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A SMARTer Way to Reach Our Students

SMARTBoard uses in the classroom



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Introduction

I have been interested in technology in the classroom since day one of teaching. When I taught in Jersey City, the only technology available in my classroom was an overhead projector. In order to use it we had to make sure we had an empty desk/table in the front of the room, had to make sure we had transparency paper, and make sure that our light bulb in the projector worked (which more times than not, it didn't). It wasn't time effective and it didn't allow the students to interact very much. I knew there had to be a better option. There was a teacher in our district whose classroom was used to pilot different technologies. One of the pieces of technology that he was able to get was a SMART Board. I found the smart board much more useful than a projector. I wanted to know how else could I use the smart board in the classroom to make class more interesting, exciting, and engaging?

When I moved districts to Roselle Borough, my classroom had a StarBoard, which is a specific type of smart board. I was able to learn the basic functions of a smart board that year and it helped me a lot when I moved to my current district of Mount Olive.

Currently, I teach 6th grade math at Mount Olive Middle School. Mount Olive public schools pull from several towns including Mt. Olive, Flanders, Budd Lake, etc. I have students who come from wealthy families and students whose families struggle to make ends meet. Our school is large, having over 1,200 students from grades 6-8. There are three teachers that teach 6th grade math, each of us having about 120 students each. Having 120 students means that I have a wide range of abilities in the classroom. I have an average sized classroom that contains tables instead of desks. The tables promote

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collaboration among the students. I have 5 general education classes, and one CORE class which contains the majority of my IEP, 504, and partially proficient (NJASK) students. My general education classes are normally on the same unit, however my CORE class moves at a slower pace and needs a lot more reinforcement. We use the Singapore Math Curriculum

When I came to Mount Olive, I was happy to see that each room is equipped with a SMART Board and a SMART Document Camera. My district is highly driven by technology so we have a lot of technology available to us. However, most of the other technology (i.e. laptop carts) is shared among 4-5 teachers so scheduling to get them has proven to be problematic. For this reason, using my smart board is the best form of technology for me to use daily. Again, the basic functions of the smart board are easy to use but I know there are more uses for the smart board than just doing my day-to-day lessons on it.

I am one of the younger teachers in my school, and have been in each school that I have taught in. Because of this, many of the teachers think of me as somewhat of a “technological guru.” Although this is far from true, I enjoy being able to help other teachers so I have made it my mission to try to become somewhat of the guru that they believe I am. This is another reason researching the uses of the SMART Board interests me. I will be able to use the information that I find and turnkey it to the other teachers in my school. Each teacher has a SMART Board so it will benefit all teachers in all subject areas.

Using technology in the classroom not only makes the teacher’s life a little easier, but it also helps us relate to our students. Students are also driven by technology. It

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would be hard to find a student who doesn't have a piece of technology whether it is a cellphone, computer, kindle, or anything of the sort. Using the smart board is appealing to the students because of the technological aspect of it (even when you are using it like you would a standard white board).

I don't share my classroom with any other teachers. This is beneficial because I am always prepared with the lessons on the board. If my classes are on different chapters I can have more than one lesson open and just switch between lessons depending on where each class is. Singapore Math uses a lot of bar modeling. Using SMART Notebook software, it's easy to create a bar model for the students to use and play around with. You can do something called infinite cloning which allows the students to pull from one "part" to show it as a bar model.

I use my smart board for a few things already, however I would like to utilize it more. Other than my daily lessons, another thing that I have used it for is as a center. This is what made me really want to delve deeper into the uses of the smart board. Using the smart board in during centers really engaged the students. It got my lower students interested and kept my higher students interested. They enjoyed playing educational and interactive games on the board more than they did on the laptops even though they were the same game. This got me thinking, how else can I utilize my smart board?

Through my research, I plan to discover new ways that I can use my smart board. I plan on implementing something new I have learned each week and see how that goes. This way, the students still find the smart board interesting and engaging rather than seeing it in the same way each week. Hopefully this keeps the students excited about the use of the smart board.

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I also plan on sharing what the different uses for the smart board with my colleagues so they also have the most innovative and interactive uses of the smart board available to them. Each teacher in the district has a smart board and has a different level of understanding of the uses of it. Some of the teachers may be able to teach me things that I do not know, and I hope to do the same for them.

Not only do I want to learn new ways to use the smart board, but also I want to make sure that I am making the most out of what I already know. I already use SMART notebook, but I know that there are various functions that I have not yet learned how to use. I'm looking forward to building on the knowledge I already have as well as gaining new insights.

