

Integrating Technology into the Classroom

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**Introduction:**

In our ever-evolving world, we have seen the emergence of technology in all aspects of our lives. People use technology as a form of entertainment, as a tool to help them communicate with other people, to help them monitor their health and as a tool to help them enhance their work. When out in public, it is common to see numerous people using some form of technologic device. While at the mall, it is common to see people talking on their phones, texting people or posting on their social network sites. At a doctor's offices you will likely see people playing on their tablets or using their cell phones, and it is even common practice to see these devices being used by people who are working out at the gym. Although technology has been embraced in many areas of society, there are still some areas that resist it. "While society in general has embraced 21<sup>st</sup> century technology innovations for daily living, a gap remains in the understanding of appropriate uses for technology in the learning environment (Banister & Ross, 2006)" (Oliver, Osa & Walker, 2012). Unfortunately instructional technologies have not been utilized to their full potential. The focus of this essay is to show that instructional technologies should be integrated into the classroom because when they are used appropriately, they can have a positive impact on student achievement. Throughout this essay the ideas of leading advocates of integrating technology into the classroom: Billings & Mathison, 2011; Moyer-Packenham & Suh, 2012; Madden, Lenhart, Duggan, Cortesi & Gasser, 2013; Bauerlein, 2008 will be discussed in support of integrating technology in the classroom. The ideas of leading critics of integrating technology into the classroom: Richtel, 2010; Almekhlafi & Almeqdadi, 2010 will be discussed in an attempt to refute the claims that integrating technology into the classroom will positively impact student achievement.

In the past several years, a new topic has emerged in the debate among educators regarding whether or not integrating various forms of instructional technologies into the classroom will actually aid in the learning process and increase student achievement. Some educators that believe that it is worth the time and the effort to integrate instructional technologies into the classroom because when used correctly they will have a positive impact on student learning as well as increase student achievement (Billings & Mathison, 2011; Moyer-Packenham & Suh, 2012; Madden, Lenhart, Duggan, Cortesi & Gasser, 2013; Bauerlein, 2008). “...not only does the use of instructional technologies help to improve student achievement while facilitating communication and collaboration, but also helps to prepare students for the workforce of the 21<sup>st</sup> century (partnership for 21<sup>st</sup> Century Skills, 2009)” (Oliver, Osa & Walker, 2012). Advocates of technology integration also believe that using technology in the classroom will create a more positive and more exciting learning environment (Billing & Mathison, 2011; Moyer-Packenham & Suh, 2012). By integrating technology into classroom activities, the students will be having more fun while they are learning, they will be more engaged in the lessons and activities and they will be much more motivated to learn the material.

On the other hand, some educators believe that integrating the use of technologies into their classrooms will cause more of a distraction to the students than it will increase student achievement. “Students have always faced distractions and time-wasters. But computers and cellphones, and the constant stream of stimuli they offer, pose a profound new challenge to focusing and learning” (Matt Richtel, 2010). These devices provide the students with so many ways of becoming distracted that they are unable to resist using them in ways that are inappropriate during class time. Critics also believe that not only are the technologies

distracting students, they also disrupt the lessons flow. Technological devices take time to be turned on, warmed up and set to the correct application that is needed for a specific lesson or activity. Another problem that critics have with implementing instructional technologies into the classroom is that they are very unreliable. Many times there are technical issues that cause the devices to either work very slowly or often times not even work at all. Some educators believe that these issues make it not worth the time and effort to try and implement these devices into their teaching practices (Richtel, 2010; Almekhlafi & Almeqdadi, 2010).

### **Advocates of Integrating Technology into the Classroom:**

The main argument that advocates of the implementation of instructional technologies into the classroom is that when they are used in appropriate and effective ways, they have the ability to increase student achievement. Billings and Mathison (2011) discuss two ways that instructional technologies aide in raising student achievement is that they do a very good job of engaging the students in the material, and they get students excited to participate in educational activities. For this study, Billings & Mathison (2011) had a group of fourth grade students participate in a camp in which they would go to a local museum and participate in a variety of activities that were connected to the California state standards. The students first took a pre-test about the information that they would learn, and then they were split into two groups. Group one got to watch podcasts on their own iPod before and after the activities each day, which highlighted the important information. The students that were in group one were allowed to watch the podcasts as many times as they wanted to so that they completely understood the material. The students in group two watched the same videos one time before they participated in the day's activities and one time after they completed the day's activities.

