The Effect of Interactive Whiteboard Technology on a Math Curriculum Unit

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December 20th, 2012

Abstract

(Purpose) The purpose of this research was to determine the effect of interactive whiteboard technology on the math curriculum in a single school district. **(Methodology)** Six second grade teachers tracked their technology use during math instruction to be compared with student performance on a common assessment at the conclusion a counting money unit and qualitative grade data collected by the teacher. (**Results)** The results indicate that interactive technology use during instruction is not having a positive effect on student learning. **(Conclusions)** How interactive whiteboard technology is being used during instruction is more important than how often interactive whiteboard technology is being used. If the technology is only being used to create perfect visuals it is not being used to its full potential **(Recommendations)** In order for schools to gain the most benefit from having interactive whiteboard technologies in classrooms staff members need to be trained on the best instructional practices for teaching with this technology.

Purpose

The purpose of this research was to determine the effect of interactive whiteboard technology on the math curriculum in a single school district in order to determine if the technology use is having a positive effect on student achievement. Does interactive whiteboard technology use increase student performance on a common math assessment?

Setting

The research took place in a small rural school district. The data was obtained from six second grade classrooms containing both typical and non typical students. In each classroom

counting money using pennies, nickels, and dimes, was the focus of the math instruction and technology was used during instruction to some extent.

Literature review

The three articles that were the most pertinent to the study were by William D. Beeland, Jr. (2002), Mechling (2008), and Wolf (2010). Each article pointed to increased student engagement during lessons that implemented the use of interactive whiteboard technology. This increased engagement in learning leads to somewhat of a better understanding of the concept being taught however students who use interactive whiteboard technology during a lesson do not always show a huge gap in understanding over those who do not get to use interactive whiteboard technology.

Methodology

Both quantitative and qualitative data were collected during research. The quantitative data collected were tally marks and scores on the common assessment. Teachers were asked to keep a tally record each week of how many days they used technology during their daily math instruction. At the end of the unit teachers were asked to submit their student's scores on the already required common assessment. The qualitative data the teachers submitted was from their grade book. This year they are trying to use qualitative data as part of the grading system. Teachers circulate throughout the room as students are playing games, applying a new school using a manipulative or written work. If the student shows a very good understanding of the skill he/she is given a 9. If the student shows an average understanding of the skill he/she is given an 8. If the student does not seem to understand the skill he/she is given a 7. These scores are

written on a form created then later entered in the grade book as part of the students overall math grade which is then quantitative.

Results

The findings from this study were somewhat murky. The top passing rate on the common assessment was 94% by two different teachers. One teacher used technology during 85% of their instructional days while the other teacher used technology during 38% of their instructional days and both classrooms had the same outcome. There was also a teacher who used technology every day or 100% of the instruction days and had the lowest passing rate of 80%. The scores did correlate with the qualitative grades the teachers were giving their students throughout their math instruction. Of the 13 students who were getting 7s or needs improvement 10 did not pass the common assessment. These students will be given intervention and given the common assessment again in the future.

Conclusion

The conclusion is that using technology is not having a huge impact on the schools math instruction at this time. While some teachers are implementing technology use often other teachers are using technology very little during their math instruction. The results on the common math assessment are not higher or lower depending on technology use. In fact the teacher who used technology the most had the lowest student passing percentage of all the teachers.

I feel the reason technology use is not having a stronger impact on the common math assessment is how the technology is implemented. All six teachers received the same technology last year with very little information on how to use it. While all six teachers do use the

technology they are not implementing to its full potential. I include myself when I say we are using our interactive whiteboards as fancy overhead projectors. I found an article by Kevin Burden (2002) which discusses technology implementation in different stages and points out that new technology is often used to improve something we are already doing not change the way we are doing it. This is the case in my school district. Our interactive whiteboards are being used to create the perfect visuals we were unable to hand draw before on the whiteboard but that is the only real difference. We are still using the same teaching methods and our boards are not truly interactive. If our lessons were more interactive the scores on the common assessments may show an improvement.

Recommendations

Overall, how interactive whiteboard technology is used during instruction is more important than if interactive whiteboard technology was used during instruction. In order to gain the most benefit from interactive whiteboard technology teachers need training on the proper ways to use the technology during instruction. Additional research on best instructional practices using interactive whiteboard technology would benefit the teaching community greatly.

References

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