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Literature Review

***Increasing Math Test
Scores with the SMART
Board interactive
whiteboard***
Tammy Oleksiw

***The Effects of
SMARTboard Interactive
Whiteboard on High
School Students with
Special Needs in a
Functional Mathematics
Class***
Meredith L. Zirkle

***The Effects of the Use of
Interactive Whiteboards
on Student Achievement***
Karen Swan, Jason
Schenker, and Anette
Kratcoski

Literature Review

***Why Use an Interactive
Whiteboard? A Baker's Dozen
Reasons!***
Dr. Mary Ann Bell

***Ten Ways to Get Smart with
SMARTboard***
Amber Price

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Literature Review

Karen Swan, Jason Schenker, and Annette Kratcoski published a study about the effects of the use of interactive whiteboards on student achievement (2008). The study is focused on third through eighth graders in an urban school district in Ohio. The school district has a large portion of the student body scoring below grade level on the state standardized test. The study involved eleven elementary schools, three junior high schools, and one alternative school. The study compares scores between teachers that used a smart board and those who did not. The results showed that the students of teachers that used the smart boards showed a slightly higher performance. It talks about what the effects were with the use of the smart board and the ways that the whiteboard was used in the classroom.

The article points out that the smart board can do everything that a computer can do, with the added bonus of being interactive. This makes the smart board more of a kinesthetic learning tool. Because of this, students are more engaged and motivated to learn. Rather than the lesson being a lecture, the lesson becomes more student centered and focused on the content.

The teachers who used the smart boards in this study used it frequently, around three times a week. Some teachers only used the smart board as they would a white board/ chalkboard. In addition to using the smart board as a white board, some of the teachers also used it to display charts and graphs, connecting to online activities and sources of information, video conferencing, preparing for the state exam, playing educational games, classroom assessment, and student presentation.

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Some of the teachers who were using the smart board wanted their students to become active participants in their learning and also in teaching. Because of this, the students were able to create games for the smart board that they would share with their classmates. This would be a great thing to incorporate in my classroom to keep my higher achieving students more engaged.

While the study showed that the students of the teachers who used a smart board performed slightly higher than those who did not, it also showed that the students whose teachers used white board as more of a display for their own presentation/lessons scored at or below the mean on the standardized test. The students who used the smart board as an interactive tool and as a visualization tool in problem solving scored above the mean. The teachers who used a more student centered approach with the smart board had students who scored higher on the state assessment than the teachers who used more of a teacher centered approach.

The research left me with two questions. One of the questions was, what were the teachers who weren't using a smart board using for their instruction? The article explains, in great detail, the teachers who used smart boards and how they used them in their instruction. However, there was little to no mention of what the teachers who did not use the smart board did during their instruction. Was there only a chalkboard/whiteboard for them to use? Did they have an overhead? Were there computers in the classroom for the students to get some use of technology? I believe knowing this would be helpful because the variety of instructional material available to them could also be a main factor of the results.

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The second question I had is, how much training was offered to the teachers who did use the smart board? The research clearly shows that the teachers who used their smart board in a variety of ways had students that scored higher on their standardized tests. Were the teachers offered any type of training that would help them learn the uses of the smart board? If not, that may be the reason that some of the teachers only used the smart board as if it was a white board. If they knew the different uses of the smart board their students may have shown more growth on the standardized test than they did.

One of the strengths of this article was the different forms of data that they were able to collect and break down. The researchers broke down the scores of each grade based on whether or not the teacher used a smart board. In the comparison, almost every grade did better when the smart board was involved. But they didn't stop there. The researchers then took that information into subject level, and went to the teachers to see how exactly the teacher used the smart board to see how it increased the test scores. I think this was the most beneficial piece of information. A weakness I saw from this article was that it didn't explain why, in grades three and seven, the students did better without the whiteboards. It shows the information, but doesn't explain what was different in those grades than in the others. Also, it didn't talk about the experience of the teachers involved in the study. It would be helpful information to know if the teachers ranged from beginning teachers to veteran teachers, if there was a mix in each category, and so on.

Personally, I found this information very helpful. It proves that not only using a smart board in the classroom is an asset, but also if it's used in a variety of ways it can be more beneficial. I found new uses for the smart board that I want to incorporate in my

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classroom to increase student motivation and attention (and hopefully, in turn, help their test scores).

Tammy Oleksiw (2007) conducted a study about increasing math test scores with the SMART Board interactive white board. This study was conducted in a kindergarten through eighth grade charter school in Ohio. Tammy Oleksiw used her classroom for the research. There were twenty students involved in her study. It was also the first year that she had a SMART Board in her classroom. Other than the smart board in the classroom, the only other technology that Tammy had in the room was two computers.

