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Integrating Technology in an Elementary Classroom

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St. John Fisher College

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The purpose of my research is to compare the use of technology in an elementary class to a class whose instruction is limited to traditional methods. Investigating the achievement of the students, the attention of the students and the comprehension of students will be a major part of my study. My purpose will be to see if students benefit from technology and if there is an improvement, to what degree. I will be reviewing peer-reviewed articles to see what is published about the use of technology and what the benefits of using technology in a classroom are. This review will be in a form of a literature review. From the information from my literature review and research, I will hopefully receive a solid conclusion about the integration of technology.

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Integrating Technology in an Elementary Classroom

As technology has become a greater part of our society, education has tried to aid our students by trying to familiarize them with the appropriate technology to make them more marketable in our working world. This technology wave has started in the upper-level schools and has been trickling down to elementary levels. I am interested in comparing the amount of increased knowledge these tools have on an elementary classroom. There are many great teaching tools and software that will help many teachers become much better teachers if this technology is used correctly. If the technology were used correctly in an elementary classroom what would be the benefit from this technology? What amount of knowledge are students not receiving from classrooms that do not have these types of technology?

I am interested in this topic because traveling from school to school I have seen various amounts of technology in different classrooms. This technology varies from computers and smart boards, to a simple piece of technology, such as a calculator or an overhead projector. I always was curious about what were the different levels of achievement from one class to another. City schools hardly have any technology, due to their strict and non-existing budgets, and the items that the city schools do have are donated and are outdated. These are the schools which tend to be the lower achieving schools. Schools where money is not an issue, have ample amounts of technology and their achievement levels seem to be higher. Maybe it could be the kids or it could be the teachers, but what if technology could be something that could improve students learning?

From my research I hope to explore the use of technology in an elementary classroom and the different levels of achievement in two different classrooms. In one classroom I taught lessons using traditional methods of teaching such as lecture, note taking and handouts. In another classroom I taught the students using many different kinds of technology. Both classrooms were taught the same topics but in two very different ways of instruction. From the results I hope that there will be a distinct separation between students with no technology usage and students with technology usage. This will show both how important technology is to our students and what they can achieve, or it may show that technology has not bearing on how information is taught.

Literature Review

Teachers of today have the ability to introduce many new ideas in today's classrooms, give students knowledge that will be used in future classes and their lives. Wilson, Notar & Yunkers state that, "Today's educators have unlimited opportunities to more broadly apply our powerful technological tool and change the way students of all ages are learning," (2003) Every year the expectation for our students continues to grow larger and larger, making the amount of curriculum required by our students to master seemingly overwhelming. This, therefore, has a direct affect on the teachers teaching the curriculum and the administrators administrating the curriculum. Teachers are required to fit an enormous amount of material in to the one hundred eighty instructional days of a school year. This leaves very little time for variation and more mainstreamed teaching. The administration needs to keep a close eye on the scores, making sure that the students are receiving the best education available.

In the classroom, there are many new ideas about the best way of teaching certain content areas and what is the most effective way to differentiate lessons. All of these new strategies have been proven to work, if certain requirements are in place.

The path that society is taking is towards a technological based society. Technology is a huge part of many jobs in our country. Technology has made traditional jobs from the pasts more challenging because of the new instruments and robotics that we now have today. Technology seems to be the driving force for our economy. If our society has turned towards a technological based economy, teachers need to prepare our students for the challenges that lie in their futures.

In this literature review there will be a comparison between schools with an ample amount of technology compared to school districts with little technology, which tools are most beneficial to our students and the different flaws with technology or when it has gone too far. Included in this review, different types of technology will be discussed and why teachers should implement these technological tools into their classrooms. This review will discuss many questions about improvements in technology and where classrooms should use technology and how much technology should be used.