These students also had to watch the videos on a DVD with the rest of the group rather than by themselves on their own iPod.

Throughout the study, Billings and Mathison (2011) noticed that the students in the first group seemed to be much more excited to participate in the activities than the students in the second group. One of the museum educators stated that "...students receiving the podcast intervention demonstrated high levels of knowledge retention and increased excitement about learning the material" (Billings & Mathison, 2011). After completing all of the activities the students took a post-test over the information that they learned. Billings and Mathison (2011) found that the students in group one achieved much larger learning gains than the students in group two achieved. This study shows that Billings and Mathison (2011) were able to effectively integrate the use of iPods into their activities and that the iPods increased student achievement and student engagement.

Another reason why some educators are advocating for the integration of instructional technologies into the classroom is because they can be tailored to reach every student's learning needs regardless of their achievement level. Moyer-Packenham and Suh (2012) demonstrated how teachers can implement the use of a piece of technology into a single lesson, an activity or an entire unit that will allow all of their students to have success no matter what their achievement level is. Moyer-Packenham and Suh (2012) wanted to see if integrating virtual manipulatives into mathematics lessons would have an influence on different achievement groups. Moyer-Packenham and Suh (2012) split the 58 fifth grade students into four groups. There was one low achievement group, two average achievement groups and one high achievement group. The low achievement group, one of the average achievement groups

and the high achievement group were allowed to use the virtual manipulatives during the math lessons while the second average achievement group was not. All of the students were taught the same material by the same teacher but they were separate from the other three groups.

After the unit the students were tested on their understanding of the information that they had just been taught. The results of the test showed that the students in the low achievement group had the largest learning gains among all of the groups, the average achievement group that used the virtual manipulatives had the second highest learning gains, the high achievement group made the third largest learning gains and the average achievement group that used the physical manipulatives made the least amount of learning gains from the pre-test to the post-test. These results indicate that the integration of virtual manipulatives helped the students better learn the material because all three of the groups that were used the virtual manipulatives performed better on the assessment than the group that used the physical manipulatives. The virtual manipulatives provided the students in the average and low achievement groups with feedback and the extra support that they need to learn the material and how to solve the equations. The virtual manipulatives provided the high achievement groups with several examples so that they could quickly find patterns that would help them figure out how to solve the equations. Although each achievement group used the virtual manipulatives in different ways and for various means of support, the virtual manipulatives were able to adapt to each students individual needs so that they could get the most out of the lessons.

Some educators are also advocating for the integration of instructional technologies into the classroom because more students today are growing up in homes that have some form of

technology. In the United States 93 percent of children between the ages of 12 and 17 have a computer at their home and 23 percent of students today that are between 12 years old and 17 years old have a tablet computer (Madden, Lenhart, Duggan, Cortesi & Gasser, 2013, 1). This means is that if you have 30 students in your class, 21 of them have a computer at home and 18 of them have a tablet computer. These are two reasons that some educators believe that if we truly want to connect the students to the material and get them excited about learning, we have to implement technology into our classrooms.

*In The Dumbest Generation: How the digital age stupefies young Americans and jeopardizes our future (or, don't trust anyone under 30)*, Bauerlein recalled a time when he was teaching in which he gave his students a homework assignment in which they needed to memorize a poem of their choice so that they could recite it to the class. One of the students in the class questioned Bauerlein on why they needed to do an assignment like that. Looking back on that interaction, Bauerlein (2010) realized that the student was not trying to be rude. She just didn't understand why it was necessary for her to do that kind of assignment. This shows us that students today value very different things than students did before technology was so prevalent. From my own experience because more students today are constantly playing and working with pieces of technology, if it is not integrated into the classroom they tend to be less engaged in the material. If students are not fully engaged in the material, they will not achieve to their highest ability and as a result they will not get the most out of their education.