The mathematics curriculum that the district used was a remedial-based program that introduced a new concept each day. Because of this, the students had to grasp each concept quickly because they moved on to the next lesson the following day. This proved to be difficult for the students. The curriculum was a scripted program, which left little room to differentiate. Also, the guided practice was a worksheet and it did not reach the different forms of Gardner's multiple intelligences. Tammy hoped that the smart board would help with the deficiencies that the curriculum had and would engage her students.

The smart board made it easy to show problems in different ways. The smart board allows you to make each slide look different, whether it was the physical layout, colors, pictures, etc. The way the students solved the problems was also easily interchanged. In order to find the answers the students may have had to drag the image to the correct place or they may have had to fill in the blank. This helped engage the students.

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There were many helpful tools within the smart board gallery. You can find shapes to create base ten blocks, circles, fraction bars, and change the size of pictures. Tammy was also able to use pictures to help illustrate word problems to make them more appealing to her students. These tools helped during a variety of lessons including, but not limited to, finding time elapsed, finding lines of symmetry, learning fractions, and finding temperature.

Other than her daily lessons, Tammy also used the smart board during center time. She used the smart board to set up interactive math practice for the students to do. There were several websites that the students went on during center time to practice subtraction, multiplication, division, fractions, time, and place value. During center time the students showed excitement when it was their turn to go to the smart board.

One of the most important things that Tammy found during her research was that the smart board helped incorporate all eight intelligences of Howard Gardner's Theory of Multiple Intelligences. With the smart board, the students were able to be interactive with the board and physically solve the problems. They could read the graphs, separate objects into smaller groups, and solve word problems by writing about how they found their answer. Using the smart board made it easier to accomplish all of these things.

Tammy was also able to teach a variety of test taking strategies with the smart board. The students practiced highlighting important words by using the highlighting tool on the smart board. They also learned to draw a picture of what was happening in the word problem to help them find an answer. These skills are important to teach the students for problem solving as well. Even though the students used the smart board for many things, one of the main uses was as a motivational tool.

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Tammy used weekly assessments. When comparing the pre and posttest it showed that the students' scores did in fact increase. From the pretest to the posttest in May, 95% of the students increased their test scores by at least 10% and the remaining 5% remained the same. After the scores from the Ohio Achievement Test for mathematics came in, Tammy found that 100% of her students passed the standardized test!

One of the questions I was left with after reading this study was, did all of the teachers in the district who received smart boards find the same results as Tammy did in her classroom? While Tammy's results were great, if the other teachers in the school didn't find the same increase in student scores then I would be curious why. Also, I am curious as to how often students used the smart board as a remediation tool. It states that remediation took place in small group and also whole group settings when students didn't earn all of the points on the assessments. It didn't say how long or how often they spent in the remedial groups.

One of the strengths of this article are the results. In no cases did the students' scores go down. In Tammy's post-test the students' scores either went up or remained the same. On the Ohio state test, all students passed. The weakness of this article is that third grade is the first year that students take the Ohio state test. There is no way to say if the students did better on the test this year then they did in previous years because there is nothing to compare that data to.

This study clearly shows the positive effects that having a smart board can have on a classroom. The students were more engaged and the lessons have more dimension. Using the smart board in a variety of ways helps keep the students excited.

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Meredith Zirkle (2003) conducted a study on the effects of the SMART Board interactive whiteboard on high school students with special needs in a functional mathematics class. This study was done in a high school in Virginia on eleven students with special needs. The students had failed their mathematics classes and were receiving supplemental instruction in a resource classroom. The study was done over twenty-four weeks. The study included test scores for each unit, a learning preference survey, and six-week period grades. The study finds that with the use of the smart board the students test score and six-week period grade significantly changed while the preferences of the students were varied. Some preferred the technology and others preferred paper and pencil.

In this research paper, they remind us that smart boards promote active student engagement in the learning process. This is important for all students. Students are able to interact with the smart board, which is what makes it more engaging for the students.

Not only is it engaging for the students, it also enhances teaching. According to the article, there are seven keys to consider when using technology as a teaching tool. They are as follows; be proactive, be patient, prioritize the students before the technology, share what we learn with other educators, work with the technology and understand it before teaching it to others, team with experts to make sure the technology is working properly, and finally, use common sense to assure that we don't lose track of the "bigger educational picture."

Technology has changed throughout history. This article details the changes and development of technology over the course of many years. It details from the development of the spoken language, to the writings on the cave, to printing textbooks, to

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chalk boards, TV/radio, whiteboards, overhead projectors, and now interactive white boards. With the development of each, it is built upon the previous tools. Smart boards are similar to overhead projectors and also white boards, but they have more capabilities. The article gets into some great facets of the smart board.