Types of Technology

When the term technology is mentioned in a classroom, many people believe we are talking about computers. Looking further, there are many pieces of technology that if placed in our classroom could help and benefit students with many of the tasks they encounter. An overhead projector is a great tool, which gives students a visual for topics and aids the teacher in their instruction. A simple machine helps out many students. A device, such as a calculator can really spark a student's interest in math and science, while introducing them to a tool that will be used throughout their lives. A television is a beneficial instructional tool because there are many great instructional movies that will give our students an in-depth explanation of our country's history. Hooking up a computer to a television monitor will allow a teacher to display PowerPoint worksheets, Excel worksheets and Websites which could all enhance our students learning.

How to Ingrate Technology

There have been many different suggestions and ample amounts of workshops to get teachers ready to incorporate technology into their classroom. Haplin gives this advice about integration of technology in a classroom

> "The general consensus has been that computer literacy involves
> not only the knowledge, understanding, and value of technology that
> are required for a teacher to feel confident with classroom integration,
> but also a positive attitude towards their ability to apply the theory-
> related concepts into their real classroom instruction" (1999).

To completely involve and incorporate technology into an elementary classroom, there are many specific parts that need to be scaffolded together. When these variables are working together, our students will be beneficiaries of a great educational experience.

Incorporating technology into an elementary classroom starts first with the direction of the school district. The high price tag on some of the technological devices may prohibit some districts from purchasing them. If a particular district does not think the device is worth the money, or there are more important items to purchase, leaves that district behind one that has the money to buy these academic enhancing tools. This is the case for many inner-city schools. City school districts have a hard time affording these tools of technology. In cities, much of their money is spent on necessities for the schools and the wants, being technology devices, are not purchased. The students of these schools are put at a disadvantage because other schools that can afford these technologies are setting their students ahead of the

schools that can not afford the tools. School districts have a tough problem when their funds fall short and they have to decide on which are a necessity for the district, which are a want, and put the necessity items first.

When a teacher is presented with all the tools to advance their students technologically, there seems to be a big problem with integrating these tools into planning or the lack of knowledge by the teachers. Gibson and Hart agree by stating that "Computer materials do not closely match the required curriculum" which makes it hard for teachers to align their lesson with technology. (1997) If a teacher finds a technology relevant to an idea for their classroom, the teacher should put their own ideas into the lesson and make it beneficial for their students.

"When a teacher plans a new technology learning activity, he or she should consider options for improving the activity. Options may include adding, eliminating, or modifying various tasks or processes that children might complete. These changes may not be necessary for successful completion of the activity, but are expected to improve it," (Kieft, 2003, p.17)

If a teacher is modifying a lesson to accommodate their students, they must make sure that the lesson is still on grade-level for the students. This might mean extra training for the teacher to make sure they have the knowledge base to teach a lesson using this specific type of technology. "Modifications may also result in some processes being completed ahead of time by the teacher, or special help given to children at the time they are involved in completing the process" (Kieft, 2003, p. 18). These modifications can be great, and will likely improve the lesson. Teachers need to make sure that the lesson still keeps the relevancy of the content and the teacher

has a solid content knowledge of the technological tool. "As teachers, we like to grab an idea and integrate it with other activities going on in the classroom" (Jones, 2003, p. 19). Researchers say this is natural for teachers and this is why we are in the profession. Teachers like to take prior knowledge and integrate it into our lessons, giving the student a real life experience to relate to.

When a teacher has made modifications, kept the validity of the lesson, and followed the suggestion by the quoted sources, then classroom instruction of the technology is the next step for integrating technology into our classrooms. Kieft and Cardon (2003) outlined guidelines in planning and completing a successful technology based lesson in a classroom.

Basic steps to start on your own-

- Identifying the goals you want to achieve

- Identify an activity you feel might help achieve those goals. Start with simple, short activities.

- Be prepared.

- Planning and preparation of every detail is important for every activity. Start your activity planning early to allow for changes and new ideas to be included. Make sure all tools and materials are available for children when they need them. Let your principal know that every safety precaution will be taken if any unique tools or processes are to be used by the children.

