pedagogies” (2008, p. 12).

Additional Australian studies have also focused on Prep (year 0) (Vincent, 2007) and kindergarten students (Goodwin, 2008), strategies for pre-service teachers in the use of IWBs (Holmes, 2009) and teaching for scientific literacy in pre-service primary teachers (Murcia, 2008).

The Study

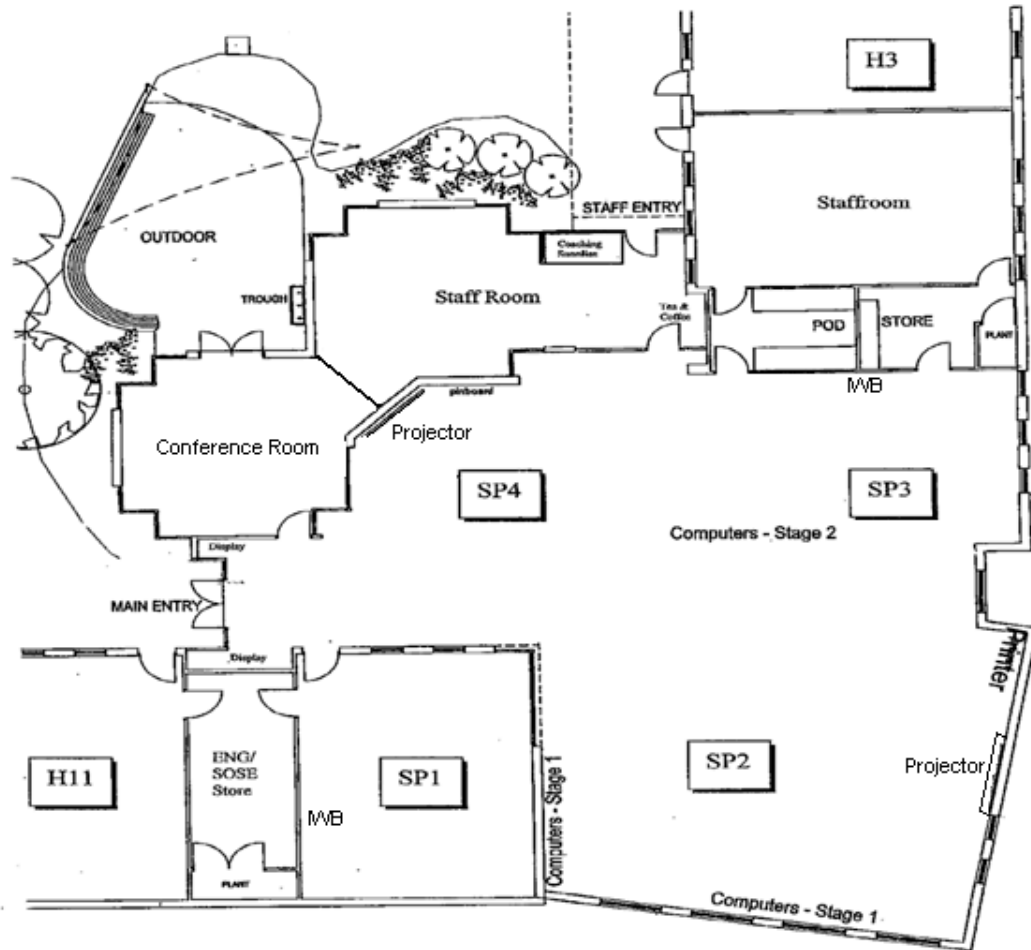
This study is based on reflections and achievements of teaching and learning with IWBs in the English program. It is a journey of a first year graduate teacher, a digital native, if you like, who began teaching at a Victorian Government Secondary (7–12) School in the western suburbs of Melbourne in 2009 with an enrolment of over 1200 students. The school received a government grant to enable it to purchase a number of IWBs and provided technical training to interested teachers. The IWBs were positioned in various classrooms, two of which were placed in a common teaching area known as the Learning Centre (LC). All classroom activities using the technology occurred in the LC with English or English Support at years 7 and 8.

Background

English as a subject is compulsory for students from Years 7 to 12. All students in English classes at the Years 7 and 8 levels have at least two 49-minute lessons per week with an IWB, while students in the English Support classes have up to five lessons per week with an IWB. The English program includes two lessons per week where students in the same teaching block (usually 3–4 classes) merge together and complete common and set tasks in the LC. Students can choose a variety of tasks to complete in any order determined by the curriculum.

Students are not grouped unless certain aspects of the curriculum dictate that large numbers are separated into class or ability groups. Upon entering the LC, students are aware of the rules and expectations and the freedom granted to them. Failure to abide by these rules has resulted in staying with their teacher (for the remainder of that lesson), being placed in a separate working area or removal from the LC. Figure 1 depicts the layout of the Learning Centre.