One of the great functions of the smart board is that you are able to save the work that you are doing on it. If your class starts to brainstorm or has started to solve a problem, you are able to save a file of it for later use. This is not an available option on overheads or whiteboards. Smart boards can be used to write on, objects can be moved/manipulated, play music clips, various sounds, interactivity, and pictures.

Smart boards are also helpful because they are able to reach students who have different learning preferences. Students who are visual, auditory and kinesthetic are all reached through the use of a smart board. Because of this, students become very involved in the process of their own learning.

An interesting twist in this article that I didn't see in others is that it shows the contrasting opinion from other experts. Some experts think that technology may still support students taking a "passive role" in their learning. However, this may be true depending on how the technology is used. In order to make sure this isn't happening the teacher has to provide immediate feedback and allow for interaction from the students.

For special education students, there is a need to develop higher level thinking skills. The technology motivates these learners to use their higher level thinking skills. Multiple approaches to learning should be used for students with disabilities. The smart board allows teachers to use different approaches to reach the students. It is also easy to show different approaches to certain problems because the smart board allows you to

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change colors very easily. These approaches and notes can be easily printed out directly from the screen for the students to keep and use as notes. This is a very important function of the smart board.

Due to all of these various uses of the smart board, the results found from the study were positive. The smart board was a positive tool for special needs students in the functional classroom. However, one of the questions I was still left with was, if these smart boards are proven to help students with special needs, why were they failing in their math classes to begin with? Were they not using a smart board in their regular math class? It says that they didn't use the smart board during two of the weeks during the study, but it doesn't talk about the use of the smart boards before the study began.

One of the strengths of this article is that it took into account why the results they got may have happened. The research goes into the use of smart board and when it was used, discusses the different disabilities the students have, and also goes into student absences. With all of this information, it makes the findings easier to understand. A weakness that I came across in the article was the fact that only eleven students were followed.

Personally, I think this article proves the positive effects that using a smart board in the classroom can have. Even though not all teachers have students with special needs this information is helpful because we all have students who come from a wide range of ability levels. Using the smart board can help our lower students become more engaged and motivated.

Amber Price (2006) wrote an article, *Ten Ways to Get Smart with SMARTboard*. This title immediately drew me in. My research is going to be on the uses of a smart

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board, and this article has ten uses! Amber, the Instructional Technology Resource Teacher, decided to hold a workshop on smart boards after many of the teachers in her school asked the question, “what can I do with s SMARTboard?” She decided the best way to get the information to the teachers was to present it as a workshop.

Smart boards were new in the district so many teachers were not even aware of how to make the smart board interactive, let alone any of its other uses. She decided to also go into the classrooms and model lessons along with providing templates and samples to the teachers. Amber came up with the top ten ways that a smart board can be used with the students/teachers.

The ten ways were as follows. One, note taking and brain storming. When the students take notes or brainstorm, they can then group their ideas by simply dragging the notes to different areas. Written text can also be translated into type-written text, which is a helpful tool. Secondly, the smart board can be used to play games. The students can interact with games such as jeopardy on the smart board and it engages and excites the students. The third use of the smart board is united streaming. This particular school had a subscription to a program called united streaming which they used to view educational movies, images, and lesson plans. The next way that a smart board could be used is as a flannel board. A flannel board is often used for preschoolers or kindergartners to tell fairy tails. Another use for the smart board is for click-and-drag activities. This can be used for measuring, for geography, and for many other concepts. The last five uses are for interactive worksheets, board games, graphic organizers, interactive websites, and for power point presentations.

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After reading this article I was left wondering if the teachers found these ten suggested ways to use a smart board useful. Were the teachers provided with only the one training, or were they given periodic trainings throughout the year to improve their skills? I'd be interested to see if the teachers were comfortable with all of these uses the first year with the smart board.

The main strength from this article is that it provided so many options for the teachers to try. If one teacher didn't have a use for a flannel board, they may have been able to use an interactive website. Because the article provided a lot of options, each teacher could use the ones that they felt were appropriate for their subject and grade level. A weakness from this article is the fact that it didn't provide any data about how the teachers were able to take this information and use it.

However, I found the article extremely useful. The whole point of my research is to find different uses of the smart board and this article did just that. It provided me with different uses, some of which I was aware of and others that I am looking forward to trying out.

In Dr. Mary Ann Bell's article (2002) she discusses why she likes interactive white boards. She likes them so much that her doctoral research involved smart boards. The study she conducted showed improvements in students' attitudes toward using computer in instruction. Some of the things that Mary Ann Bell highlights in the article are the fact that the boards are great for demonstration, that you can write on the board with the stylus or your finger, you can use different colors and that you change the width of lines. Another great thing about smart boards make it easier to reach students who have different learning styles. Having a smart board also makes it possible for a one-

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computer classroom to serve multiple students. You can use the smart board as an interactive tool, you can hook up a document camera and use it to show different objects, and last, you can print out copies of the things that you do on the board to distribute to the class.