(p. 11)

This method of planning is a great way for new teachers, and seasoned teachers with little technology background, to start a process of planning that may be unfamiliar to them. Ertmer, Addison, Lane, Ross, & Woods stated that , "Despite the fact that the number of computers in teachers' classrooms has increased dramatically in the last twenty years, researchers and educators alike still report that integrating technology into classroom curricula is not easily accomplished," (p.26). Ertmer, Addison, Lane, Ross, & Woods say that if a teacher has knowledge of planning for a technology unit, the more practice they have, the better the lesson will be, and the students will receive the most from the lesson.

Due to the lack of knowledge of computers, Marcinkiewicz says, "Full integration of computers into the educational system is a distant goal unless there is reconciliation between teachers and computers. To understand how to achieve integration, we need to study teachers and what makes them use computers," (p.229). Marcinkiewicz agrees with many other researchers about computer technology but bring up a point about what the teacher uses a computer for. (1993) Due to the fact that technology is relevantly new, it is hard for seasoned teachers to become familiar with this new type of instruction. It would take many hours of instruction to achieve the level of a newly graduated student. The newly graduated student would be very familiar with technology because of the required amount for their college. Seasoned teachers would need many lessons on the different types of technology available to them. From here, lessons can be planned with the likes of the teacher in mind. "Although time, equipment and training are deemed critical for shaping technology use, higher levels of use might be expected to occur when perceived is high and

resources low than when perceived value is low and resources high" (Harrington, 1993, p.3).

Benefits of Technology

Raising the level of student interest in technology is one the benefits of having technology in the classroom. There is a limit of technology and not many students will experience technology at home, due to the price and lack of work at home that requires technology. "The computer is the ultimate tool for children to use to create their own knowledge and to introduce them to the process of intellectual inquiry" (Papert, 1993,p.9). Getting students to use different devices could possibly spark an interest in future exploration with technology. Math, being an area where there are many technological devices, can be used as an excellent way to keep students interests up in math. "Students introduction to math can be made more enjoyable by correlating mathematics with technology activities and seeing how much math is used in all systems of technology: i.e. manufacturing, construction, transportation, communication, design, and bioengineering," (Linnell, 2004, p.4). Some of these areas of interest might not be realized until middle or high school, but creating a solid foundation in elementary school could help create some interest. In an elementary classroom there are many different ways that a student can use technology. Students can record, chart and measure different types of data. Linnell (2004) stated some examples of ways to implement technology into your classroom, such as setting up a math/technology station, a weather center, science center, and intervention and design center. (p. 5) If one of these centers were put into a classroom that was suggested by

Linnell (2004), students would learn a great amount in that specific content area, and technology would also be part of their learning at this center.

Having a mobile laptop center in your building also offers numerous possibilities to teachers and students. When projected on a television monitor, students can watch what a teacher is doing step by step. This will keep students attentive and on the same page, as well as giving students a visual of what to do. This will keep the frustration level to a minimum and keep the interest level high. This high level of interest should improve student work and achievement.

"Findings highlight the personalization of learning afforded by such devices both in terms of individuals and individual classroom cultures, as well as their usefulness in extending learning beyond the classroom. They also suggest that increased motivation due to mobile device use lead to increases in the quality of student work," (Swan, Hooft, Kratcoski & Unger, 2005, p.99).

A mobile lab could increase the amount of homework that would be turned in and it should interest students to start typing some work as well. Teachers could expect more in-depth answers because on the knowledge on the students from reliable Internet searches. "If laptops stimulate more active teaching and learning, it would seem logical that students might achieve better that their counterparts in more passive learning contexts," (Lowther, Ross & Morrison, 2003, p.23). If research shows an improvement in the achievement of our students and the technology is available, teachers need to realize what an injustice we are doing to our students by not giving them the availability to use these devices. "Students survey responses revealed significantly higher confidence by laptop students compared to control students using

all the basic software applications. Responses also indicated that 95% of the laptop students felt confident to conduct Internet searches," (Lowther, Ross & Morrison, 2003, p.27).