Figure 1: Layout of Learning Centre



IWBs and the English Program

On the continuum of use and knowledge, we are at the beginning in terms of usage, planning and implementation. Our initial attempts focused on the IWB as a replacement for information that would be on a normal whiteboard. The resources we have created deal specifically with how to implement the IWB as a component of a structured lesson that provides an engaging alternative to traditional classroom instruction. The IWB is designed to be used by students, and, like a wiki, be modified and updated regularly. As a component of the empowering student process, we need to be aware of how to utilise this tool, as it can bring so much more information directly into the classroom. The IWB can link to a number of devices, displaying a projected image that can be manipulated on the board. In response to the Department of Education and Early Childhood Development (DEECD) Western Metropolitan Region's aims for literacy, we are currently developing curriculum resources that will aid our overall aims. These first few attempts at resource creation were partially successful and will provide an understanding into future uses.

Strategies identified relate to: shared reading, reciprocal teaching, read aloud, the instructional practice model and the use of IWBs in support classes (DEECD, 2009).

The IWB has the potential to engage students if used as a novel approach to a topic. To utilise the IWB there needs to be a consistent induction process that involves students in the use and creation of learning activities. As students will not have this piece of technology to use at home, it is important to demonstrate how this is relevant to their learning. With so much information and immediate access at any given point in time, the features of the IWB can support and provide students with activities that educate, engage, and are fun.

The IWBs became operational during July 2009; however, teacher proficiency in the use of IWBs was not taken into consideration when identifying with the pedagogical approach undertaken by teachers. This study did not measure if teachers' proficiency with the IWB increased as time progressed, but an overall sense of confidence in using the IWB was noted. It is likely that future uses of the IWB will vary with graphic intensity and more students involved (i.e. with the introduction of another IWB pen or more IWBs in the school), but this study is only focussing on certain activities that occurred in the LC from when the IWBs were introduced.

The Journey Begins

The following is written in a self-study methodological style (Hodge & Anderson, 2007) documenting personal thoughts as they occurred in the workplace through observations and scheduled and ad hoc discussions with students and staff. This is a glimpse into a journey by a young teacher, who, in the literature is described as a "digital native" looking through the teaching prism with naivety, equanimity and adaptability. Early in July 2009, I started to learn how to use the IWB and undertook various professional development activities designed to show "how" and "why" the technology could be used. I disseminated this information to other colleagues. Questions raised were: How do we best utilise the tool? Will this change our practice? What benefits will it have for students? How will the use of IWBs inform our planning?

The IWB is not designed for explicit teacher use. It is a tool that the students need to use, otherwise it is just like a normal whiteboard and students will become frustrated and disinterested. What we need to do is create activities for students that are meaningful, differ from traditional paper tasks and have the added bonus of being used easily and frequently.

Curriculum Activities

The following introduces a number of curriculum initiatives and activities undertaken with students. Some activities were successful and other activities could have been improved to encourage greater student engagement. It is a learning process for all concerned.

IWB for text responses. This activity was designed to break up an essay question and place it in alternative words. The interactivity of the board combined with the task of deciphering an essay question did not dissuade students from attempting to answer. Most students in the year 8 cohort who attempted this activity saw the need to break down the question. The students that manipulated the IWB also enjoyed moving the words around the board. In completing this activity, students were instructed to structure a text response in a logical sequential order. For example: author, name of book, writer's point of view, point 1, 2, 3, etc. The text was jumbled and students played a game similar to "The Price is Right", where other students would help them place the text in the correct order.

This literacy technique worked on building and recognising sentence structure. When students could see why sentences were being moved around, they could also see the structure of the essay taking shape. However, some students were reluctant to use the IWB regardless of the task at hand. This was challenging as they needed other cues to help them with basic understandings of the topic such as character knowledge and vocabulary. A number of students, especially from support classes, liked using the IWB as it was a hands-on task — probably because it may have matched their preferred learning style. This activity was replicated 11 times for each year 8 group and outcomes were similar for each of the groups. Students liked the interactivity, different colours for different sections in the essay and ease of visualising structures taking form in 'real time'.

Brainstorming activities. The IWB activity focused on brainstorming and relating ideas to the essay question. In addition, students used a function called "handwriting recognition" that changed their written words to printed text eliminating spelling errors, size issues and gave a uniform look across the board. This alleviated the anxiety amongst a number of lower achieving students who were apprehensive about writing on the IWB. The interactive technology allowed them to produce work that would otherwise not have been attempted if in a normal class. Many students indicated their eagerness to participate and gave confidence to those that perceived their spelling as bad or hand writing as below standard. The activity assisted the higher achieving students to produce great work and get their message across and encouraged and gave confidence to the lower achieving students to try something that they normally would not have.