A question that is still lingering in my mind is which of these she thinks is the most important. Many of these reasons for liking the smart board are simple reasons, but I'm curious as to why she has chosen these points to highlight. Is it because it engages the students more or perhaps because it makes teaching a bit easier?

The reason I found this article strong was because she goes into details about each point. Dr. Bell doesn't only say she likes smart boards because they're interactive. She goes into detail about how you can use a stylus or your finger to write on the board. The weakness I found in the article was that she didn't explain how she came up with these points. I would have liked to have known if she used input from colleagues or pulled from her own experiences. I enjoyed this article because it pointed out some things that the smart board is capable of that I hadn't have thought of before. It gave me some new ideas to try and reminded me that the small things are sometimes what matters (i.e. color and width of the lines).

As these articles conclude, using a smart board is beneficial to both the teacher and the student. It helps motivate the students while improving grades. Using a smart board in the classroom is both engaging and exciting. I want to make sure that I am incorporating all of the possible uses for the smart board in my classes. These articles have given me a great place to start with some great ideas to begin implementing. Having a variety of uses for the smart board will keep the students interested and will reach all of

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the different learning styles of my students. My goal is to create lessons and activities on the smart board for my students that will encourage them to be a part of the learning process. This is what lead to my research question, “What are the different ways a SMART Board can be used in an educational setting to engage and motivate students?”

Research Plan

The overarching research topic that I have explored is the use of SMART Boards in the classroom. Smart boards have proven to be engaging to students. They also motivate the students to be active participants in their own education. However, doing the same thing on the smart board each day can get repetitive for the students. This would cause the students to become less motivated. Because of this, I have explored different uses of a smart board so I can keep my students engaged and excited about each lesson.

My study took place in my classroom. I have 120 students who participated in the research as well as some of the 6th grade teachers on my team and in my PLC (six teachers). I have a mixture of general education students and students with special needs (504s and IEPs). Each day, I prepare a smart board lesson that goes along with the Singapore Math Curriculum. The lessons created include steps on how to do each problem and the guided practice from the book. In each class the students complete a do now in the beginning of class, learn the concept, and work on the guided practice. The students enjoy coming up to the smart board to show how they get their answers.

Each teacher in the school has a smart board. Many of the teachers use the smart board in their daily lessons. Some of the teachers are unsure of how to use their smart board other than to use it as if it were a whiteboard. Discovering other uses for the smart

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board will not only help my students and me, it will also help the other teachers and their students.

Types of Data and Data Collection Procedures

To begin my research, I distributed a survey to the teachers in my professional learning community as well as the teachers on my grade level team. The data that I received from my survey helped me by showing me what each teacher uses their smart board for. I was able to go to the teachers who used their smart board for more than just presenting their lessons and learn from them. Ultimately, it helped me incorporate new ways to use the smart board in my room.

I also surveyed my students questioning what they enjoyed about what we were using the smart board for in class before my study began. Besides the information from my students and the teachers, I also researched uses for the smart board myself. I implemented a new smart board strategy every two or so. After each lesson I gave the students a survey to see if they enjoyed the lesson, and what about the lesson they liked. Also, after each new use that I implement in my class I journaled about how it went. Did the students seem engaged and excited? Did using the smart board seem to help them more than if they did not use the smart board?

Data Analysis and Interpretation

To analyze my data I first used the surveys from the students and teachers. I used these surveys to see which teachers I could go to that would help me get started coming up with new uses for the smart board. I also used the surveys from the students and used what they enjoyed most about the smart board to guide my research. When I started implementing the new uses of the smart board, I then analyzed the surveys from the

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students. I grouped them by their rating of the lesson (1-5) and by reason for liking the lesson.

After I implemented the new uses for my smart board in my classroom I then analyzed my journals. I went go through and coded my notes to see what seemed to work and what didn't. I also was able to see why they seemed to work for the students. When I use a new technique with my smart board, it is only actually useful if the students seemed to be engaged in the learning. Otherwise, it wouldn't make sense to use again.

This research definitely helped me become a better teacher. Finding different uses of the smart board isn't to simply use my technology more, even though that will definitely be great. Finding new uses has help keep my students engaged and excited about learning. It differentiates my lessons for the wide range of ability levels in my classroom. I am able reach the multiple intelligences of my students.

I will now be able to help other teachers accomplish these things as well. Every teacher strives to be the best teacher they can be. Technology is always changing and providing new opportunities to us. In order to keep up with it we need to learn the new ways we can use it to our advantage. In finding new uses for the smart board, I am doing just that.