There are a great number of Internet sources that our students can pull reliable information from, and there are sites that not as reliable. Students need to decipher between reliable resources and sites that may contain some falsities. Getting students familiar with Internet searches allows them to do more research on their own. The Internet also gives students the opportunities to do research by themselves, raising confidence levels. Lowther, Ross & Morrison interviewed a group of students after a technological lesson was given and here are some of the positive comment from those students," It opens up a whole variety of resources", " I like Excel which is very useful for organizing and creating graphs for science and math", the best thing is being able to find information really fast and use it in class for projects", "it helps you to be organized, and it makes it easier to do research projects and write essays," (p.25). This shows the excitement of the students when given the ability to use technology in their research and presentations. The technology helped to spark their interests and gave them a way to present information for specific class work.

Alberts had a great example of technology and how it is used in a classroom. To keep teaching cost down a camera was placed in a classroom and was sent out digitally to other rooms filled with more students. The interest in this particular Spanish class was so high and space was limited. As the teacher was giving the lesson it was broadcast simultaneously to three other rooms. The students were still getting the same lesson but from a TV, not from a teacher. "Teachers can teach a

lesson to one class, while the session is simultaneously broadcast to the other class via the school's closed circuit television," (Alberts, 2005, p.145) Using this system will help cut costs because of the lower number of teachers, but it would be hard to say what the atmosphere of the classrooms would be like. "Teachers and administrators have noted benefits in addition to the students learning a second language. The television piece is exciting for kids and they get to see other students participating. The fact that everybody in school takes Spanish creates a positive effect for the whole community," (Alberts, 2005, p.145). This technological type of learning has an effect on students learning but also has an effect of the surrounding communities.

A calculator is a great tool that will help students in science and math. Because math and science are closely related, many of the same procedures can be modified or copied that can be used in both content areas. Having students check math homework gives them the opportunity to have practice with using technology. Students rarely get the chance to use a calculator and are very excited when presented with the opportunity. Giving students the opportunity to explore different science problems with a calculator makes the problem more likable by the students. "The process of using knowledge, problem-solving strategies, and available tools and materials to design new solutions in the skill required for the 21st century," (Beglau, 2005, p.13). These processes taught to our student have a distinct meaning in school and in life. Teachers need to make sure they present the information to their students in a relevant way, giving our students the most for their future.

"Current generations of K-12 students in growing up more technologically literate than children their age were a decade ago, with

access to an increasing number of devices and services such as video game counsels, mobile gaming devices, cell phones, the Internet, and instant messaging. Interesting enough, even though many students know how to use these technologies as an integral part of their lives, they learned to do mostly out of school and teachers are struggling to integrate technology into their classroom," (Swan, Hooft, Kratcoski & Unger, 2005, p.99).

Some of these technology tools are mainly for pleasure but let students know how different systems work.

Looking at some of these suggested items; it has been clearly shown that using educational game is a way to keep students interested in technology, even though sometimes it is not productive. Along with these items of personnel use, there are many different types of educational software that students will gain some great educational benefits from. Staples, Pugach & Himes say that "Companies offering games, educational software, networking equipment, accessories and the like sprang up overnight, offering a multitude of options from which to choose for teachers and administrators," (p.285). It is hard for many teachers to keep up with the new and up-to-date software that is available to use in a classroom. Some districts offer programs that are loaded on all computers in the district, giving students different challenges while "playing" on the computer. "Our scores on the California Test of Basic Skills jumped 20 percentile points last year- a success we attribute largely to the use of math software we installed on our network," (Whitehead & Cain, 1994, p. 34). When a teacher finds software that he likes, the next step is adapting the program into their

funding for these types of technology. When these students come out of school there is a great gap between different districts.

