

# Summary of Preliminary Report and CUE 2009 Keynote Speech

Marzano Research Laboratory  
2008/2009 Promethean Evaluation Study

This evaluation study examined the effects of the Promethean Activclassroom on student achievement. During the 2008-2009 school year, 79 teachers from 50 schools throughout the country participated in independent studies to determine the effect Promethean Activclassroom has on students' achievement in their classrooms. The study involved 1,716 students in the treatment group and 1,622 students in the control group. In the treatment group, teachers used Promethean Activclassroom to augment their instructional practices. In the control group, teachers used strategies and materials to facilitate instruction without the use of Promethean Activclassroom.

**Conclusion:** The study showed that there was an overall effect of a **17** percentile point gain in classrooms that used Promethean technology.

In his study, he found that 23% of the effect sizes below zero (meaning that 23% of the classrooms showed declined student achievement). Although this sounds bad, in most studies, you will find 35% -45% of the effect sizes below zero. Marzano believes that the reason for this is that you can never account for all the factors in the classroom; you can not take the "human being" out of the research. In other words, we have a huge list of tools we can use, but none of them is a "silver bullet". Instead, each of these tools that have shown positive effects through research can be thought of as "silver BBs". What an individual classroom teacher needs to do is to figure out which constellation of these "silver BBs" makes the most sense for him or her and his or her classroom and will ultimately produce the best results. Continuing to refine and modify the "constellation" throughout one's career is a must. There is definitely a "science" to teaching (getting to know what all of those tools are, trying them out, learning them well), but there is also an art to teaching.

Marzano looked at four variables that affect student achievement when tied to interactive whiteboard use: the experience of the teachers with the technology, the amount of time in class spent using the technology, years of teaching experience, and the confidence level of the teacher in regards to technology. Here are some of the interesting things he discovered:

### Experienced Users:

- A student whose teacher who has used the technology for 1 to 5 months shows an average of a 13 percentile gain.
- A student whose teacher who has used the technology for 24 to 27 months shows an average of a 20 percentile gain.

### Amount of Class Time:

- A student whose teacher uses the technology for 10% - 40% of the class period shows an average of a 4 percentile gain.
- A student whose teacher uses the technology for 45% - 70% of the class period shows an average of an 18 percentile gain.

- A student whose teacher uses the technology for 75% - 80% of the class period shows an average of a 29 percentile gain.
- A student whose teacher uses the technology for 85% - 95% of the class period shows an average of a 9 percentile gain (yes, using it too much actually hurts the chances of students learning to their maximum potential).

#### Years of Teaching Experience:

- A student whose teacher has taught for 2 to 5 years will show an average of a 16 percentile gain
- A student whose teacher has taught for 16 to 32 years will show an average of a 20 percentile gain

#### Confidence of Teacher:

- A student whose teacher has limited confidence (but at least some) in his/her ability to use the technology will show an average of an 8 percentile gain.
- A student whose teacher is extremely confident in his/her ability to use the technology will show an average of a 22 percentile gain.

Marzano realized that the findings also suggest relatively large percentile gains (35% - 42%) in student achievement under the following conditions:

- An experienced teacher
- who has used the technology for two years or more
- who uses the technology between 75 and 80 percent of the time in his or her classroom
- who has had enough training to be have high confidence in his or her ability to use the technology

However, Marzano says, “You can’t just give the technology to the teachers and expect it to automatically enhance student achievement.” As part of the study, he delved into how good instructional strategies combined with the Promethean Activclassroom can result in such dramatic effects. He came to some tentative conclusions based on the videos of the classrooms in which student achievement decreased over the course of the study.

#### Some tentative conclusions drawn from this study:

Weaker teachers require professional development in both effective teaching and proper use of interactive whiteboard technology.

- The professional development should be focused on good instructional strategies and how they change when paired with the technology.
- In what way can using the technology improve the strategy, and what things should be avoided when using the technology.

#### *Proper use of technology includes:*

- Keeping a clear focus on the content of the lesson, and not the bells and whistles of the technology
  - When reviewing the videotaped lessons from the study, researchers noticed that the teachers who didn’t get improved student achievement from the use of technology had focused a lot of the technology on the bells and whistles and missed a lot of what was going on in the classroom with the students.
  - Technology in these cases was a bit of a distracter on the teacher’s part because they seemed to forget about good instruction.

- Keeping track (throughout the lesson) of which students are “getting it” and which students are not.
  - In the videotapes, some teachers put so much emphasis on the technology that they completely missed that there were students in the classroom who didn’t understand what was going on.
  
- Interactive white boards have great potential to improve student response rate through the use of Activotes.
  - The more students you have responding to questions in class, the more engaged they are with the content.
  - Questions can work against you in the classroom. The research on questioning is equivocal in terms of enhancing overall student achievement. However, it also shows that when a teacher calls on one person, suddenly the rest of the class “turns off”. Once a student has responded, he or she “turns off” because he or she believes that they are now “off the hook” for the remainder of teacher questions.
  - There are a large number of strategies that attempt to get more students involved (wait time, think/pair/share, thumbs up/down/sideways, etc.)
  - Marzano believes that the voting technology is a breakthrough area, but cautions that if it translates into kids just voting, that is NOT going to enhance student achievement. In fact, it could decrease student achievement unless instructional strategies are employed that then “milk” the data
    - Example: Students vote and a lot of kids vote for B, the incorrect answer. If the teacher says “no, that wasn’t it, the answer was A” and moves on, this doesn’t affect student achievement.
    - However, if instead the teacher milks the data by saying “I see a lot of you voted for B, let’s talk about that... what’s the logic about B?” The class will be more likely to engage in the learning.

**Essential Question regarding the outcomes of this study:**

How do instructional strategies and Interactive whiteboard technology marry in an artful way to enhance student achievement more than either of them alone?