Findings

When starting this research project, I not only wanted to see what worked for me but also what worked for my students. I wanted to incorporate lessons and activities on the smart board that were engaging for the students and that were worth the time creating the lessons. Before I began implementing new activities for my students on the smart board, I gave my students a survey to see what they

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already enjoyed that we do. Some of their responses were lessons/writing on the smart board, watching videos, listening to music, and, what the majority of the student said, playing games. Only one student said that they did not like using the smart board because it hurts her eyes to look at it for an extended period of time.

For the most part, I expected these responses. However, the one that I did not expect was listening to music. Sometimes I put music on in the background while the students are working. The students who wrote this said it was because it calms them down if a problem is hard, it helps them stay focused, it makes the room quieter, and it makes it easier to work. I did not expect these results because it's classical music that I play in the background and many of the students ask to play "something from this generation" instead of classical tunes. I was pleased to see that the music is actually helping some of my students.

The students said they like the games because they are fun, interactive, better than paper and pencil, the mystery of the questions, and the competitiveness. They enjoy the lessons because they like interacting with the white board and like the fact that they can choose the color. They also like erasing the board. If you make a circle around what you want to erase what's in the middle and tap the inside, it erases the entire thing and they think its really fun to do that. The students enjoy the videos because it helps them understand certain topics and is helpful if they are a visual learner.

Due to these results, I wanted to create new lessons/activities and new games that would keep my students engaged and motivated. I also wanted to find

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videos that would go along with some of my lessons. I was able to use the surveys from my colleagues to find some teachers that would be able to give me new ideas to use in my classroom. They were very helpful! I was very pleased with my findings after implementing the new lessons and games for my students.

Lessons and Activities

The first activity that I implemented in the classroom was a game from Math Playground. I found this through researching interactive game on the smart board that would help the students when introducing them to algebra. I found a game called "Weigh the Wang Doodles." In this game, it gave you the combined weight of two of the doodles together in different combinations. The students need to figure out the weight of each wang doodle. The students were able to slide to guess the weight of each and were told whether they were right or wrong. They played this game in groups of 4-5 and it was a part of a set of stations that I had planned in my room.

In my journal, I wrote that I noticed the students having a lot of fun trying to guess the weight of each wang doodle. They seemed very engaged in the activity and were working as a group and taking turns with guessing. Once they guessed they moved onto another problem and continued working until time was called. I heard a lot of encouraging language going on in the groups and noticed the excitement from the students.

What I witnessed also matched how the students rated the activity. About eighty-eight percent of the students rated the game as either a four or a five. The

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comments that went along with these ratings said that the game was fun and interactive. The students enjoyed that it was something “new” and exciting. The students who rated the game a three or under, thought that the game was boring or just okay, without much of an explanation of why. Overall, this game was a success. The majority of the students enjoyed the game and were able to stay engaged throughout the class period. Even though the students only played the game for about six minutes, it was a nice break from the pencil/paper from the other stations. It was something to break the stations up and to give the students something to look forward to.

On PI day I was able to incorporate a variety of activities that taught the students about pi. I created a SMART notebook lesson that had some interesting graphics and that contained links to all of the websites that I wanted to show the students, which made it easy to navigate. These included two music videos that explain pi and are meant to catch the students’ interest. I then showed the students a clip on YouTube from Persons of Interest. This clip explained how pi went on forever and that everything, including your phone number, social security number, birthday, etc, are included somewhere in pi. We ended the lesson with a website that showed you where exactly in pi your birthday is located. It showed you the surrounding numbers and gave you the exact location of where it was. This really engaged the students. They even asked me to put this website up on my teacher webpage so they could find their families birthdays on it at home too! I did not give my students a survey for this particular website because it was more of them

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watching rather than them interacting with the board. However, the students were very engaged and it motivated them to go learn more about pi on their own! They asked several questions and some of the students tried to recite as many digits of pi that they could. It was a fun and exciting lesson for both the students and myself.

The last lesson that I implemented in my classroom was a lesson using the SMART Responders. This lesson was very time consuming to create. I had to create the lesson on SMART notebook that involved questions with answer options for each (multiple choice questions). This part was not very difficult. However, the major time consuming part was assigning all of my students student ID numbers, and then putting those into the SMART Responders software.

Not only did it take a long time to create/set up, it also gave me problems when trying to actually do the lesson. I could not get the lesson to work for my first period and I could not figure out why. My other classes I got it to work, but my first period missed out. Some students got frustrated because they had to wait for others to finish or were not finished since I had to go one question at a time. If I did this again, I could print out the questions and have them go at their own pace. Despite all of this, the students really seemed to enjoy this and wanted to do it again. Their comments on the survey said that they liked interacted with the smart board from their seats. However, for me, I did not think that this particular lesson was worth the time and effort put in, based on the way that the lesson went and some of the students' responses.