When students are in school, many teachers believe that instruction should be taking place and there are other places for students to do research or surf the web. "Statistics reports three out of four households with school-aged children regularly access the internet, and a growing number of household users are turning to high-speed connections." (Ferguson, 2005, p.41). Students have different options and different ways to access the web and Ferguson makes it clear that some teachers think students should do it on their time, not the teacher's time. There are some areas where this suggestion would not apply, but for the able, many teachers think the internet should be used on the student's time. "The optimal level for a computer and internet use at school, Fuchs and Woessmann suggest, is pretty low, somewhere between 'a few time a year' and 'several times a month' (Ferguson, 2005, p.42). This computer time will allow instruction to remain at the optimal level but still allow students to explore the internet.

There is a lack of knowledge when it comes to technology between teachers because of the different levels of understanding but, "Many elementary teachers want to be competent in the use of computers and see them as valuable in enhancing students learning but class load and time management were barriers to implementing computer-assisted instruction in the classroom." (Guha, 2000, p.3). Many teachers have some background of technology, whether it was a seminar they attended or personal knowledge of the technology, which they share with their students. Many of the seasoned teachers have limited use with computers and, therefore, lack the

knowledge to teach students about technology. "Lack of preparation and training, and inconsistent levels of success achieved by students and teachers are reasons not to use technology," (Gibson & Hart, 1997, p.174). Computers are relatively new and many younger teachers have had more practice with them. It takes a long time to get used to and accustomed to using a computer. Trying to plot a path to have teachers catch up with technology is not an easy one. "What seems critical for this to happen is a deep understanding of how technology relates to curricular goals, how professional development must be layered to embrace both technology learning and curricular alignment in relationship to one another, and how carefully constructed professional development can support technology's most judicious use," (Staples, Pugach &Himes, 2005, p.291).

When teachers learn certain skills on the computer, the districts job is not fully completed because even though now the teacher has the knowledge of the technology, the teacher now needs to make sure it is incorporated successfully into instruction. "Comprehensive training and staff development increase integrating computer aided instruction (CAI) and student exposure to CAI in the classroom," (Brennan, 1991, p.161) The more training teacher receives about technology the better off the students and the instructor will be.

One would think the more a child is able to access the internet, better the scores on a test would be. Ferguson proves this is not true. "Once household income and the wealth of a school's resources are taken out of the equation, teens with the greatest access to computers and the internet at home and school earn the lowest test scores," (Ferguson, 2005, p.44). This is due to all the other information and games

that attract these children and the children are getting nothing from it. This attracting is taking away from time spend studying for content that may be needed for class work.

There is concern about how the internet may be 'dumbing' down our students. In school, before the internet, students would have to access the library to do their research. Encyclopedias and reference books were where students would get a large portion of their research done. Now, with the internet student type in what they are looking for and it comes up and is given right to them. "While computers clearly have a place in education, the evidence is mounting that our obsessive use of information technology is dumbing us down, adult as well as kids," (Ferguson, 2005, p.44). Teachers use the internet as a research tool quite a bit, and the internet is allowing our students to see the internet as the only source of factual knowledge. Adults and kids are now looking for just an answer, and we should not have to look for it, the answer should be given to us, thus dumbing us down. "Computers and the internet can also distract kids from homework, encourage superficial and uncritical thinking, replace face-to-face interaction between students and teachers, and lead to compulsive behavior," (Ferguson, 2005, p.46). With all the challenges facing our students of today, the computer is adding more difficulties to the student's lives. The internet is a great tool but it needs to be used in the correct manner and student need to know that it is a tool and it should be used as that.

"In an elementary classroom students used computers overwhelmingly in an exercise mode, doing drills and playing various educational games, rather than in productivity mode." (Becker, 1993, p.33). Researchers Gibson and Hart (1997) agree

with Becker (1993), saying technology is used for fun and games and not for instructional use. Gibson and Hart (1997) stated that our curriculum is to far away from the technological games teachers and parents have our children and students playing. Teachers need to make sure that they are making students time as valuable as we can by implementing activities that relate as closely as teachers can to specific curriculum content.

There are many new things that teachers can do to integrate technology into their classroom. Teachers need to make sure that they use the technology wisely and make modification to make sure that the technology is used in a productive manner. There are great suggestions about technology and if one uses them together, a teacher could get the most out of their technology.