Rotational activities. These activities encouraged the Year 8 students to move around the LC to complete four tasks within 98 minutes at their leisure. For example, on one task, students were required to complete an activity that changes meaning, intent, and flow of an article. This activity provided immediate feedback on student understanding of emotive language.

Students responded particularly well to the activity with euphemisms for 'car' (i.e. automobile, old bomb, and sweet ride) and gave their own impressions of what they thought when hearing these words. The IWB was used as a means of easy access to dozens of online articles via a connected laptop, whereby students chose current news articles relevant for analysis. Student interests motivated discussion and this helped consolidate knowledge on emotive language and language devices.

IWB as a projector. The IWB was used as a projector to help visualise characters found in the novel *The Outsiders* (Hinton, 2007). This novel was also made into a movie and visual links are made between the different text types. The purpose of this lesson was to reinforce who each character is and their relationship to the protagonist. I found that this was a fantastic way to show reluctant readers themes from the book that was evident in the film. The visual imagery of the film strengthened key ideas from the novel and solidified the knowledge of character relationships, settings and key themes.

A task involved students coming up to the IWB and choosing a quote that matched a character. This activity exemplified a few of the types of learning styles prevalent in the task. Hands on students relished the opportunity to play with the IWB, while the more verbal types preferred to coach others in selecting responses. My initial thoughts were: How do we get more students involved in the learning process? How can this activity change to suit smaller groups? Which students are capable of leading a class discussion at this level?

Was this exercise useful? Most students that had completed reading the novel were already aware of the relationship that existed between the characters, but this activity reinforced their view on some of the main characters. As an engagement tool, students were well focused and knew their aims before the lesson. I believe this task built on our aims of literacy strategies such as: sharing, reflecting, and understanding meaning of text. Understanding meaning of the text is important for students who are reluctant readers. They could still follow character descriptions and contextualise their experiences. One very positive outcome of this activity was that many students that undertook this task completed their character maps within the required time frame.

Exchange of Ideas

Regular and consistent dialogue between teaching staff on their observations of students' use of the IWBs was shared informally both in the classroom and after classroom activities. Additionally, student feedback during and after lessons was critical in determining the success of future interactions with the IWB. Teacher comments on reflections of the IWBs were noted in various structured and impromptu meetings held throughout the semester. At years 7 and 8, the English teachers attended professional development sessions, sharing their experiences with colleagues and demonstrating the lessons they had undertaken with students.

Teaching the Teachers

Continuous professional development was undertaken for teachers to understand IWBs through peer (teacher-to-teacher) mentoring. A number of sessions were held to inform, locate, and immerse staff into using the technology. For example, one activity was to focus on installing the IWB program and its basic functions such as: the tool bar, creating flip charts and inserting pictures. We went through what each button on the tool bar does and how to use it on the IWB. Identified constraints in using IWBs in classes will depend on the teacher's motivation to use the technology; the teacher's ability to adapt to the technology; the teacher's ability to adapt curriculum tasks on an IWB; and the school's ability to timetable staff to one of six IWB classrooms.

Teachers can learn to utilise the technology functions in order to promote student interactions by structuring lessons around the IWB. Furthermore, teachers can become more confident in facilitating interactive student learning and engagement. To further promote IWB usage, the school can consider additional purchases so access is available to all and provide additional professional development opportunities.

Summary and Conclusion

In this study, there is clear evidence that student interest and participation has been enhanced since IWBs were introduced. Students and teachers have become co-learners in the classroom where less than traditional roles had been adopted. However, there is a long way to go before teachers use IWBs as a potential to “disrupt traditional pedagogies” (Schuck & Kearney, 2008, p. 12).

The implementation of IWBs presented the school an additional dimension to the teaching and learning function by providing an alternative to traditional classroom interactions. A number of curriculum initiatives undertaken with students included using the IWB for: text responses, brainstorming activities, rotational activities, and visualisation activities. The activities enhanced student engagement and interest as they were different from paper tasks, giving all students an opportunity to develop literacy skills in a digital environment. Regular and consistent dialogue and teacher-to-teacher mentoring was a component of reviewing and enhancing student engagement activities.

Given that this study was undertaken in one secondary school, and only contained the thoughts and observations of one teacher in that school, further lines of enquiry could be investigated, such as an analysis of the student voice, qualitative data from teachers in a range of classrooms across more school, difficulties faced by teachers and why the use of IWBs is better or worse than traditional classroom pedagogy.

Insights from a first year graduate teacher add another dimension to evaluating the digital learning environment. Insights such as: IWBs are used as a tool to give good visuals in the English program; IWBs appeal to multiple learning styles; IWBs are a novel approach to dealing with student engagement; IWBs are found to work well with students regardless of their familiarity with any type of software or technology; IWBs not seen as a standard whiteboard but one with the functionality of multimedia capabilities; and more importantly that students have experienced English in a digital environment that is different to reading from a book or writing essays.

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