Games

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The first game that I introduced my students to was Connect 4. This game took more time to set up as I had to create the game from a template. I found this template thanks to a co-worker of mine. The game pieces use the “infinite clone” option from the SMART notebook software and use the questions from the textbook to review the concept we were learning in class. In this game, the students pick a number that correlates with a question. If they get the question correct, they are able to move a game piece (red or black) into the Connect 4 game plate. The first team to get four in a row wins. This game is played with two teams playing against each other. Since this was a new game, it took a little while to introduce to the students so it was played over a two-day period.

I noted in my journal that the game went well but that my classroom seemed a little more quiet than usual during a game. I was afraid that it was because the students thought it was boring. However, the second day the students seemed more engaged in the activity. It may have been because we spent so much time the period before going over how to play and on the second day we spent the whole period playing the game. The students also may have been more engaged because they were not only more comfortable with the game, but also more comfortable with the concept after the second day.

The majority of the students rated the game a four. A lot of the positive comments included the fact that it was interactive and competitive. The students enjoyed going up to the to the board and strategizing of where to place the game piece and just moving the chips in general. They liked the fact that it mixed a

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popular board game with math. Some of the negative comments from the students who rated the game a two included that they don't like the game Connect 4, that they did not like that it was competitive, and that it was slow since they had to wait for their whole team to finish.

Overall, the students seemed to be engaged in this game but I wanted to see if I could come up with a game that would engage and motivate the students even more. This is a great game to use every once in a while to change up our class review, however I don't believe it was the best game after comparing it to the other games I implemented throughout the research process.

One of my favorite things that I implemented in my classroom was the game press your luck. The students are grouped into groups of four or five people. In this game, the students' click on an animal and a question comes up. They can work as a group to come up with an answer. This is helpful for the students because if they don't understand something, they can get help from their group members. Whichever groups get the answer correct get on-hundred points. Then, the group that picked the question gets to "press their luck." There is a table of gray boxes. The students click one and whatever the box says they have to do. Some boxes say, add 2000 points. Others say subtract points, opposite of your score, switch with another group, or even go back to zero.

About ninety percent of the students had a positive response to this game. The students really enjoy this game because there is so much mystery and suspense. Some of the other comments said that it was fun, helps them to study, and they like

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that it's challenging. They also like the graphics that go along with the questions and the animals that they get to choose. Like the other activities/ lesson that I implemented through the research, they also loved the fact that it was interactive, competitive, and that they were able to work in teams. The only negative things the students had to comment were that some of the questions were hard and that they ran out of time to answer the question. However, others said that it got boring because they had to wait for others to finish.

Taking into account all of the comments and the ratings, this game was the most successful of all of the games and activities I have implemented. When the students are playing I see the motivation to solve the problems and to help their group members. I see the anticipation when they are going up to press their luck. I see the excitement when they gain points or get to switch with another group. Even when the students don't get a positive amount of points, you can tell that they are enjoying the game because of the mystery of what's behind the box.

Other Findings

While creating all of these lessons, activities, and games was the main reason for my research, I also realized things along the way that I wrote in my journal. After starting my research I started to realize the other perks of the smart board that I didn't realize in the beginning, simple things.

One of the things I came to appreciate was the use of the smart board pens. Not only are they great because you can change the width, color, etc of them, they don't dry out like dry erase markers! I have my students use small white boards to

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show their work often. However, the dry erase markers are always trying out and it becomes a problem when there is not enough for my whole class to use. Smart board pens don't run out!

Something that I have always appreciated, but appreciate more now, is the fact that you can print out lessons that you created from the smart board. This particular function is great because I am able to then send home the lesson with students who are struggling so their parents can review the concepts with them. It is also helpful for students who struggle with keeping up with their classmates when it comes to writing notes.

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Themes



Competition

- **The students' responses in the surveys showed that competition motivated the students to want to participate in the lesson. It made the lesson fun for them.**



Interactive lessons

- **The students enjoyed when they actually got to go up to the SMARTboard and interact with it in some way. They enjoyed writing on it, erasing, and pressing the graphics that brought them to other slides.**



Suspense/ Mystery

- **When the activities involved some sort of suspense or mystery it gave the students a bit of a thrill. They looked forward to what question would come up, what score they would get, and if they won or lost. It kept the students engaged throughout the entire lesson.**



Working together

- **Using the SMARTboard allowed the students to work together in groups. The students enjoyed looking to each other for help when they needed it.**

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Implications

From this research I have learned a lot. Keeping my students engaged and motivated means that I have to constantly change it up. Even though I may find one thing that worked better than another, I have to use other things in addition with that. If I continued to only use one format, the students would end up getting bored and that particular lesson/activity/game would not be motivating and engaging any longer. A lot of my students' comments after the lessons were that they were fun because they were new ways to approach the concepts.