In conclusion, our classrooms of today have always changed with the changing times. Now that we have all this technology we need to use it, giving our students a better chance for success. Many of the sources give examples of what is needed by teachers to do to make our students benefit from technology. Sources also explain the problems with technology, whether too much technology or not enough funding for the technology. There are many obstacles in the way but sometime of the near future teachers will need to rely on technology in our classrooms, because our society does.

Methodology

In this study I will be conducted lessons on one specific topic outlined in the New York State standards in two different elementary classrooms. The reason I will be teaching two different classrooms for this research is because at the elementary level you only teach one group of students in one classroom, there is no switching classrooms during the day. In order for me to gather relevant information I needed two test groups. I taught one lesson in one classroom and later in the afternoon I taught the same content to another class using a different teaching method.

The content I taught to the both classes was on ecosystems. The lessons included characteristics of ecosystems, animal life and changes in ecosystems. In one classroom, I used traditional methods of teaching (classroom A) and the second classroom, I used as much technology as I could to teach the lesson to the students (classroom B). In classroom A, I taught 21 students (12 girls and 9 boys) and in classroom B, I taught 20 students (11 boys and 9 girls). The school is located in an area where there are some vast differences in income and housing. There is low-income housing and there are developments, which are very high income, therefore, both of these classrooms had different economical status, as well as various nationalities. There was still a majority of white students, although both rooms had four or more students from different countries.

In classroom A, I used very traditional methods of teaching. Most of my instruction included reading out of the textbook and we used the corresponding worksheets from the textbook. I had students contribute from the room on a daily

basis but most of the teaching had students in their chairs. I went to the library and took out books about ecosystems if the students had to do any research. At the beginning of each class, we would toss a ball reviewing topics from the day before. We then would use articles or the textbook for the rest of classroom instruction. This method of teaching is still used today by some of our teachers, although I found that I had a hard time teaching this way because it is not my method of choice for instruction.

In classroom B, I used as much technology as I could. I used the overhead projector to show illustrations, PowerPoint instead of reading out of the book, and I had students research on the Internet instead of using books. I showed different informational videos to the students and let them use PowerPoint to display their information they discovered while researching on the Internet. There was no need for classroom B to travel to the library unless they wanted a hard copy of information to take home, or if the students did not have access to the Internet at home. Students from classroom B could do work from home, which made workloads in class less tense. This way of teaching is what will go on in my classroom day-to-day baring the amount of technology. Students were in-charge of their learning and I think they were more interested in learning about the ecosystems.

In classroom A, success was measured at the end of the unit on a hand drawn poster board presented to the class about their specific ecosystem and a written test. The students were required to show plants and animals that occupied that living environment. Groups of students would present their findings to the class in an oral presentation.

In classroom B, students had to prepare a PowerPoint presentation for the class. Students would present their findings verbally and visually to the class. Same as classroom A, students in classroom B had to tell what specific animals lived in that ecosystem and what plant were in that ecosystem. Students would have to use the tools of the computer to design their presentation and add creativity to their presentations.

Both classrooms A and B were assessed the same way, although students needed to use different presentation methods. When students presented, the two teachers from the classroom and myself were present and graded each presentation. A cumulative grade was then given to the group.

Results

Results that I received from both classes were similar to what I had anticipated. Students from classroom B had a higher level of understanding for the content of ecosystems. Classroom A showed a good understanding of the content as well but fell short when asked to display their understanding. These results were gathered from my experience, which included student's class work and input from the two classroom teachers in their rooms in which I was working.

Test: The test was a combination of material learned from the entire lesson. This included all class work, homework and student presentations. The test had ten multiple-choice questions, five matching questions and one essay question. The test was scored out of 100. (100 being the highest and 0 being the lowest)

In classroom A, the class average was an 84.3% on the test, which was around the level they had been achieving at throughout the whole year. There were three failing grades.