### **Critics of Integrating Technology into the Classroom:**

Although there are many educators who believe that it is essential for instructional technologies to be integrated into the classroom, there are many educators who believe the

exact opposite. These educators believe that integrating technology into the classroom will cause more harm than good. One main argument that critics of educational technologies state is that rather than aiding the students in learning the material, they create a major distraction for the students. In 2010 Matt Richtel wrote a piece called “Growing Up Digital, Wired for Distraction” in which he discusses how technology has jeopardized the future of a high school student in California.

Richtel (2010) begins the paper by describing how the student only had to read one book over the course of the entire summer, but because the students ended up spending huge amounts of time on Facebook, YouTube and creating digital videos, he only read 43 pages in two months. Although this student is entering his senior year of high school and is hoping that his grades will improve, he was unable to complete his one summer homework assignment because he was constantly distracted by technology. “Researchers say the lure of these technologies, while it affects adults too, is particularly powerful for young people. The risk, they say, is that developing brains can become more easily habituated than adult brains to constantly switching tasks — and less able to sustain attention” (Richtel, 2010). This implies that children are easily distracted and even if they know what they are doing is wrong, they are unable to resist the temptation.

Richtel (2010) then goes on to discuss how this student began working harder on his school work and began getting the grade that he needed so that he could get into his college of choice, but this only lasted a short while. Richtel (2010) explains that he began focusing more on a video that he was creating and less on his schoolwork. Even though this student knew how important it was for him to stay focused on his school work, he was unable to resist the lure of



technology. It is the belief of many educators that if teachers allow their students to work with technology during class, they will not succeed in accomplishing the task that the teachers have given them because they will end up spending more time on websites that will be distracting to them and that will not help them complete their assignment.

Another reason critics say that they are against the integration of instructional technologies into the classroom is because they disrupt the flow of the class. Almekhlafi & Almeqdadi (2010) did a study called "Teachers' Perceptions of Technology Integration in the United Arab Emirates School Classroom." In this study, Almekhlafi and Almeqdadi surveyed 100 United Arab Emirates teachers in order to gain an insight about teachers' perceptions of implementing technology into the classroom. After surveying these teachers they found that the most common response to teachers felt was the biggest challenge of using technology in the classroom was that too often the technology does not work.

Often times, teachers create and prepare lessons and activities that implement the use of technology, but when it comes time to do the activity, the piece of technology that is needed does not work correctly if at all. The teacher then has to either fix the issue or completely change the activity so that technology is not needed. This disrupts the natural flow of the class and creates additional problems for the teacher as well. While the teacher is trying to fix the problem or come up with a new activity, some students might start doing things that they shouldn't be doing which could distract the other students in the class and cause a major disruption which would make it difficult for the teacher to get under control. If technology was not being used, the teacher would not have this problem because they would not have to try

and fix a technical issue or spend class time coming up with an alternative activity that they could have the students do instead of the activity that requires technology.

**Discussion:**

Trying to integrate technology into the classroom can be very challenging and very frustrating. While student teaching, my class would have certain days and specific times in which we were allowed to use the computer lab. When it was our time to use the computer lab we would have the students play either math games or reading games so that they could practice those skills. The reason why this could be so frustrating is because almost every time we would use the computer lab, several students would have trouble logging onto their account. This frustrated the students because they wanted to start playing their game. It also frustrated me and my mentor teacher because we would have to try and figure out why it wasn't working. If we couldn't figure it out we would have the student try using another computer. Although the reading and math games engaged the students and got them excited to practice their skills, they were very frustrating because they commonly did not work correctly.

Another reason why technology can be challenging to work with is because I have not been formally trained on how to use some of the instructional technologies. Before my student teaching I had never been taught how to use a document camera and I had only used one a handful of times. When I began student teaching I had to work with one a few times so that I understood how to effectively and efficiently use one while I was teaching. This was challenging for me because I wanted to look professional, but it was hard to feel like a professional when some of my fourth grade students knew how to use a document camera better than I did.