Another thing that I learned was that my students enjoy the mystery and suspense of games. Even though some of the games that the students played were just question and answer, the fact that they didn't know which question was going to come up made it fun for them. I could have easily had the students answer the same questions in a regular lesson format, but that would not have been as engaging as creating a game out of the same questions.

The final thing that I realized was that the interaction part of the smart board is what the students like the most. They enjoy pressing their option in the games, clicking the boxes so their answers appear in lessons, and writing their answers on the board. Physically touching the board is what engages the students the most. When playing games, they plead their case to their group to be able to be the one to go up and push the button. When given the opportunity to come up and show their answer, they furiously raise their hand so they could be the one that's called on. Any

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way to create interaction in a lesson would be a great way to engage and motivate my students.

Limitations/ Subjectivity

I did not run into many limitations when doing my research. There were only two limitations that I ran into. One was that there was only one teacher I was able to go to for help coming up with new lessons and activities to implement. The other teachers were either not confident with their smart board knowledge or only used their Elmo and/or Power Point. I feel that this was a limitation because I was not able to get ideas from many people.

The other was if I saved the lesson I created to the network at school and didn't back it up on my flash drive. This was only a problem when my network was down, which thankfully did not happen often. This only happened once during this research project. When I plan on doing a certain lesson and it is saved to the network and the network is down, I am not able to pull the lesson up on the smart board, and that means I cannot do that particular lesson that day.

Other than these two limitations my research went rather smoothly. I was able to find lessons, activities, videos, and games to implement for my students.

My research may have been a little biased because I think smart boards are great. The way I interpreted some of the students comments may have been with more of a positive twist because of the fact that my perspective of the smart board is that it is something that everyone should use and that it, in general, is engaging for the students.

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Emerging Questions

Now that I have researched and found some ways to make my lessons more engaging and motivating for my students, the next question I would have is, how can I create work that the students do at home that would be as engaging as work done with the smart board? If their homework was as engaging and motivating and the lessons, activities, and games that I created on the smart board, then they would be more inclined to do in and, therefore, have more practice with each concept.

Knowing that my students like interactive and competitive things, I would like to create homework that goes along with this. If their homework could somehow tie the smart board activities with things that they do at home, they would want to do it. I could possibly have my students help me come up with ways to create homework that incorporates these things.

Another question that I have is, when will we be able to have training on the different uses for the smart board? We have had professional development days where going to smart board training was an option. However, on that same day, during that same time slot, there were other trainings that we have needed to attend. A lot of teachers need the smart board training, but there just hasn't been the time set aside to do it. My school needs to make this a priority so we can be sure our teachers are making the most of what can be done on the smart board.

Conclusion

In my findings, I was able to see what makes students want to work. I found that competition, fun, interaction, and choice are all things that motivate my

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students. This is helpful for me because I can create lessons that involve some or all of these aspects to make my students engaged in their learning. I want to make more lessons that are student centered rather than teacher centered. This is what would help engage and motivate my students.

My study would be useful for others because we share the same students. The things that I found that motivate my students would also be motivating to theirs. If they can come up with lessons that interest our students, we can create a passion for learning within our students that they may be lacking now. We can also spark the love of learning that some of our students already have.

Implementation Plan

In the near future, I plan on sharing my discoveries with my colleagues. My findings would be useful for my other colleagues because I will now be able to help them create lessons and activities that are engaging for their students also. Regardless of subject area, the lessons and games that I have already created would be useful for them. Even if they chose not to use what I have created, I can help them become more comfortable with the general uses of their smart boards.

Many of my colleagues said that they use power point with their lessons. I can help them learn how to use SMART notebook, which has many more options for us to come up with that make lessons more interactive for our students. In talking with my fellow teachers, they don't use many review games in their subject areas.

This research had definitely changed the way that I teach. It has made me become more versatile and create different types of lessons. Students need to stay

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motivated, and for that they need variety and choice. This research project has forced me to do this in my lessons. I have seen a change in my students since implementing the variety of lessons, activities, and games. The students seem more engaged in general in my class. I believe that it is because of these implementations. This research has made me a better teacher. Becoming a better teacher means that my students are getting a better education. When the students are engaged and motivated, they want to learn. When the students want to learn, they retain more of their information. What is a SMARTer way to reach our students? Using smart boards is the smarter way.

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