In classroom B, the class average went up to an 86.9% on the test, which is a little above where the class had been achieving. There were no failures and I had two students with a perfect score of 100.

Student presentations had a 4.1% increase from classroom A to classroom B. The classroom average in classroom A was a 78.3% and classroom B the classroom average went up to an 81.4%. This improvement was discussed between the teachers and I, in which we all stated that the increase was from the use of technology.

One change that was made was I added in a written part to the test. I needed a way that would show me student achievement individually. The group presentation

would give me a score for the group but not individually, and I would not know how much information they had retained.

The classrooms in the school that I was doing my research in had the ability to reserve a mobile laptop lab. I did not get the chance to have this valuable tool in my room because of the constant desire for this lab. If I did reserve the laptops, it would have given my students more time to do research for their project and I could have given a lesson about how to use the laptops. During the lessons about how to save documents, students would have benefited more if they had a laptop sitting in front of them to use and actually practice saving a document. Students could have also divided the project up and allowed each member of the group to be responsible for a part. This would allow me to grade them on a more individual basis.

It was noted that when using the technology, students needed extra time for the completion of this project and teachers need to plan for that. I was close in my estimation but I needed more time to finish the lessons of my unit. One thing that could have helped this was if I spent more time collaborating with teachers in the school. This collaboration would have given me the working level of the students on the computer then I could have realized how much or how little the students knew about computers in fourth grade.

Discussion and Conclusion

The end results that I was looking for from my research were a separation between classroom A and classroom B scores in the content area of ecosystems. Classroom A is the classroom with the traditional method of teaching with no technology use. The students were accustomed to this type of teaching because their teacher has a traditional way of teaching and likes the methods that he/she thought worked well in their classroom.

During my time teaching my lessons, the class and I had some in-depth conversations and great reviews in the beginning of class. Students did a good job completing their homework which aided in the classroom discussions.

One part where I seemed to lose the attention of many students was during the reading. The textbooks we used were great, but they got 'old' to the students after a couple of days. One could tell this because trying to keep the students attention was getting more difficult by the day. The homework seemed tedious for the students because I used the worksheets out of the book, as well as creating a couple homework assignments to mix things up a little. I would use different lessons from 'Project Wild' and this sparked some students' interest, but then that excitement would diminish after a few days. 'Project Wild' is a book from the Department of Environment conservation which has just a few lessons about specific topics, not a unit of lessons.

Having students work in pairs on their presentations was a great idea because it gave students time to interact with classmates and it allowed them to research topics on their own time. This was a high point in my lesson because it helped out the attentiveness of the students and I am glad that I did it. Students seemed to work well

with each other throughout the project. Many of the students were fine with using library books and their textbooks for their research, although almost every student in the class asked if they could use the internet for research. This is because the students of today are very familiar with the internet and using books as a research tool is outdated.

The second classroom was taught the same content but with the use of technology. In this classroom I got different results. I kept the students' interest with visuals shown on an overhead projector. Taking the same worksheets from the book and presenting them to the class on the overhead projector made lessons go smoother and kept students' interests high. I could show them pictures of ecosystems and food chains that were present in that specific system. I also used some great instructional videos, which gave students a summary of some of the readings we read from the book, plus showed them real encounters and documentaries in different ecosystems. Some of the videos were also used for a review for the conclusion of the content. Videos served as a great tool in this classroom.

The use of the Internet was one of the most useful technologies in this classroom. Students did not have to leave to do their research. Students could save research items to a disk and then bring it home to work on, and then share what they did over night with their group members. On the Internet, there are great child friendly websites that students used to gather information for this project. Students could use email to talk to other group members and I even had one group email an area in their ecosystem to gather first-hand knowledge from this part of the world. Students used PowerPoint to display their findings, which included all necessary parts for their presentation. They included graphics, pictures and animation to these PowerPoint's. The use of computers in

classroom B really gave students the ability to take this project to another level, compared to classroom A. Having five computers in our classroom, it gave groups the opportunity to be working at the same time with minimal congestion. I was used as a guide for the students, but many groups did most of the work themselves. A printer allowed groups to print off their PowerPoint's and give them as handouts so students would not just see the information, but have their own copy to study from. When the presentations were done, I used the classroom televisions and hooked them up to the teachers' computers and displayed the PowerPoint's to the class. Students were able to show their work without holding anything and students could look at their images and content on the television, which helped them progress through their presentations. This progression made these presentations in classroom B much easier to follow.

