The Impacts of Interactive Whiteboards in a Seventh Grade Life Science Classroom

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Focus Questions
What are the impacts of an Interactive Whiteboard (IWB) on 7th grade Life Science students?
- Do particular methods of use correspond to increased interest and participation from the students?
- Are any specific learning modalities better served by IWBs (auditory, visual, tactile)?

Background
I teach seventh grade Life Science at LakeHill Preparatory School, a small private school in an upper middle class neighborhood in Dallas, Texas that has about 400 students in grades K-12. Our school is approximately 80% Caucasian and 20% minority groups composed of Asian, Hispanic, and African-American students. We are a college preparatory school with a high level of parental involvement. Class sizes average about 15 students with a maximum class size of 22 students. For this project, I will be using my two sections of seventh grade Life Science which consists of a total of 33 students.

Our school, like many others, has been purchasing Interactive Whiteboards (IWB) for use in the classroom to enhance student learning and achievement. Some teachers use them all the time. Others use them rarely, and usually only as glorified whiteboards. I wanted to find out the best ways to use an IWB in my classroom to help my students have fun, learn, and increase participation in class.

Literature Review
Interactive Whiteboards (IWBs) are tools being implemented in classrooms all over the world. They were first used in business settings and started being used in classrooms in the late 1990s (Beeland, 2002). IWBs are great tools for classroom use because they can be used to manipulate images and words, show videos, presentations, and a variety of other educational uses. Because IWBs have a touch-sensitive screen that is linked to a computer and is visible to the entire class, teachers and students can use them in a variety of ways in a classroom setting (Lewin, et al., 2008; Somyurek, et al., 2009).

Beauchamp and Parkinson (2005) found that using Interactive Whiteboards in the classroom promoted greater student interactivity with the material and changed the way teachers taught. They also found that the increased interactivity also increased student motivation to participate in lessons. It is also noted that students realized that they were more interested in the subject matter when IWBs were used (Lewy, 2002; Damcott, et al., 2000). Several studies found that using IWBs in the classroom were only beneficial if the teachers were properly trained and used the board interactively instead of as a regular whiteboard (Armstrong, et al., 2005; Burden, 2002; Levy 2002; Lewin et al., 2008; Somyurek, et al., 2009).

Methodology
In the treatment for this project, students were taught multiple science lessons using an Interactive Whiteboard (IWB). The lessons included both passive and interactive activities on the IWB. Students were surveyed and interviewed before, during, and after the treatment period to ascertain whether their learning, participation and interest levels were affected by using the IWB, and in what ways the IWB impacted their learning. They were also surveyed to see how their attitudes in science class changed over the course of the project. Students were given a Likert-type survey and asked to rate five statements. On the survey scale, a score of one was equal to strongly disagree and a score of five was strongly agree. After each survey was given, student responses were tallied and averaged, and the entire class’ response averages were compiled from the individual student surveys as well as individual statement response averages for each activity type.

Students also completed a learning style inventory to see if any particular learning styles were more often enjoyed interactive activities much more than the data indicates. Surprisingly though, when looking at the overall passive versus interactive activity results, students enjoyed both types of activity almost equally. When the different passive and interactive activity results were grouped and averaged, the data suggested that students liked the IWB more than the passive activities, but the BrainPOP animations slightly outscored the interactive textbook activities. However, all of the activities’ averages ranged between 3.79 and 4.19.

Conclusions
Based on my data, students participated more when interactive activities were used on the Interactive Whiteboard. They liked when the activities allowed them to use the IWB. Over the course of this project in my classroom, my students also responded that they enjoyed science class more when the IWB was used interactively. They felt they learned through both passive and interactive activities on the IWB, but their interest and enjoyment levels in science increased when we did interactive activities. Surprisingly though, when looking at the overall passive versus interactive activity results, students enjoyed both types of activity almost equally. Interactive scores were just marginally higher, but based on my personal observations in class, students enjoyed interactive activities much more than the data indicates.

I do not think that learning style affected what activities students preferred. There were no visible patterns in the data based on learning styles. It appears to be more personalized by student likes, dislikes and personality rather than by learning style. I think one of the most important things I learned from this experience is how important it is to use a variety of activities in my teaching. Seeing the results from my students’ surveys really helped me recognize how different all of my students are and why it is important to do many different types of activities with them. If I change it up on a regular basis and use a variety of different activities, I am more likely to reach more of my students.