Although there are some challenging and frustrating things that go along with implementing technology into the classroom, the benefits of integrating them greatly outweigh the negatives. One of the major benefits of integrating technology into the classroom is that when they are used appropriately they make learning so much more fun for the students. If the students are having fun while they are learning, it is more likely that they will be fully engaged in the lesson, which will help them better understand the material that they are learning. Also when the lessons and activities are fun for the students they will be more excited and willing to participate. When all of this takes place it is likely that the student's achievement will rise.

In order for the use of technology to be effective, the teacher needs to know how to correctly use them, and how to teach their students how to use them correctly. "Within a sound educational setting, technology can enable students to become:

- Capable information technology users
- Information seekers, analyzers, and evaluators
- Problem solvers and decision makers
- Creative and effective users of productivity tools
- Communicators, collaborators, publishers, and producers
- Informed, responsible, and contributing citizens (International Society for Technology in Education, 2000)" (Oliver, Osa & Walker, 2012).

In order for this to occur, students need to understand how to appropriately use the technologies. It is the teacher's job to teach their students how to use the pieces of technology correctly so that they know exactly what they are supposed to do when they are allowed to use them. Richtel (2010) believes that when technology is used in the classroom, they will create more of a distraction for the students than they will aide in the student's learning because the students will be tempted to go onto websites like Facebook and YouTube, that will be distracting to them and that will not help them complete their work. Although these websites

do have the potential of being distracting to the students, most schools block these sites so that the students are unable to access and become distracted by them. By doing this, schools are doing what they can to keep the students focused on learning while they are at school.

**Conclusion:**

This essay shows that even though technology has been widely accepted in many aspects of people's lives, there is still a debate of whether or not it should integrate it into the classroom. It is their belief of some that having technology in the classroom will cause the students to become distracted and that the pieces of technology will cause the student's achievement to decrease. In my teaching experience I have found this to be completely wrong. Whenever technology was used to enhance a lesson, the students were much more engaged in the activities and they seemed excited to participate. Because the students were fully engaging with the material, they were absorbing more information and as a result, they performed much better on the assessments. I do agree that when clear expectations were not put in place for how the students were supposed to use the technologies, they would try to do things that were not related to the assignment, but when the students knew exactly what they were supposed to do they tended to stay on task and focus on their work. Based on my experience with using technology in the classroom, I have found that they can positively impact student achievement as long as they are used appropriately.

## References

- Almekhlafi, A.G., & Almeqdadi, F.A., (2010). Teachers' perception of technology integration in the United Arab Emirates school classroom. *Journal of Education Technology & Society*, 13(1), 165-175.
- Bauerlein, M. (2008). *The Dumbest Generation: How the digital age stupefies young Americans and jeopardizes our future (or, don't trust anyone under 30)*. New York, NY: Jeremy P. Tarcher/Penguin.
- Billings, E., & Mathison, C., (2011). I get to use an iPod in school? Using technology-based advance organizers to support the academic success of English Learners. *Journal of Science Education Technology*, (21), 494-503.
- Madden, M., Lenhart, A., Duggan, M., Cortesi, S., & Gasser, U., (2013, March 13). *Teens and Technology 2013*. Retrieved from [http://www.pewinternet.org/files/old-media/Files/Reports/2013/PIP\\_TeensandTechnology2013.pdf](http://www.pewinternet.org/files/old-media/Files/Reports/2013/PIP_TeensandTechnology2013.pdf)
- Moyer-Packenham, P.S., & Suh, J.M., (2012). Learning mathematics with technology: The influence of virtual manipulatives on different achievement groups. *Journal of Computers in Mathematics and Science Teaching*, 31(1), 39-59.
- Oliver, A., Osa, J.O., & Walker, T.M., (2012). Using instructional technologies to enhance teaching and learning for the 21<sup>st</sup> century preK-12 students. *International Journal of Instructional Media*, 39(4), 283-295.
- Richtel, M., (2010, November 21). *Growing Up Digital, Wired for Distraction*. Retrieved from <http://nytimes.com>