One big problem I was aware of whole time was that I was going to have one class that was experts on the information that was presented and one class that would receive the information but not in the best instructional way making their knowledge less. The students from classroom B would understand the information better, be able to regurgitate it back and had a solid foundation to continue to build upon. Classroom A was not going to be at the same level as classroom B. Students from classroom A would have a good understanding but not as solid if I used everything I could have when instructing them. This will make a difference in the long run and this is what I knew would happen and needed to find a way to catch up classroom A. When discussing this problem with the two classroom teachers, we came to the conclusion that I could have to give classroom B a little more time and cut classroom A time short. By doing this we realized that the difference in grades could have been from the shorter schedule. What I

did was I gave classroom A the option to do corrections on their test and adjust their grades. With the lost instruction in classroom A, I took three additional days instructing them using videos and showing presentations from classroom B and giving them the handouts used by the students in classroom B. Classroom A students really enjoyed the presentations and want to attempt something like this in their next topic. Watching the videos allowed students in classroom A to receive a summary and conclusion to the lessons I had taught.

The parents of the students on classroom A also had a problem knowing that their students would not being allowed to use some of the technology of the classroom. When presented with the outline of what I was going to be conducting preceding the conclusion of the lesson in classroom A, they allowed me to continue with my experiment.

I also had some problems with the lack of knowledge of computer skills our students have. The school that I did my research in outfitted their classrooms with five computers each. Teachers use them periodically and when they can fit computers in their busy days. If students had a solid foundation of computers classrooms, students could use them daily, which would benefit their students. I had to spend a class and instruct students in classroom B how to save documents, information, and how to use PowerPoint. Some students knew how to insert pictures and do animation in their PowerPoint's, and I wish I could take the time to teach students how to have all these skills, but time became a factor.

Not being a fulltime teacher, I know that I do not have the most interesting lessons for all the areas I covered. I know that after teaching a couple of years, I will have polished my lessons and will have the ability to teach with the use of technology.

Because I am not at that stage of my life, my lessons were maybe a little dry and not as perfected as a teacher with many years under their belt. I could have collaborated with some other teachers and took some of their ideas. Some teachers gave me ideas after I had completed the lessons and I would have used some of their ideas in my lessons. This collaboration will come when I consistently work in a building and collaboration happens more regularly.

From the literature study that I did, much of the research agreed with the results I achieved. The students using the technology retained more information and students that did not use technology did not retain as much information as those that did.

My literature review suggested that schools that are living below the poverty line had less technology than schools in outlying schools. My research shows that this lack of technology could have a direct affect on the scores of a school. It would be interesting to look at schools that have technology and their score, and compare them to schools with no technology.

One of the limiting factors with schools that have technology is the knowledge of the students with that technology. It takes a lot of time to familiarize students with technology if they are not accustomed to it. Many teachers have limited amounts of knowledge with technology, which keeps this type of education out of our schools.

My research gave me ample amounts of reasons why to use technology. This improvement may not be due to the research and more research needs to be done to make it conclusive, but I would continue using the technology because there was and improvement and until I would be shown otherwise, technology would be a good thing in my classroom. Working in a classroom with traditional ways of instruction shows you

the lack of enthusiasm from the students and that is carried over to the teacher. I defiantly liked this research and will continue to see if the separation between instructional methods increases or decreases. Technology is an excellent tool and is used in our society almost everywhere, so our jobs as instructors, teachers need to expand on this new tool and make our classrooms operate at the highest level of instruction.

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